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AIR POLLUTION AND PUBLIC HEALTH IN THE CONTEXT OF SUSTAINABLE DEVELOPMENT

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The outcome document of the Rio+20 Conference, in the context of sustainable development of cities and human settlements, notes the importance of supporting adequate air quality as air pollution has a negative impact on human health. According to the World Health Organization (WHO), air pollution represents a significant environmental risk to public health. Globally, this risk accounts for 7 million premature deaths annually and more than 0.5 million in the WHO European Region. Due to increased risk of respiratory and cardiovascular diseases, as well as lung cancer, the negative impact of air pollution reduces life expectancy in the WHO European Region by an average of 1 year. The costs associated with disability due to air pollution in 2010 in the WHO European Region were about $1.6 trillion; and the annual economic loss of 2015 due to morbidity and premature mortality caused by air pollution in 44 of the 48 countries of the WHO European Region was estimated to be equivalent to 1% of their gross domestic product. Subsequently, the WHO resolution "Health and Environment: Addressing the Effects of Air Pollution on Health" recognized the right to clean air as a fundamental human right. In 2016, the age-standardized mortality rate attributed to indoor and outdoor air pollution (per 100,000 population) is almost 35 in the WHO European Region, 15 in Germany, 50 in the Russian Federation and 70 in Ukraine. Thus, the problem of clean air, public health and sustainable development is also relevant for Ukraine.

The purpose of the study was to identify the impact of polluted air on the health of the population in the zone of influence of the northern industrial hub of the city of Kremenchuk, as well as the factors and conditions that contribute to the strengthening of this impact.In May, August and September on the territory of the residential development sampling of atmospheric air showed excess content of pollutants, in particular: benzopyrene (from 0,35 to 0,53 at maximum permissible concentrations (MPC) 0.1 μg per 100 m3), benzanthracene (0,015 at MPC 0.005

mg/m^3 for working area (!)), vanadium (from 0.002 to 0.004 at MPC 0.002 mg/m^3), gasoline (8 at MPC 5 mg/m^3) and saturated hydrocarbons C_{12}-C_{19} (25 at MPC 1 mg/m^3).

The analysis of prevalence of diseases of the adult population of Kremenchuk in the period from 2012 to 2016 established the growth of indicators of the population morbidity with allergic rhinitis in 1.1 times, chronic bronchitis in 1.3 times, bronchial asthma in 1.3 times. Bronchial asthma was 1.3% higher than the regional rate and obstructive lung diseases was 4.7% higher. The analysis of the levels of adult population primary morbidity, compared to 2012, found a gradual increase in allergic rhinitis by 1.3 times and chronic bronchitis by 12 times; excess of the average region indicator for allergic rhinitis by 3.3%, chronic bronchitis by 6.1%, bronchial asthma by 0.7%, obstructive lung diseases by 6.3%. Between 2012 and 2015, there was also a 3-fold increase in the incidence of chronic bronchitis and an 11-fold increase in allergic rhinitis among children.

On the impact of meteorological conditions, urban planning factors and environmental laws of development on air pollution status. It is established that air pollution, as a form of environmental degradation, is an indicator of an imbalanced ecosystem. Air pollution is caused by the accumulation of harmful substances in the atmosphere as a result of anthropogenic activities and climate change. Due to climate change, some regions of Ukraine have experienced significant changes in meteorological conditions since mid-1990s, affecting the atmosphere's self-cleaning ability. This increases the negative impact of polluted air on human health. Deterioration of natural conditions of atmospheric dispersion of pollutants in the region, especially in July-October, is felt by the population of Kremenchuk and causes numerous complaints of people, the climax falls exactly on the summer period (for Kyiv the climax falls on September-October). Approaches to placing the industrial enterprises and rationing of the sizes of their sanitary-protective zones, the majority of which has been drawn up till the middle 90th years of the XX century, need revision. At designing of inhabited objects it is necessary to consider presence of tendencies to growth of negative influence of industrial clusters on adjoining territories.