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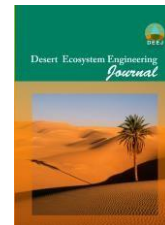
Assessment of Desertification Intensity in Masjed Soleiman Basin Using IMDPA Model

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Abstract

Above 80 percent of Iran is currently located in arid and semi-arid to dry and sub-humid climates and they have sensitive conditions given the climatic conditions and natural characteristics of these regions and improper utilization methods, hence they are potentially and actually subject to the phenomenon of desertification. In this research, the sensitivity of the lands of Masjed Soleiman basin to desertification is evaluated by using IMDPA model, which is one of the methods of desertification assessment in arid and semi-arid regions. For this purpose, after initial assessments 3 criteria, including Climate, Soil and Water, were selected as the effective criteria in desertification of the region with different indices. By using the above-stated method, the scales of each index were obtained in the related criterion and the value of each criterion was calculated using geometric average of the scales of the indices. Then each criterion was elaborated in ArcGIS as database layers. By integrating raster layers of the stated criteria, calculating geometric average of the criteria and analyzing them by using the mentioned model, desertification intensity map of the studied regions was obtained. The results showed that about 2774 square kilometers of the studied area was found to be in medium class of desertification and about 23 square kilometers of the region was in two classes of low and high desertification. Climate with the numerical value of 2.46 and Water with the numerical value of 1.25 had respectively the highest and lowest effects in desertification of the region. Soil, with the numerical value of 2.13, shows the medium desertification intensity.

Keywords: Desertification, IMDPA Model, ArcGIS, Masjed Soleiman.

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