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AIR POLLUTION AND ITS CONSEQUENCES FOR HUMAN HEALTH

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ABSTRACT

Air pollution under the influence of anthropogenic factors in the modern world is becoming one of the global environmental problems, the consequences of which clearly negatively affect the health of people and the environment. These problems are also relevant today for the city of Almalyk, where the mining, metallurgical, and chemical industries are developing intensively.

Keywords: Atmospheric pollution, anthropogenic factor, negative impact, consequences, human health, diseases, environmental situation in Almalyk.

INTRODUCTION

Anthropogenic pollution is one of the most pressing problems on the planet Earth today. It has a negative effect on the human body. Increasing air pollution is the main cause of the development of various diseases around the world. As a result of air pollution with small particles of aerosols, ash and dust, there is a negative impact on human life, animals, plants, soil cover and water basins.

The UN's Special Rapporteur on the Environment, David Boyd, said in his annual report in 2019 that 7 million people die each year from the effects of air pollution.

In 2020, participants of the 43rd session of the UN Human Rights Council discussed the problem of environmental pollution and the consequences of climate

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change and its impact on children. UN High Commissioner for Human Rights Michelle Bachelet drew attention to the tragic statistics that 1.7 million children under the age of five die every year from adverse environmental conditions, especially from air and water pollution. Addressing the participants of the session, Michelle Bachelet noted that the unfavorable environmental situation is more dangerous for children than for adults, due to the peculiarities of their physical and mental development.

Worldwide, air pollution accounts for:

- 29% of all lung cancer cases and deaths;
- 17% of all cases of illness and death from acute lower respiratory infections respiratory tract;
- 24% of all stroke deaths;
- 25% of all cases of illness and death from coronary heart disease;
- 43% of all cases of illness and death from chronic obstructive pulmonary disease lung diseases [1].

METHODOLOGY

Adverse effects of air on human health include airborne particulate matter, ozone (O3), nitrogen dioxide (NO2), and sulfur dioxide (SO2). Solid particles with a diameter of less than 10 (pm10) and 2.5 (pm 25) microns are considered particularly dangerous to health [2]. It is noted that the smallest particles penetrate deep into the respiratory tract, and from there into the bloodstream, which negatively affects the heart, brain vessels and respiratory system.

In 2013, the International Agency for Research on Cancer (IARC) classified particulate pollutants as one of the causes of lung cancer. Their concentration is the most widely used indicator for assessing the health effects of air pollution [3].

Short-and long-term exposure to polluted air in children and adults can lead to decreased lung function, respiratory infections, and asthma complications. Exposure to polluted air in pregnant women leads to low birth outcomes, including low infant weight and premature birth.

New evidence is emerging that air pollution can cause diabetes and disrupt the development of the nervous system in children [4].

The literature available today does not accurately quantify the relationship between air pollution and mortality rates, as well as the rates of many of the diseases and disabilities described above. Therefore, when new data become available, it is

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expected that the assessment of the types of diseases associated with air pollution will be significantly revised in the direction of their increase [5]

RESULTS AND DISCUSSION

Air pollution in the city of Almalyk, Tashkent region, is one of the most pressing problems today. Its sources are associated with industrial emissions, dust from quarries and car exhaust gases. The city has large industrial enterprises, including non-ferrous metallurgy, chemistry, copper smelting and processing, as well as open and closed mines around the city. These enterprises emit an average of 166.8 thousand tons/year of various polluted substances into the atmosphere [6]. Atmospheric emissions include sulfur, nitrogen, carbon monoxide, hydrocarbons, ammonia, fluorine compounds and dust, the negative impact of which is also determined by the meteorological conditions of the region.

Due to the fact that Almalyk district is located in the foothills and mountain valleys, air exchange occurs between the city and surrounding settlements, which, in turn, leads to an increase in air pollution. According to meteorological conditions, the city is predisposed to an increased level of atmospheric pollution. Especially in summer, due to the abundance of sunny days and the lack of precipitation, self-cleaning of the air naturally occurs very slowly, which causes the formation of photochemical smog, which negatively affects the environment.

High levels of sulfur dioxide (SO2) pollution are observed at thermal power plants (Novoangrenskaya TPP), non-ferrous metallurgy enterprises and mineral fertilizers production enterprises (Almalyk Chemical Plant) operating on solid and liquid fuels. Accordingly, the high content of this substance in the atmosphere of the cities of Almalyk and Akhangaran is 4.5-5 MPC (maximum permissible concentration). Air pollution with nitrogen dioxide (NO2) and ammonia (NH3) is associated with large power plants and enterprises producing mineral fertilizers, the concentration of which in Almalyk is 1.5 and 2.8 MPC. Intensive development of natural resources, non-ferrous and rare earth metals in the region leads to land degradation, water and air pollution. In particular, in the area of the Kalmakyr polymetallic deposit, soils contaminated with heavy metals (Cu, Pb, Zn, Fe, Ni) formed a halo in which the amount of MPC exceeds ten times (600-800 mg/kg) [6].

In addition, the existing dumps of the Kalmakyr quarry, slag accumulators and sludge accumulators of the Almalyk Mining and Metallurgical Combine, copper smelting and chemical plants are active sources of atmospheric air pollution.

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CONCLUSION

Currently, one of the most important tasks in the field of public health is to take measures to reduce all factors of the development of noncommunicable diseases, including air pollution.

Improving the sanitary state of the city's atmosphere, which is associated with gas and dust pollution, requires measures to reduce emissions in industries such as industry, transport, energy, mining and urban planning, as well as joint efforts of local, national and regional governments to manage them.

By the World Health Organization in 2005. establish global guidelines on limits and maximum permissible levels of major air pollutants that pose a risk to human health. According to WHO guidelines, air pollution-related mortality can be reduced by about 15% by reducing the level of particulate matter (pm10) pollution from 70 to 20 micrograms per 1m3. Therefore, to ensure environmental safety and health of citizens, it is necessary to comply with environmental standards and guide the WHO principles

The priority should be a set of works aimed at developing measures to reduce, localize and prevent environmental threats associated with excessive air pollution, as well as concern for the preservation of the health of the population living in the region

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