

A Review on Effects of Air Pollution

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ABSTRACT

In the world pollution problem increased day by day. World Health Organization estimates that every year about 2.4 million people die from causes associated with air pollution. Pollution occurs only when pollutants contaminate the natural surroundings which changes that affect our normal lifestyles. Pollutants are components or key elements of pollution which different form of waste materials. Pollution not only disturbs our ecosystem but also the balance in the environment. Pollution occurs in different forms like air, water, soil, radioactive, noise, thermal and light. Form of pollution has two sources i.e. point and the non point sources. The point sources are easy to identify, monitor and control whereas the non-point sources are hard to control. air pollution from indoors and outdoors are a major environmental health problem affecting everyone in developed and developing countries. Air pollution nothing but the presence of pollutants, such as sulphur dioxide (SO₂), particle substances (PM), nitrogen oxides (NOX) and ozone (O₃) in the air that we inhale at levels which can create some negative effects on the environment and human health.

Key words: Air pollution, Effects, Health impact, Prevention

Date of Submission: 28-02-2019

Date of acceptance: 25-03-2019

I. INTRODUCTION

Pollution occurs only when pollutants contaminate the natural surroundings which changes that affect our normal lifestyles. Pollutants are components or key elements of pollution which different form of waste materials. Pollution not only disturbs our ecosystem but also the balance in the environment. Pollution occurs in different forms like air, water, soil, radioactive, noise, thermal and light. Form of pollution has two sources i.e. point and the non point sources. The point sources are easy to identify, monitor and control, whereas the non-point sources are hard to control. The World Health Organization observed that PM_{2.5} contributes to 800,000 premature deaths per year. The largest sources of PM in Puget Sound are vehicle emissions and wood smoke.

Exposure to PM_{2.5} for just a few hours or weeks can cause cardiovascular effects including heart failure, heart attack, stroke, arrhythmia, thrombosis, and death. Exposure to PM appears to speed the development and progression of atherosclerosis, hypertension, heart failure and diabetes. Other health effects are lung diseases including asthma, chronic bronchitis, reduced lung function, and lung cancer. In children, air pollution is linked to asthma and bronchitis, increases in school absences. Children living near diesel trucking

routes are more likely to have decreased lung function, bronchitis and allergies. (1)

World Health Organization estimates that every year, 2.4 million people die from causes associated with air pollution. It is increasingly recognized that implementation of strategies to reduce pollution can have substantial health benefits. (2)

Air pollution defined as the presence of pollutants, such as sulphur dioxide (SO₂), particle substances (PM), nitrogen oxides (NOX) and ozone (O₃) in the air that we inhale at levels which can create some negative effects on the environment and human health. Air pollutants have sources that are both natural and human-based. Though some pollution comes from natural sources, most pollution is the result of human activity. Air pollution is a problem of growing importance. This pollution damages the natural processes in the atmosphere, and affects public health negatively.

Pollutants such as steam, dust, soot, fog are introduced into air naturally and as a result of human activities. The atmosphere can neutralize toxic solid, liquid and gaseous substances by melting them and due to the production of excessive amounts of such substances and depending on the meteorological and topographic conditions, the atmosphere is in a continuous process of pollution. There are several main types of pollution that main pollutants in the urban atmosphere are the particle substances (PM),

sulphur dioxide (SO₂), nitrogen oxides (NO_x), volatile organic compounds (VOCs), and secondarily ozone (O₃) that is created as a result of photochemical reactions. (3)

Increased combustion of fossil fuels in the last century is responsible for the progressive change in the atmospheric composition. Air pollutants, such as carbon monoxide (CO), sulfur dioxide (SO₂), nitrogen oxides (NO_x), volatile organic compounds (VOCs), ozone (O₃), heavy metals, and respirable particulate matter (PM_{2.5} and PM₁₀), differ in their chemical composition, reaction properties, emission, time of disintegration and ability to diffuse in long or short distances. (4)

The econometric model is also widely used to estimate the health effects of environmental pollution. econometric estimation examines causal relationships but does not need to be based on a mechanism of influence, such as the exposure-response relationship. For example, recent studies have used the Huai River Policy in China to examine the health consequences of sustained exposure to air pollution. (5)

Air pollution occurs when gases, dust particles, fumes (or smoke) or odour are introduced into the atmosphere in a way that makes it harmful to humans, animals and plant. Air pollution threatens the health of humans and other living beings in our planet. It creates smog and acid rain, causes cancer and respiratory diseases, reduces the ozone layer and contributes to global warming. (6)

Air pollution is a major concern of new civilized world, which has a serious toxicological impact on human health and the environment. It has a number of different emission sources, but motor vehicles and industrial processes contribute the major part of air pollution. According to the World Health Organization, six major air pollutants include particle pollution, ground-level ozone, carbon monoxide, sulfur oxides, nitrogen oxides, and lead. Long and short term exposure to air suspended toxicants has a different toxicological impact on human including respiratory and cardiovascular diseases, neuropsychiatric complications, the eyes irritation, skin diseases, and long-term chronic diseases such as cancer. (7)

More recent Healthy City guidelines from the WHO support this view, defining a healthy city as one that continually creates and improves its physical and social environments and expands the community resources that enable people to mutually support each other in performing all the functions of life and developing to their maximum potential. (8)

Air pollution and global warming problems are caused primarily by exhaust from solid, liquid, and gas combustion during energy production and

use, such problems can be addressed only with large-scale changes to the energy sector. Such changes are also needed to secure an undisturbed energy. (9)

II. SOURCES OF MAIN AIR POLLUTION INDICATORS

There are too many pollutants in the atmosphere for all of them to be monitored. Among them, some pollutants are monitored because they are characteristic of a particular pollution (released by industrial plants or motor vehicles) and because they are known or suspected to cause detrimental effects on the environment and/or health. These pollutants are called air pollution indicators. (10)

III. TYPES OF POLLUTION

1. Water pollution
2. Air Pollution
3. Soil pollution
4. Noise pollution
5. Radioactive pollution
6. Thermal pollution

1. **Water Pollution** : Water pollution occurs due to the industrial wastes dumped into the rivers and other water bodies cause an imbalance in the water leading to its severe contamination and death of aquatic species. spraying insecticides, pesticides like DDT on plants pollutes the ground water system and oil spills in the oceans have caused damage to the water bodies. Water pollution harmful to the aquatic.

2. **Air pollution** is suspended particles and gases contain carbon monoxide, volatile organic compounds . Suspended particles are called particulate matter (PM), which is a mixture of tiny particles and liquid droplets that includes acids, organic chemicals, metals, and dust. PM is measured by size: PM_{2.5} is 2.5 micrometers (µm) in diameter. For human hair is 70µm in diameter.

3. **Soil pollution** occurs due to unwanted chemicals in the soil due to human activities. Use of insecticides and pesticides absorbs the nitrogen compounds from the soil making it unfit for plants to derive nutrition from. Release of industrial waste, mining and deforestation also exploits the soil. so plants can't grow properly, they can't hold the soil and this leads to soil erosion.

4. **Noise pollution** occurs when noise which is an unpleasant sound affects our ears and leads to psychological problems hypertension, hearing impairment etc. It is also caused by machines in industries, loud music.

5. **Radioactive pollution** occurs due to nuclear plant malfunctions, improper nuclear waste disposal, accidents etc. It causes blindness, cancer, infertility defects at the time of birth.

6. **Thermal pollution** occurs due to the excess heat in the environment creating unwanted changes over

long time periods. It increases the earth's temperature, causing drastic climatic changes .

IV. REDUCE AIR POLLUTION

Following are the way to reduce Air Pollution

1. Recycle & buy recycled products
2. Walk, bike or use public transportation
3. Maintain your wood stove or fireplace
4. Consume less & choose sustainable products
5. Grow your own food
6. Plant trees
7. Minimize air pollution from cars
8. Use natural products
9. Do not smoke indoors

V. CONCLUSIONS

1. Development of alternative fuels and engine types that reduce emissions of air pollutants, as well as the use of public transport.
2. Important decisions need to be taken by governments to reduce air pollution and its hazardous effects on health and the environment.
3. New technology should apply on the long-term effects of low doses of air pollutants are needed.
4. For everyone living in a city has the right to know about the quality of the air that they breathe.

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