



Landslide risk as an environmental threat for Izmir (West Turkey) city and its urban expansion

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In this study, a landslide hazard assessment for Izmir (west Turkey) city was carried out, and the environmental effects of landsliding on urban expansion in Izmir city was evaluated by geographical information systems and remote sensing methodologies. For this aim, two different data group, namely conditioning and triggering data, were produced. With the help of conditioning data such as lithology, slope gradient, slope aspect, distance from roads, distance from faults and distance from drainage lines, a landslide susceptibility model was created by logistic regression model. Due to the fact that the study area is located in an active seismic region, earthquake data was considered as primary triggering factor contributing on landslide occurrence. In addition to this, rainfall data was also taken into account as secondary triggering factor. Considering the susceptibility data and triggering factors, a landslide hazard index was obtained. Using the ASTER data, a landcover map with a 0.94 overall Kappa value was produced. From this map, settlement areas were extracted, and these extracted data was assessed as elements at risk in the study area. After then, a vulnerability index was created by this data. At the end, the hazard index and the vulnerability index were combined, and a landslide risk map for Izmir city was obtained. Based on this final risk map, it was determined that the especially north parts of the area, where urbanization is dense, are in threat of landsliding. This result is believed to be used by local governmental authorities.