P 2. APPLICATION OF GEOGRAPHICAL INFORMATION SYSTEM FOR LANDSLIDE SUSCEPTIBILITY MODELING IN THE TORTUM LAKE AND ITS NEAR VICINITY (NE TURKEY) USING INFORMATION VALUE METHOD

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ABSTRACT: Landslides are natural hazards. In many countries, landslide is a major issue to threaten the lives and property of people. In this paper, Tortum Lake and its near vicinity is chosen as a study area. Tortum Lake is located in the northern part of the Uzundere District, Erzurum, NE Turkey. The main objective of this research work was to model the landslide susceptibility in study area using geographical information system (GIS) and data-driven bivariate statistical approach involving information value model. Landslide locations within the study area were identified using literature search of historical landslide records, aerial photographs and a field survey. Nine landslide-conditioning factors, including slope degree, slope aspect, altitude, lithology, vegetation coverage, soil type, geomorphology, curvature and topographic wetness index (TWI), were considered in the generation of landslide susceptibility model (LSM). The all data layers were extracted from digital elevation model (DEM), geological and topographical maps and Landsat satellite images, then were integrated on GIS software to produce the LSM of the study area. The generated LSM was validated and the results of validation show that the success rate and the prediction rate of the model are 68.1% and 71.4% respectively.

Keywords: Geographical Information System (GIS), Remote Sensing (RS), Landslide Susceptibility Modeling (LSM), Landslide Conditioning Factors (LCFs), Information Value Method (IVM), Tortum Lake