

Assessment of Environmental Impacts and Determination of Sustainability Level of BOOG Granite Mine Using a Mathematical Model

Authors : Gholamhassan Kakha, Mohsen Jami, Daniel Alex Merino Natorce

Abstract : Sustainable development refers to the creation of a balance between the development and the environment too; it consists of three key principles namely environment, society and economy. These three parameters are related to each other and the imbalance occurs in each will lead to the disparity of the other parts. Mining is one of the most important tools of the economic growth and social welfare in many countries. Meanwhile, assessment of the environmental impacts has directed to the attention of planners toward the natural environment of the areas surrounded by mines and allowing for monitoring and controlling of the current situation by the designers. In this look upon, a semi-quantitative model using a matrix method is presented for assessing the environmental impacts in the BOOG Granite Mine located in Sistan and Balouchestan, one of the provinces of Iran for determining the effective factors and environmental components. For accomplishing this purpose, the initial data are collected by the experts at the next stage; the effect of the factors affects each environmental component is determined by specifying the qualitative viewpoints. Based on the results, factors including air quality, ecology, human health and safety along with the environmental damages resulted from mining activities in that area. Finally, the results gained from the assessment of the environmental impact are used to evaluate the sustainability by using Philips mathematical model. The results show that the sustainability of this area is weak, so environmental preventive measures are recommended to reduce the environmental damages to its components.

Keywords : sustainable development, environmental impacts' assessment, BOOG granite, Philips mathematical model

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