ABSTRACT

This study applies Geographical Information System (GIS) and the Revised Universal Soil Loss Equation (RUSLE) to predict the annual average soil loss rate in the Dholpur District (Rajasthan). To achieve the objectives of the thesis, the RUSLE Parameters were calculated using the remote sensing data, rainfall data, and soil texture data which were collected from U.S. Geological Survey, WRD department and soil conservation department of Rajasthan. The soil texture, permeability and structure property of soil data were used to create the soil erodibility factor (K), and a digital elevation model of the basin t was applied to generate the topographic factor (LS). The cover-management factor(C) was calculated from making NDVI map from Landsat data for 2008 and 2013 years. The support practice (P) factor was created by giving the value to LULC maps which were made by supervised classification of a satellite image of 2008 and 2013 years. Usually C and P factors determine from land cover and land use classes respectively. The rainfall–runoff erosivity (R) was resulted from yearly rainfall data. It is also important to note that the steepest slopes show a high risk of soil erosion, it is consequently recommended that further study is commenced to inaugurate the suitable soil and water conservation measures that should be implemented in these areas as well as the whole catchment. This thesis shows the comparative study of estimation of soil erosion between 2008 and 2013 years.