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ANALYSIS AND MONITORING OF AIR QUALITY IN ZAPORIZHZHIA UNDER WAR CONDITIONS

Abstract. *The abstract analyzes the state of atmospheric air in the industrial center of Zaporizhzhia. The main pollutants and their sources are identified. The dynamics of emissions are considered in the context of regional sustainable development and the impact of military actions.*

Keywords: environmental safety, atmospheric air, monitoring, industrial emissions, Zaporizhzhia, martial law.

The problem of air pollution in Zaporizhzhia remains one of the most acute environmental issues in Ukraine. The city is characterized by a high concentration of ferrous and non-ferrous metallurgy, energy, and mechanical engineering enterprises. The main specific pollutants recorded by the monitoring network are dust, nitrogen dioxide, phenol, hydrogen fluoride, and formaldehyde. High pollution levels are caused by both significant emission volumes and unfavorable meteorological conditions (calms, inversions) inherent in the landscape of the Dnipro River valley.

Air pollution in Zaporizhzhia has significantly worsened as a result of the ongoing war, creating serious environmental and public health challenges. Military actions, including shelling and missile strikes, have damaged industrial facilities, energy infrastructure, and storage sites, releasing harmful pollutants such as particulate matter, toxic gases, and heavy metals into the air. Fires caused by attacks often burn for long periods, further increasing the concentration of dangerous substances in the atmosphere.

In addition, the disruption of environmental monitoring systems makes it difficult to accurately measure pollution levels and respond effectively. Residents are exposed to increased risks of respiratory diseases, cardiovascular problems, and long-term health complications. To improve the environment, it is necessary to implement automated continuous control systems directly at emission sources and modernize treatment equipment. Overall, the war has intensified air pollution in Zaporizhzhia, highlighting the urgent need for environmental protection measures and restoration of monitoring systems to mitigate long-term impacts.

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