

## **295. ASSESSING VULNERABILITY TO SOIL EROSION OF A WATERSHED OF NARMADA BASIN USING REMOTE SENSING AND GIS**

S.K.Sharma<sup>1</sup>, S.Gajbhiye<sup>2</sup>, R.K.Nema<sup>1</sup> and S.Tignath<sup>3</sup>

<sup>1</sup>Department of Soil and water Engineering, College of Agricultural Engineering, J.N.K.V.V., Jabalpur (M.P.)

<sup>2</sup>Department of Water Resources Development and Management, Indian Institute of Technology, Roorkee (U.K.)

<sup>3</sup>Department of Geology, Government Science College, Jabalpur (M.P.)

sharmashailesh501@gmail.com

The investigation of basins for planning soil conservation requires a selective approach to identify smaller hydrological units, which would be suitable for more efficient and targeted conservation management programmes. One criterion, generally used to determine the vulnerability of catchment to erosion, is the sediment yield of basin. In India, sediment yield data are generally not collected for smaller sub-catchments and it becomes difficult to identify most vulnerable areas for erosion that can be treated on priority basis. An index based approach, based on the surface factors mainly responsible for soil erosion, is suggested in this study. These factors include land use/land cover, topography and various catchment properties such as drainage density, form factor, etc. The method is illustrated with a case study of sub watersheds of Barchha Nala watershed of Narmada basin located in Narsinghpur district of Madhya Pradesh, India. The area is divided into six sub watershed and different land use/ land cover, topography and morphology related parameters are estimated separately for each sub watershed. Satellite data are used for land use/ land cover classification and to prepare updated drainage map, while GIS system is used to evaluate the topography and morphology related indices. The integrated effect of all the parameter is evaluated to find different areas vulnerable to soil erosion. Sub watershed 2 was identified as being most susceptible to soil erosion. Based on integrated index, a priority rating of sub watersheds for soil conservation planning is recommended.