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Combination Approach to Assess Offsite Value of Soil Erosion Risk in Watersheds in Tunisia

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Abstract: Due to its both on-site and off-site effects, soil erosion is a major environmental phenomenon and it has economic, social and environmental consequences. Therefore, the main objectives of this study were to estimate the soil loss and the offsite value of soil erosion by water effects in watersheds in Tunisia and consequently, its effects under specific environmental policy scenarios. The method was composed of environmental and economic model. Environmental method was a combination between the Revised Universal Soil Loss Equation (RUSLE), remote sensing and Geographic Information System. Moreover, economic model which was built using mathematic programming was used to assess soil erosion value. By comparing the different scenarios, it showed that the total income of the watershed was reduced with the effect of soil erosion. However, the application of environmental policies indicated their positive impact on reducing soil loss and consequently, soil erosion value. Therefore, the environmental method is useful to map soil erosion risk. The economic value of soil erosion can be an indicator to increase the farmers' awareness to protect their resources and to preserve them for the future generation. This combination approach may be helpful for the policy makers to plan appropriate measures against soil erosion.

Keywords: *Soil erosion by water, RUSLE, environmental model, economic model, watersheds, Tunisia.*

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