

## The Evaluation of Heavy Metal Pollution Degree in the Soils Around the Zangezur Copper and Molybdenum Combine

**Authors :** K. A. Ghazaryan, G. A. Gevorgyan, H. S. Movsesyan, N. P. Ghazaryan, K. V. Grigoryan

**Abstract :** The heavy metal pollution degree in the soils around the Zangezur copper and molybdenum combine in Syunik Marz, Armenia was assessed. The results of the study showed that heavy metal pollution degree in the soils mainly decreased with increasing distance from the open mine and the ore enrichment combine which indicated that the open mine and the ore enrichment combine were the main sources of heavy metal pollution. The only exception was observed in the northern part of the open mine where pollution degree in the sites (along the open mine) situated 600 meters far from the mine was higher than that in the sites located 300 meters far from the mine. This can be explained by the characteristics of relief and air currents as well as the weak vegetation cover of these sites and the characteristics of soil structure. According to geo-accumulation index (I-geo), contamination factor (Cf), contamination degree (Cd) and pollution load index (PLI) values, the pollution degree in the soils around the open mine and the ore enrichment combine was higher than that in the soils around the tailing dumps which was due to the proper and accurate operation of the Artsvanik tailing dump and the recultivation of the Voghji tailing dump. The high Cu and Mo pollution of the soils was conditioned by the character of industrial activities, the moving direction of air currents as well as the physicochemical peculiarities of the soils.

**Keywords :** Armenia, Zangezur copper and molybdenum combine, soil, heavy metal pollution degree

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