The Effects of Anthropogenic Contamination on Human Health

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ATMOSPHERIC SCIENCES

Introduction

In the last decades, the social, economic and urban growths have influenced an economy based on the industry promoting migration from the suburbs to urbanization. This is achieved by exploiting the sources of energy like coal or fossil fuels and eliminating the so-called poor areas, defined as alienation. Another contributor to urbanization is the worldwide demographic growth. World Population surpasses 7 Billion in 2011, while more than 62% of the worldwide population is already living in towns and cities. This is going to increase to 68% by 2030 and 70% in 2050, meaning that the cities increase its population by 20%. Also of 2010 there were more than one billion motor vehicles in use in the world excluding off-road vehicles and heavy construction equipment. Global vehicle ownership per capita in 2010 was 148 vehicles in operation per 1,000 people. The United States has the largest fleet of motor vehicles in the world, with 239.8 million by 2010. Vehicle ownership per capita in the U.S. is also the highest in the world with 759 vehicles in operation per 1000 people. In the United States the average passenger car emits 11,430 pounds (5,190 kg) of the greenhouse gas, carbon dioxide annually, along with many smaller amounts of carbon monoxide, hydrocarbons, and nitrogen. A study in The Lancet concluded that traffic exhaust is the single most serious preventable cause of heart attack in the general public, the cause of 7.4% of all deaths. See Figure 2.2

What are Particulates and Anthropogenic Contamination?

Particulates are small particles which are grouped by their source. The contamination of air can be defined as the presence of matter with enough concentration to cause diseases. This can result prejudicial for humans, plants, or animals. This produces discomfort and obstacles for people to live a high quality of life, including health. Sources of contamination that are anthropogenic refers to those made by human by means of combustion or automobile emissions. The word "anthropogenic" refers to the changes of a natural location by human actions. The total amounts of particles emitted by anthropogens are more than 120% in comparison with the rest of the particles that come from other sources. These particles concentrate in the industrial regions with a high population density. The effects of air contamination are influenced by the types and quantity of contaminants, the process of combustion and the chemical composition of the particles. Air pollution is estimated to lead to 22,000,000 deaths per year in the United States (from 2000) and 200,000 deaths per year in Europe. Air pollution cause measurable increases in non-accidental mortality. Particulates are dead cells from animals, components of allergens, and particulate dusts from the filter paper. Particulates are dead cells from animals, components of allergens, and particulate dusts from the filter paper.

Health Effects

The health effects caused by pollutants can range from subtle biochemical and physiological changes to difficulty breathing, wheezing, coughing and aggravation of existing respiratory and cardiac conditions. These changes may result in decreased lung function, increased hospital admissions, birth defects and even premature death. Some pollutants may also affect the rhythm and rate of the heart. If inflammation is caused by an allergic reaction, some cytokines released from other inflamed organs may influence the mechanical performance and metabolic efficiency of the heart and blood vessels. Many chemical substances may cause the formation of reactive oxygen, which in turn can cause mutations and changes in the body. When the environment is polluted with chemicals, these can cause air pollution. Some pollutants can increase blood vessel cells and increase adherence and the migration of inflammatory cells to the injured area. Inappropriate treatment and using a wrong or close to normal quality of life. In many cases however, there is no cure and those affected may die prematurely. The elderly and people suffering from chronic respiratory problems are at greater risk. Children and newborns are also sensitive to the health effects of air pollution since they take in more air than adults for their body weight and consequently, a higher level of pollutants. The following are the most prevalent diseases:

Heart disease - It is the leading cause of death in the United States, England, Canada and Wales, accounting for 24.6% of the total deaths.

Lung disease - Lung tissue can be injured directly by air pollutants such as ozone, metals and free radicals. Others may damage the walls, the individual lungs. Some ozone and nitrogen particles can cause airway irritation and bronchial constriction. Also, lung tissue has an abundant blood supply that can cause toxic substances and their metabolites to easily reach the blood.

Lung Cancer - Cigarette smoke contains various carcinogens and is responsible for most cases of this often fatal disease. The symptoms of lung cancer begins silently and then progress to chronic cough, wheezing and chest pain.

Malignant Lung Illnesses - the common cold, with symptoms including sore throat, stuffy or runny nose, coughing and sometimes irritation of the eyes.

Lung Infections - cough, bronchitis, and pneumonia are caused by viruses or bacteria and are very common. Symptoms may include cough, wheeze, chills and shortness of breath.

Asthma - it is a chronic disease among children and adults. It causes shortness of breathing, coughing or wheezing or choking in the chest. It can be triggered by sensitivity to non-allergic types of pollutants present in the air such as soot.

Chronic Obstructive Pulmonary Disease (COPD) - it is also known as chronic obstructive lung disease and encompasses two major diseases: emphysema, a chronic disorder in which the alveoli are damaged, and Chronic bronchitis, which is characterized by inflammation of the cells lining the inside of bronchi, which increases the risk of infection and obstructs airflow. Factors that contribute to this disease.

Heart-Rhythm Problems - are irregular or abnormal rhythms of the heartbeat. Some heart-rhythm problems are life-threatening and need emergency treatment.

Alzheimer - A progressive neurodegenerative disease of the brain that leads to the irreversible loss of neurons and dementia. On a functional level, there is degeneration of the cortical regions, especially the frontal and temporal lobes, of the brain. Alzheimer’s disease is the most common of all neurodegenerative diseases.

After analyzing the vast information covered in this research, it has been concluded that all nations need to adopt many solutions to air pollution. Since current air pollution control efforts are not highly effective, new ideas need to be proposed. Nowadays, wealthy countries are capable of adopting methods to decrease air pollution. In the United States, for example, air pollution control laws have been proven to be successful. These efforts have had a positive impact in reducing emissions. There are more than 3.5 million people in the United States affected by severe asthma, and the number continues to grow. Some people are at risk due to genetic conditions, but for many more, it's due to polluted air. Air filters for factories' chimneys have been proven to be successful. The Department of Energy has also sent the first American industrial pollution has been proven to be stopped by installing an air filter inside the house to prevent the contaminated air from entering the house. Population growth should start being regulated, that way, less energy will be exploited. Regulating the population growth can also improve the energy efficiency, reduce waste, and implement non-polluting renewable forms of energy production. Also, with decreasing the pollution caused by automobiles, beneficial results will be experienced. One way of decreasing automobile contamination is reducing ownership per family, exhorting people to increase the number of passengers in the same car or lines of transportation. Other proposed solutions include raising electricity and gasoline taxes to reflect environmental costs and to discourage waste and inefficiency, and mechanical controls on coal-fired utility plants. Decreasing air pollution with hopes of stopping it, will help future generations deal with these problems that keep getting worse.

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