Methodology Using Remonte Sensing and GIS for Mapping Areas at Risk of Water-Erosion: Atlas of Beni Mellal as a Case Study (High Atlas of Morocco)

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Soil erosion by water is the most important degradation problem world wide. in order to protect the soil resource, it is therefore essential to apprehend erosion risk. Water erosion is controlled by climatic characteristics, topography, soil properties, vegetation, and land management.

The aim of this study is to develop a methodology using remote sensing and geographic information system (GIS) to map zones at risk of erosion by water in Beni Mellal Atlas (high Atlas of Morocco) and to produce a risk map that can be used as a reference document for planners. The presented methodology consists in endowing GIS with three factors that control erosion: slope, friability, and ground occupation. The derived erosion risk map shows four zones of vulnerability to erosion: weak, medium, powerful, and very powerful. The powerful and very powerful zones cover more than 50% of the mountain zone uphill from Beni Mellal city and correspond very well to field observations. This methodology used seems to be applicable to other areas of high Atlas, were erosion risk constitute a serious threat to agglomerations.

Key-words : water-Erosion ; high Atlas of Morocco ; methodology; remote sensing ; GIS.