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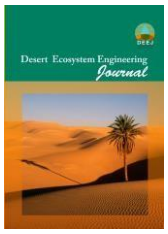

Soil Erosion Risk Assessment Using the CORINE Model (Case Study: Semi-Arid Region in Golestan Province)

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Abstract

Soil erosion is considered as one of the most significant indices of land degradation, which once evaluated, a wide gamut of changes in the environment could be evaluated. The aim of this study was to evaluate the risk of soil erosion by the application of the CORINE model, as a suitable means of soil erosion assessment, in the semi-arid western areas of Golestan province. In this study, soil, geology, climate, land cover and slope data were used, accompanied by extensive field reconnaissance. Maps accuracies were determined based on the Chi Square index and Mann-Whitney test. Firstly, soil Erodibility map was prepared from soil physical parameters and Erosivity factor (calculated based on the Fournier moisture index and Bagnouls-Gaussian aridity index). Then by superimposing layers with slope and land cover maps in the GIS environment, soil erosion risk map (potential and actual) was prepared. Results propose that, in view of the potential risk, 23 percent of the region is marked with low potential, 54% with moderate, and 7% with high erosion risk. Also, from the viewpoint of actual erosion risk, 54% of the area is devoted to low risk, 25% with moderate and 2% corresponds with high risk. The differences in the area of risk maps, at 1% level were significant and In terms of accuracy, maps have great compatibility with ground realities. This study emphasizes on the capabilities of the CORINE model and the GIS technique in the evaluation of soil erosion.

Keywords: CORINE model, Fournier and Bagnouls-Gaussian indices, GIS, Golestan Province, Risk.

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