

ENVIRONMENTAL IMPACT ASSESMENT OF THE LANDFILL FIRE CONSEQUENCES IN LVIV (WESTERN UKRAINE)

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Abstract

Outdated approach of solid waste management (landfilling), that is used in Ukraine nowadays, creates multiple environmental problems in the country. Disastrous landfill fires, that, according to statistics, are becoming more and more frequent in last years, must be mentioned as one of the most serious of them. Impacts of such events may be very serious, considering environmental as well as population health issues. These impacts must be accurately analysed through scientific methods to avoid future risks as well as to obtain geochemical and geophysical data describing spreading of the pollution that might have significant scientific value.

This article contains the results of the two-month long impact assessment study, that took place after the fire with partial collapse of constructions and massive leachate spill, in the Lviv landfill in 2016. Study of the migration of oil products and inorganic pollutants (Pb, Cd, Co, Mn, NO₂⁻, Cl⁻) performed with the help of chemical analyses of water and soil. Mapping of the polluted zone was done through hydrographic analysis. Land use of the polluted territory was analysed, using remote sensing and analysis of the cadastral data.

We have found diverse environmental impacts, including significant changes of soil pH, pollution with heavy metals and toxic organic substances in the lower catchment of the Malehovka river. Significant health risks for local population may be prognosed, considering land use of the studied area.

Keywords: landfill, waste, landfill fire, chemical pollution, leachate