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ASSESSMENT AND MAPPING OF DESERTIFICATION SENSITIVITY WITH MEDALUS MODEL AND GIS – CASE STUDY: BASIN OF HODNA, ALGERIA

Abstract

In Algeria, desertification risk is one of the main environmental and also social and economic problems. As much as 20 million hectares of northern Algeria are highly exposed and vulnerable to desertification with large areas falling into his ‘severe’ risk category, because the present massive destruction of vegetation and soils. This study aimed to use geographic information system (GIS) for mapping environmentally sensitive areas to desertification based on Mediterranean Desertification and Land Use (MEDALUS) approach in basin of Hodna, Algeria. Sensitivity is estimated with a modification of the MEDALUS environmentally sensitive area index (ESAI) which identifies such areas on the basis of an index (ESAI) that incorporates data on environmental quality (climate, vegetation, soil) as well as anthropogenic factors. This methodology allows the classification of land in critical, fragile and potentially sensitive areas. The results obtained show that 61% of the area is classified potentially sensitive to low sensitivity. These areas are particularly located in mountain areas. Spatially, the areas sensitive to degradation are as well in the lower region of the Hodna in Highlands consisting mostly of steppe route. The factors that could explain these variations of sensitivity are related mainly to changes in precipitation between the North and the South altitude and pressure of the population and livestock.

Key words: Algeria, desertification, ESAI, Hodna River basin, MEDALUS, soil sensitivity