

## عنوان مقاله:

An In-Depth Analysis of Water Quality Using GIS and Heavy Metal Pollution Index near a Gold Mining Area, Qorveh, Iran

## محل انتشار:

فصلنامه بهداشت محیط و توسعه پایدار، دوره 6، شماره 4 (سال: 1400)

تعداد صفحات اصل مقاله: 15

## نویسندگان:

Mahsa Jahangiri-rad - *Water Purification Research Center, Tehran Medical Sciences, Islamic Azad University, Tehran, Iran*

Mohsen Shariati - *Department of Environmental Planning, College of Engineering, Faculty of Environment, Management and Education, University of Tehran, Tehran, Iran*

Mahdieh Yaaghoubi - *Department of Environmental Health Engineering, School of Public Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran*

Ali Haghmoradkhani - *Technical Consultant, Arman Mohit Pak Iranian Company, Environmental Monitoring & Analysis Company (EMACO) Tehran, Iran*

Abbas Akbarzadeh - *Water and Wastewater Research Center (WWRC), Water Research Institute, Tehran, Iran*

## خلاصه مقاله:

**Introduction:** Inappropriate management of mining activities may bring about water pollution and pose a heavy complication on aquatic ecosystem and humans. The study aimed to evaluate the effect of Qorveh gold mining activities on the quality of nearby groundwater. **Materials and Methods:** The concentration of seven eco-toxic metals along with some general hydrochemical parameters were investigated for ۲۷ sampling stations in the study area using Atomic Absorption Spectrometry (AAS) and conventional hydrochemical methods. The analysis results were further applied to compute pollution indices, namely heavy metal pollution index (HPI) for irrigation purposes. **Results:** The main elements were within the World Health Organization (WHO) and Iranian National Water Standards (INWS) for irrigation water quality, except for  $\text{NH}_4^+$  in some sampling points. The concentration of heavy metals followed the order  $\text{Cu} > \text{Zn} > \text{Pb} > \text{Hg} > \text{Cd} > \text{As}$ . The contents of Hg, As, Cd, and Cu in most sites were higher than the recommended values. Except for two stations, the value of HPI based on the mean concentration was found to be far beyond the critical pollution index value of ۱۰۰, suggesting that the area is highly polluted with some heavy metals. **Conclusion:** Elevated concentration of trace elements found in groundwater of this area represented the release of harmful elements from gold mining activities on surrounding environment.

## کلمات کلیدی:

Metals, Heavy, Hydrochemistry, Groundwater, Qorveh City

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1361909>

