

Impact of environmental pollution on human Health

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Abstract: In addition to social factors, human health largely depends on the ecological state of the environment, the degree of cleanliness of the environment, the level of cleanliness of the air, surface and underground water, soil, flora and fauna. It is, human health will be strong and stable. Only then will the human body develop to such an extent that it will be able to withstand sudden attacks from the outside and fight them. Pollution of the environment with various wastes affects the severity of the ecological situation in Uzbekistan.

Keywords: World Health Organization, air pollution, REE, ammonium nitrogen, nitrogen nitrate, sulfate.

In the current highly developed conditions of science and technology, the biosphere is becoming increasingly polluted. For humans, however, they have to live in unfavorable environmental conditions that have been formed and are being formed under the influence of various geo-ecological problems on a planetary, regional and local scale. As a result of varying degrees of pollution and impoverishment of air, water, soil, and food products consumed, various diseases are spreading among the population, the average life expectancy of people is decreasing, and mortality, especially the death of young infants, is increasing. In other words, humans are busy developing their productive forces without realizing that they are working tirelessly to increase their diseases, and they cannot perceive their ecological and socio-economic consequences.

As of October 1, 2022, 56.8 percent of deaths recorded in Uzbekistan were due to circulatory system diseases.

According to the State Statistics Committee, in the number of deaths recorded in the first 9 months of 2022, circulatory system diseases took the first place – 74,109 cases.

This indicator was reflected in the remaining diseases as follows:

- respiratory diseases – 12,805;
- tumors – 10,535;
- accidents, poisoning and injuries – 7,260;
- Digestive system diseases – 5,264; • infectious and parasitic diseases – 1,976;
- other diseases – 18,417 (Figure 1).

As can be seen from the above data, Uzbekistan does not have favorable environmental conditions for a normal human life, each natural region has its own environmental problems that cannot but affect the human body. Unfavorable environmental conditions lead to the increase in various diseases. Of course, people are trying to counteract them as much as possible and prevent diseases[2].

Nowadays, a number of specific environmental problems can hinder human health and well-being. These problems include chemical pollution, air pollution, climate change, pathogenic microbes, and poor water quality.

A study of the level of air, water, soil, and environmental pollution in general at industrial enterprises in the republic shows that at the end of 1990, 87.2% of enterprises of the national economy of Uzbekistan did not meet ecological and hygienic requirements and were sources of environmental pollution. To date, 35% of industrial enterprises are considered environmentally friendly, and 296 (29%) of production enterprises are considered environmentally very dangerous. The emissions from them lead to the accumulation of pollutants in the air in populated areas by 5% or more of the permissible norm. When registering enterprises polluting atmospheric air in 2019, the sanitary and epidemiological service revealed that 287 enterprises did not have a standard sanitary protection zone, and their technology was not improved, dust and gas purifiers were absent or were working inefficiently. As a result, atmospheric air pollution remains high in 18 cities of the republic.

In chemical pollution, different chemicals can affect human health in different ways, and exposure to hazardous or foreign substances often leads to health vulnerabilities.

According to the World Health Organization (WHO), more than 1.7 million deaths in 2019 were caused by exposure to selected chemicals. Some examples of hazardous chemicals in the environment are heavy metals and toxins that find their way into water supplies, and harmful pesticides that enter the food supply chain. Air pollution has a major negative impact on human health. Studies have shown that the impact of air pollution on humans is important for public health, not only because of its role in climate change, but also because exposure to air pollution can increase morbidity and mortality.

According to the WHO, the impact of air pollution on humans is significant. For example, air pollution causes:

- 31 percent of global deaths from lung diseases
- 28 percent of global deaths from stroke
- 19 percent of global deaths and illnesses from acute lower respiratory tract infections.

Air is polluted when the concentration of lead, mercury, copper and five heavy metals, sulfur dioxide, carbon monoxide, fluorine compounds, nitrogen oxides, ammonia hydrocarbons, and other gaseous and liquid substances in the air exceeds the TLV level. The effects of toxic substances on the human body when the TLV is exceeded are as follows: sulfur dioxide and its other compounds cause inflammation of the mucous membranes of the eyes and respiratory tract when they exceed

0.085 mg per m² of air; Sulfur gas, when exceeding the REM by 0.05 mg, causes severe bronchitis, gastritis, laryngitis, provokes pre-existing diseases of the respiratory tract, changes some functions of the brain, hypoglycemia and hypovitaminosis begin to appear, children's growth lags, and the formation of new elements in the lungs is observed.

In this regard, as a result of research conducted in the Syrdarya region, it was found that there are situations related to the negative impact of harmful chemicals emitted from factories, enterprises, institutions, organizations, and air purification devices in them. Therefore, an increase in carbon monoxide above 0.5 mg. REM increases the movement of hemoglobin, leads to a lack of oxygen in the tissues, causes disordered functioning of the nervous and cardiovascular systems, and causes atherosclerosis. Dizziness, headache, severe inflammation, rapid heartbeat, and sleep disturbances are observed. If hydrocarbons exceed 25 mg. REM, the respiratory tract becomes inflamed, nausea appears, dizziness, drowsiness increases, and breathing and blood circulation fail. Carcinogenic substances allow tumors to form in the body, reduce the body's resistance to diseases, and children develop avitaminosis.

If the amount of fluorine and hydrogen fluoride compounds exceeds 0.005 mg. REM, the skin and mucous membranes of the eyes become sharply inflamed, nosebleeds occur, colds, coughs, and atherosclerosis increase. If the amount of nitrogen oxide II exceeds 0.06 mg REM, it causes severe

inflammation of the lungs and respiratory tract in the body, contributes to the development of colds, and blood pressure decreases. Dizziness, fainting, vomiting, runny nose, shortness of breath, and cough occur. If the amount of industrial and transport dust exceeds 0.15 mg REM per m³, the effect of dust on the human body is significant due to its dispersion. Due to its deep penetration into the respiratory tract, it enhances the movement of gaseous substances, dust inflames the skin, especially the mucous membrane, and allows pathogenic microbes to enter the body.

Lead and its compounds have the property of accumulating (accumulation of toxic substances in the body) when the amount of lead exceeds 0.0017 mg. REM, changes the composition of the blood and affects the brain and spinal cord, increases muscle weakness, disrupts the nervous system, brain edema, kidney and liver damage are observed. It is dangerous for children, slowing down physical growth. Under the influence of natural lead, metabolism in the body is disrupted, children become mentally retarded and chronic brain diseases occur. Organic lead is more toxic than natural.

Another environmental problem with serious consequences for human health is climate change, as well as the increase in natural disasters associated with changes in the Earth's climate. The National Environmental Health Association considers climate change to be the single greatest threat to human health of the 21st century.

Climate change is disrupting the natural world in a variety of ways, which can impact health and increase vulnerability to disease, including rising global temperatures and more frequent heavy rains and floods. The various impacts could lead to greater vulnerability to neurological and respiratory diseases, diarrhoea and more in the atmosphere.

The influence of weather and climate on humans has been known for a long time, but interest in this problem has increased only in the last decades of the 20th century. There is a whole science - medical climatology, which studies the influence of climate and weather factors on the human body, methods of using them for therapeutic and prophylactic purposes. It is necessary to study pathological changes in the human body in climatic conditions. The influence of climate on a living organism (the so-called biotropic effect of climate).

As such, external environmental factors (meteorological elements) include:

Temperature, air circulation and humidity, atmospheric pressure, cloud cover and intensity of solar radiation [3,4].

Each of these factors can individually affect various functions of the human body (for example, wind, increases heat transfer, makes breathing difficult, disrupts the normal rhythm of respiratory movements). They affect the process of thermoregulation in humans. Weather changes affect the depth and frequency of breathing, blood circulation, and oxygen supply to cells and tissues, salt, lipid-water metabolism, muscle tone. Water pollution leads to intestinal diseases, food poisoning, and salmonellosis dysentery. Air pollution affects the respiratory and cardiac systems. In humid, hot weather, a person experiences shortness of breath [5].

According to experts, 10-15 m³ of air passes through the lungs per day during normal breathing at rest. The conditioning of the lungs during breathing plays a very important role in a person's adaptation to different weather conditions, when the (water vapor pressure) reaches or exceeds 18.8 hPa, a person feels uncomfortable. When the temperature exceeds 25 °, uncomfortable conditions arise. In conditions of extreme heat, a person experiences circulatory disorders and an overload of the central nervous system. Therefore, it is necessary to create an artificial climate in offices, gyms, etc. At the same time, the air temperature should be within +20 ... +23 ° C and the relative humidity should not exceed 50-60%, which will significantly increase labor productivity, improve well-being, etc. [5].

In addition, in agriculture, melon products that are oversaturated with nitrogen nitrate significantly reduce their nutritional and biological value, shorten their shelf life. Some farmers, instead of striving to improve the sweetness and quality of the melons they have grown with their sweat, decide to grow them into large and stone-like fruits. In this regard, Mirzachul melons are especially striking in their size and beauty. However, these melons start to rot in the markets after only 3-4 days, as the nitrate content in melons increases their deterioration during the hot summer days, resulting in many melons being thrown into the garbage bins due to water leakage. The permissible amount of nitrate in melons should not exceed 60 mg per kg.

According to Verywell Health, more than 780 million people worldwide do not have access to clean drinking water; surprisingly, about a third of the world's population does not have access to adequate sanitation services (such as clean toilets). The health impact is dire: more than 2,200 children die every day from diseases caused by poor water quality. A number of factors can lead to poor water quality, including industrial waste and pollution, lack of access to proper water treatment and sanitation services, and outdated sanitation infrastructure.

Pollution of river waters with sewage and wastewater, as well as their increased mineralization, contamination with pesticides, nitrogen, mineral fertilizers, petroleum products, heavy metals, phenol, when these waters are used for consumption, leads to the spread of various diseases. Such waters are a habitat for microorganisms, viruses and bacteria, and are the source of many natural and infectious diseases. For example, an increase in nitrites by 40 times the REM leads to inflammation of the respiratory tract of the human body, causes methemoglobinemia in young children.

Due to its carcinogenicity, that is, the ability to cause cancer, tumors are observed in many organs. An increase in the amount of arsenic (arsenic) above 0.05 mg. leads to loss of appetite in the body, provokes diseases of the gastrointestinal tract such as gastroenteritis, and causes a person to lose weight. An increase in the amount of copper metal above 0.001 mg. causes Wilson's disease, an excess of copper leads to its accumulation in brain tissue, liver, pancreas, and skin.

In this regard, studies were conducted to determine the level of pollution of rivers, lakes, streams and canals in the Syrdarya region. In order to study the chemical composition of the Syrdarya River waters, samples were taken from the entrance and exit points of the region and chemical analyses were conducted. According to the analysis results, the content of dry residue in water samples taken from the entrance to the Syrdarya region was 1.4 times higher than the established norm, ammonium nitrogen - 1.3 times, nitrate nitrogen - 3.0 times, sulfates - 1.3 times, and suspended solids - 5.4 times higher than the established norm.

The content of dry residue in water samples taken from the exit from the Syrdarya region was 1.42 times higher than the established norm, ammonium nitrogen - 1.3 times higher than the established norm, nitrate nitrogen - 3.06 times higher than the established norm, sulfates - 1.8 times higher than the established norm [9].

Conclusion. In order to keep the environment clean and eliminate problems, we can make the following proposals:

1. Install modern local treatment facilities at large industrial enterprises with high and medium environmental impact and modernize existing ones;
2. Include local budget funds in the cost estimate for fencing off solid waste landfills in the regions and creating sanitary infrastructure;
3. Organize waste sorting and recycling at landfills in the regions;
4. Take measures to connect the pipes of newly built apartment buildings to the central sewage network of the region;

5. Study and finalize the status of the modernization and reconstruction works of the regional “Wastewater Treatment Facilities” by authorized organizations.

Thus, environmental pollution by various wastes is affecting the worsening of the ecological situation in Uzbekistan in some places. In some areas, "air and water" are left, while "water and soil" and sometimes the entire natural environment are polluted with waste to such an extent that this leads to a fundamental deterioration of human living conditions and the widespread spread of various diseases among the population.

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