

SOIL POLLUTION LEVEL OF ECOLOGICALLY VULNERABLE AREAS AROUND KAJARAN TOWN AND WAYS OF THEIR IMPROVEMENT

Karen Ghazaryan^{*}, Hasmik Movsesyan, Naira Ghazaryan, Gor Gevorgyan, Karlen Grigoryan

Department of Ecology and Nature Protection, Faculty of Biology, Yerevan State University,

1, Alex Manoogian str., Yerevan 0025, Republic of Armenia

^{}e-mail: ghazaryank@mail.ru; phone: + (37491) 34 29 19*

Abstract. Kajaran town is situated in the south-east of the Republic of Armenia in Syunik Marz. Developed mining and smelting industries can be observed in this area. This economic sphere is one of the main sources of soil pollution with heavy metals causing desertification of soils. Taking into consideration the location of the main sources of pollution six the most risky sites in this area and an unpolluted site as a control were selected for the study of pollution by heavy metals. The content of metals was determined by means of ELAN 9000 ICP-MS System. Study results revealed the increase up to 17 times in contents of following metals: Co, Ni, Cu, Zn, Cr, Sr, Mo, Cd, Pb, As. Based on Geoaccumulation index (I_{geo}) classification, the soils from all sites may be classified between “practically uncontaminated” and “uncontaminated to moderate”. The pollution level for Cu ($I_{geo} = 0.031-2.468$) was higher than for other metals. The sites adjacent to Kajaran ore-dressing and processing enterprise are classified as “moderately to strongly” contaminated by Cu. Experiments have led us to the assumption that pollution of soils with heavy metals in the studied territory is conditioned by human activities, particularly by mining and smelting industry.

Keywords: mining, heavy metals, soil pollution, soil improvement.