

عنوان مقاله:

Applying an integrated fuzzy gray MCDM approach: A case study on mineral processing plant site selection

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خلاصه مقاله:

The accurate selection of a processing plant site can result in decreasing total mining cost. This problem can be solved by multi-criteria decision-making (MCDM) methods. This research introduces a new approach by integrating fuzzy AHP and gray MCDM methods to solve all decision-making problems. The approach is applied in the case of a copper mine area. The critical criteria are considered adjacency to the crusher, adjacency to tailing dam, adjacency to a power source, distance from blasting sources, the availability of sufficient land, and safety against floods. After studying the mine map, six feasible alternatives are prioritized using the integrated approach. Results indicated that sites A, B, and E take the first three ranks. The separate results of fuzzy AHP and gray MCDM confirm that alternatives A and B have the first two ranks. Moreover, the field investigations approved the results obtained by the approach.

کلمات کلیدی:

Fuzzy theory, gray theory, Site selection, Open pit mining

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