

Noise Pollution and Its Impact on the Environment

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ABSTRACT

The fact that we live in advanced and industrialized societies, or in progress and industrialization, although these advances have led to the well-being of human beings, but they have also caused a series of problems, such as water, air and soil pollution. We can also say that the pollution of air, soil and water has a direct or indirect adverse effect on humans or other creatures, which means that if the air, soil or water is polluted, it will cause various diseases, but if the air, If the water and soil are smooth and in their natural state, the damage that is caused by the effect of so much pollution on the creatures will never be faced. Here we are discussing a part of air pollution which is noise pollution, noise pollution which was noticed by governments in the past, but with the development of industry and the creation of efficient means of social life, this issue has attracted a lot of attention from governments. and the governments have tried nationally and internationally to limit this phenomenon. In this research, we were reminded about pollution, air pollution and noise pollution, noise pollution, problems and diseases that arise from noise pollution, and the purpose of this research is to provide better conditions for life and evaluate noise pollution, as well as the national rules and The international convention that was created by governments or international organizations to prevent noise pollution, noise pollution that has direct and indirect effects on the environment and human health should be taken into consideration [1-3]. As a result, noise pollution is considered a serious problem for humanity and other species of this land, even though governments and international organizations have worked to regulate this phenomenon to some extent, they have created rules and principles, but until If these principles and rules are not implemented seriously, creating rules will be a waste of time (Figure 1).

Keywords: Environment; Pollution; Noise Pollution

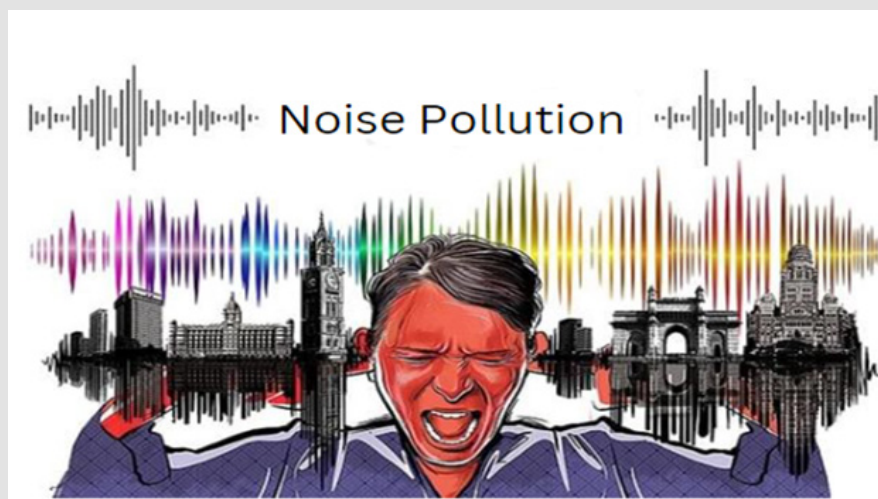


Figure 1.

Introduction

Sound is the long waves that come from the rapid vibration of objects and materials, including solid, Liquid and gas are produced. Noise pollution is the broadcasting of any sound, sound and related vibration, more than the permissible limit in the open (non-covered) space [4]. The permissible limit of noise pollution, which is also called the standard of noise pollution, is the amount and special specifications that are determined according to the principles of

environmental protection and based on the sound measurement unit for sources of noise pollution and the space to be emitted and different environments (Figure 2). The unit of sound measurement is decibel. The agent of noise pollution, which is also called the agent of pollution for short, is any natural person who manages or manages fixed sources and directs mobile sources of noise pollution, either for himself or on behalf of another person or natural persons, or Personally, it causes pollution in different ways.



Figure 2.

Research Purposes

- a) Noise and environmental pollution.
- b) Providing better conditions for people's lives.
- c) Harms of noise pollution on humans.
- d) Recovery of problems and diseases caused by pollution.
- e) Direct and indirect effects of noise pollution.
- f) Assessment of noise pollution.

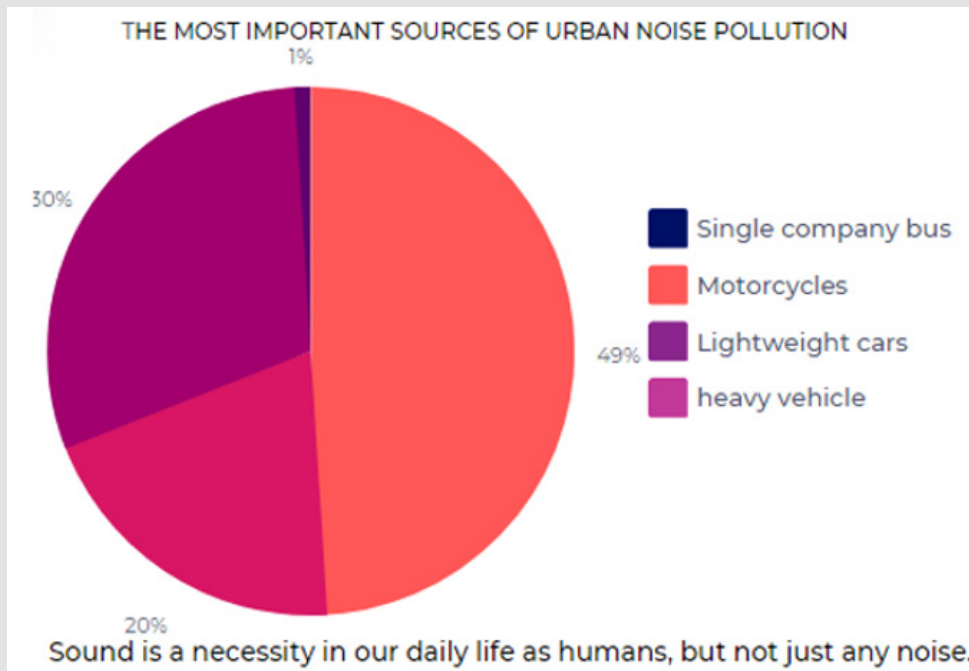


Figure 3.

Importance of Research

Noise pollution in cities, especially in shopping centers, which reaches its highest level, has become one of the biggest challenges for citizens. Migrations, population growth, the low level of people's awareness about the culture of urbanism, the wrong culture of music with disturbing and disturbing sounds in wedding circles, the lack of management to regulate the urban traffic system, the noise and crowding of vendors on the roads. General [5]. that all these problems go hand in hand and cause health problems for the citizens, according to the citizens, Kabul is one of the noisy cities in the country, where activities such as metalworking, carpentry, the presence of old vehicles and Noisy, and on the other hand, the lack of use of vehicles, especially Harand, can be seen clearly (Figure 3). Likewise, the existence of hundreds of thousands of generators produce heartbreaking sounds, which greatly increases the noise pollution in the city.

Research Questions

- What are noise and environmental pollution?
- What are the challenges of noise pollution?
- What are the ways and methods of preventing pollution?
- What are the pollution factors?
- What is the difference between voice and voice?

Research Methods

The opinion of this article and the need for scientific information, the research method in this article is a library, and in addition to that, reliable internet sites have been referred to in order to obtain new materials in order to enrich this article as much as possible [6].

Background

With the excessive growth of the population, along with the development of industry and technology, noise pollution has become one of the problems in big cities, and this factor, like other environmental pollution, has many negative effects on humans, animals, and plants. Today, the life of a machine has caused humans to endure discomfort in an environment full of stress with sound sources [7]. In the environment, there are various factors, both man-made and natural, that produce sound balances that range from the lowest hearing to zero decibels. up to 130 decibels, which leads to hearing loss.

Noise Pollution and Environment

Noise pollution is the abnormal and uncomfortable sounds of humans, animals and machines that destroys the nervous activities of humans and the loud noise level mostly leads to the destruction of the auditory system and nerve cells and causes nasal disorders especially in children and adults. it creates. One of the problems of urban management in environmental protection is noise pollution. Although noise has adverse physical, mental and social effects and there is a consensus regarding its prevention and control, it is inevitably produced and disseminated in the environment and work environment, so that even in industrialized developed countries it is still. One of the major problems of urban environmental management is the issue of noise pollution. In addition to the risks listed for dealing with noise, the presence of noise pollution in the environment is the reason for energy waste by various urban and industrial sources, and from the point of view of energy consumption optimization, this issue should be considered (Figure 4). Sources of noise production are divided into the following sections based on the classification of the World Health Organization:



Figure 4.

Industry

The main cause of sound in a wide area of the machine industry, including: pressure relief valves, valves and...

Road Traffic

The most important factor is the vehicles that result from the engine or friction between the vehicle, the road and the air. Noise pollution from road traffic depends on the amount of traffic, the speed of cars, the percentage of heavy vehicles and motorcycles.

Rail Traffic

Trains produce noise with a bass frequency, the characteristic content of which depends on the type of engine, wagons and rails.

Air Traffic

Air operations create many problems regarding noise pollution and its communication and social effects.

Sound Barrier

A shock wave system is generated during the flight of an aircraft at a speed greater than the speed of sound. Construction and general works: Building a house or working on the ground creates considerable noise. Various construction equipment of high noise materials are: mixers, welding machines, cranes, earthmoving equipment, etc.

Internal Resources

Sound transmission from room to room through ventilation ducts, waste disposal units and furnaces.

Various Sources

Recreational and sports places, devices including lawn mowers, etc., alarm sounds, noise of military environments, especially shooting ranges, educational centers, laboratories, workshops, and tourism centers, noise pollution in residential areas due to electrical devices. , Electric In big cities (metropolises), the most important factors causing noise pollution is the urban transportation system. Among these factors, we can mention the use of vehicles such as cars, motorcycles, and with the increase in the number of cars, this problem increases. On the other hand, noise pollution in the city has a direct relationship with urban use, in such a way that some uses cannot be located in the urban area due to excessive noise pollution, such as: airports, heavy industries, etc. The effect of noise pollution and its amount will be greater. Pollution can be defined as follows: Undesirable changes in the chemical, physical and biological properties of air, water or land that endanger the health, survival and activities of humans or other living beings can be called pollution.

The environmental law of Afghanistan has defined pollution in its fourth article as follows: pollution: direct or indirect change in the physical, thermal, chemical or biological properties of the

environment, which has an effect on the proper use of harmful substances and causes a dangerous situation For the health, safety and well-being of the public or the environment, or lead to the violation of conditions, limits or restrictions, the permission of which is subject to the provisions of this law. Now, there is a definition of air pollution, which is an unpleasant situation that disrupts the daily life and destroys the social, biological and ecosystem systems.

So it can be said that broadcasting or creating any undesirable and harmful sound, the source of which is human activity, is called noise pollution. There are two types of noise pollution: 1- Social noise pollution 2- Professional pollution.

There are two types of units for sound size, which are (CPS) which means cycle/second and DB which means decibels. The frequency of human hearing is from 20 to 20,000 cycles per second, which is equivalent to 20 to 120 decibels or (DB). The normal conversation of people is 30 to 60 (DB), while the sound intensity of a jet plane landing on the ground is 180 dB, the sound intensity is higher than 180 dB, as well as the presence of sounds of 50 to 60 dB is enough to disturb sleep and A person who sleeps at this level of sound will feel tired after waking up. The sound of home appliances, loud music, ground and air traffic, use of machinery and long-term activities. that noise pollution affects the existence of human beings in recent years, noise pollution is not only a nuisance but also a serious health hazard. It specifies that when the sound reaches 70-80 dB, it is called noise pollution. Problems and diseases caused by noise pollution include heart problems, communication interruptions, distress, headaches, deafness and hearing loss, increase in accidents, increase in blood pressure, nervousness, carelessness, lack of memory, anxiety and disorders in sleep.

Prevent Noise Pollution

The fact that humans use a lot of industries such as mass communication and transportation creates harmful noise for humans, and even if we look at this pollution from a non-human perspective and the need to deal with it, noise pollution has harmful effects on animals and plants in addition to humans. With this description, with the increase of this pollution and the spread of its psychological and physical destructive effects, those governments sought to standardize it through the implementation of the system and standards.

Now we will discuss the rules for preventing noise pollution that are provided in national and international laws:

- 1) Rules to prevent noise pollution in national laws:

The intention to control and reduce noise pollution as a public nuisance dates back to the ancient Roman era, when citizens were fed up with the sound of iron wheels and chariots rubbing against the pavements, this situation made them pass laws to control this pollution. to establish. In the Middle Ages, in some European cities,

traffic was prohibited at night for the peaceful sleep of the inhabitants, and then in 1934, in order to protect its citizens from noise pollution, Switzerland prohibited the traffic of heavy vehicles and traffic on a Saturday. They gave. The United States of America passed the Act in 1972 to control noise and to have a noise-free environment for the well-being of all Americans. Also, in 1977, he calls the government to determine the appropriate standards of social noise pollution levels and noise pollution standards caused by machinery such as construction equipment, transportation and electronic equipment. Article 8 and 27 of Afghanistan's environmental law, no person has the right to do an act that causes environmental pollution (No person has the right to cause a lot of environmental pollution. If according to the provisions of this law, a certain amount of pollution is allowed. If it is unavoidable at all, then it is obligatory to reduce it as much as possible. The limits of high pollution are determined in separate bills. And in the twenty-seventh article of the Afghanistan Environmental Law, it is stated as follows: (No one has the right to be polluted.)

Discharges the substance into the environment or pollutes the environment or allows the environment (land, water and air) to be polluted to such an extent that its adverse effects on the environment or human health are serious, unless the waste control permit is issued. have in his hands according to the provisions of Article 30 of this law and act accordingly.) Also, the thirteenth article of this law prohibits the implementation of projects and plans that have adverse effects on the environment: (It is not permissible to carry out activities or adapt projects and plans that have adverse effects on the environment unless the provision of the article 18th of this law has been observed.)

Factors of Noise Pollution

- a) Fabrics
- b) Construction works
- c) Noises caused by the ventilation system of houses
- d) Sound caused by transportation (planes, rails, cinemas, high-pressure horns of cars, etc.)
- e) Loudspeakers of hotels and restaurants
- f) (The noise inside the houses, such as the sound of the TV, vacuum cleaner, etc., which are important.)
- g) Harms of noise pollution on humans

Direct Effects of Noise Pollution

- a) Loss of hearing

Indirect Effects of Noise Pollution

- a) Nervous sensitivity
- b) Muscle cramps
- c) blood pressure
- d) Mental and physical fatigue
- e) Loss of body balance

- f) Tendency to commit suicide and murder
- g) Weak eyesight
- h) Heart diseases
- i) Stomach swelling and indigestion
- j) Pallor in people
- k) High effect on the fetus

How to Prevent Severe Noise Pollution

- a) The amount of noise in environments where workers are constantly exposed to brain activity should not exceed 10 dB.
- b) Try to prevent the entry of machines that produce more than a certain amount of noise pollution.
- c) The sound of factory machines should not reach outside the factories.
- d) Try to prevent the creation of residential units in the vicinity of airports.
- e) Sound proofing of buildings and residential units.
- f) Doubling or double layering of window glass in order to prevent the penetration of outside noise into the building.
- g) Limiting and prohibiting the passage of heavy tonnage cars and loud vehicles.
- h) Creating camber from trees and vegetation that reduces sound intensity by 10 decibels.

Existing Challenges of Noise Pollution

- a) The existence of thousands of generators in cities
- b) Restaurants
- c) Wedding salons
- d) Noise of motorized vehicles
- e) Sound caused by explosions
- f) Flying airplanes at low altitudes
- g) Installation of non-standard harnesses in vehicles
- h) Mobile ice cream sellers

How To Prevent Severe Noise Pollution

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- c) The sound of factory machines should not reach outside the factories.
- d) Try to prevent the creation of residential units in the vicinity of airports.
- e) Sound proofing of buildings and residential units.
- f) Doubling or double layering of window glass in order to prevent the penetration of outside noise into the building.

- g) Restricting and prohibiting the passage of noisy vehicles.
- h) Creating a camber of trees and vegetation that reduces sound intensity by 10 decibels.

What is the Difference Between Voice and Voice?

Sound is a type of energy that is created by the stimulation of particles of matter, in such a way that sound is emitted when the particles collide with each other. In simpler terms, sound is a vibration that is usually transmitted by the producer and received by the receiver. Ghalmaghal literally means noise pollution, but in science and engineering, it is an unwanted signal that has a destructive effect on other signals. • You should know that the range of human hearing is between 20 and 30 thousand hertz.

- a) In addition to the hertz unit, the decibel unit is also used to measure sound intensity.

Conclusion and Recommendation

Sound pollution means unwanted waves that affect the activity of living beings, especially humans, in special spatial and temporal conditions, and can cause numerous physical and mental complications, especially auditory nerve disorders. Although people get used to noise, in fact, noise pollution is a tiring factor and reduces human capacity in intellectual and physical jobs. Noise pollution affects a person's mental state and morale and causes a disturbance in the adaptation of a person to the work environment, which results in a decrease in work efficiency. If the duration of exposure to noise pollution increases, it can cause hearing loss and also increase the risk of cardiovascular diseases. Among the effective ways to reduce the effects of noise pollution are isolating the source of sound, reducing exposure to noise, insulating buildings in order to prevent noise from penetrating inside, and at the last stage, using suitable personal protective equipment such as earplugs and earmuffs. It can be pointed out. Considering that sounds are usually received from a broadcasting producer by a receiver, therefore, in order to control this pollution, it can be effective to reduce the sound intensity, prevent air diffusion and penetration, and protect the receiver. Considering the adverse effects and consequences of noise pollution in natural, social and especially human environments, the need to control it is seriously raised. Therefore, in order to deal with this problem, there are different methods, some of which are mentioned below:

- a) Reduction or elimination of noise from the production source, for this purpose technical and practical equipment and facilities should be used.
- b) Preventing the transmission of noise from the production source, for this purpose, a series must be created between the source of the noise generator and its receiver, or the source of the noise generator must be moved to a suitable place.
- c) Sound proofing of buildings and residential units

- d) Doubling or double layering of window glass in order to prevent outside noise from entering the building
- e) Creating wide strips of trees and vegetation that reduces sound intensity by 10 decibels

Whether we live in advanced and industrialized societies or in developing and industrialized societies, although these advances have not only improved the well-being of human beings, they have also created a series of problems that have reminded us of air and soil pollution. We can also say that air, soil and water pollution has a direct or indirect adverse effect on humans or other organisms, which means that if the air, soil or water is polluted, it will cause diseases, but if the air, water And if the soil is clean and in its natural state, the damage caused to the creatures by the pollution will not be encountered at all. We are discussing here a part of air pollution which is noise pollution, noise pollution which has been significant for governments in the past, but with the development of industry and the emergence of means of social efficiency, this issue has attracted a lot of attention from governments and Governments have worked nationally and internationally to limit this phenomenon. In this study, we will define pollution, air pollution, and noise pollution, as well as the unit for measuring noise pollution, examples of noise pollution, and the problems and diseases that result from noise pollution, as well as national and international rules for The prevention of noise pollution by governments or international organizations in Bojo has been observed. Of course, this research has been done using books and reputable websites in a library method. As a result of noise pollution, the effects of which are directly and indirectly on the environment and human health should be considered.

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