Landslide susceptibility mapping using image satellite and GIS technology

Abstract:

Landslides are among the great destructive factors whichcause lots of fatalities and financial losses all over theworld every year. The aim of the research was landslidesusceptibility mapping by remote sensing data processingand GIS spatial analysis. The area study in research iscentral Zab basin in west Azerbaijan province, Iran. Inthis research, through geological maps and field studies,we primarily prepared a map for landslide distributionsin Zab basin. Then, applying other information sourcessuch as the existing thematic maps, we studied anddefined the 8 factors such as, lithology, slope, slopeaspect, annual rainfall, land use, distance to waterway,distance to the fault , and distance to road. That affectoccurrence of the landslides. To get more precision,speed and facility in our analysis all descriptive andspatial information was entered into GIS system. Afterpreparation of the needed information layers byinfluential parameters on landslides, we drew the zoningmaps of landslide hazard via information coming fromsatellite image classification (Quickbird, Ikonos), andthen evaluated and compared them. According to theobtained index, and the comparison of landslidedistribution map and zoning map of landslide hazardprepared by each of the methods in GIS environment,This model gives also indications about the relevantfactors influencing slope instability.