



Landslide Susceptibility Analysis of Riverbank-A Case Study in Upstream of Tai-An River

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The main sources of sediment in river are soil erosion, bank scour and landslide. The sediment in river will change its path so that the base of bank slope is unstable. Traditionally, susceptibility analysis of landslide is usually considered an unit of watershed. This study focused on slope surrounding river, thus landslide susceptibility was analyzed by river factors related to flow characteristics. It can identify the high susceptibility areas and conduct river management in the future. Upstream of Tai-An riverbank was selected as study area. Boundaries of the study area were sketched along the river and mountain ridgeline by satellite imagery. It was used slope-unit to represent the different aspect of the slope. In addition, the slope of riverbank, channel gradient, meander of river, radius of curvature and soil (i.e. brightness, greenness, wetness) was chosen as the landslide causative factors. The logistic regression method was used to establish the landslide susceptibility model. Receiver operating characteristic (ROC) was used to evaluate the accuracy of the model. The area under the curve of ROC is higher than 0.7. As a result, these river factors can explain the landslide of riverbank. Among of river factors, it was showed the meander of river and the radius of curvature have strong weights in the model. It is expected to regulate river against the river factors and reduce the landslide hazard.