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# Using of Spatial multi criteria evaluation for landslide zoning Case study Malach Aram basin –north of Iran

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Land slide is one of the major disasters which usually happens in specific area and causes different kinds of financial damage and loss of lives.
Different places in IRAN are susceptible for occurring landslide. The study area, Malach Aram basin in Ramian County which is located in north part of Iran, is extended about 3500 hectare. Ever different methods are using for zoning and evaluation this natural disaster. Spatial multi criteria evaluation (SMCE) is a structure that implements statistical analysis of multi criteria evaluation on the Georefrence data. This model can be implemented on the GIS software, Ilwis and ArcGIS are major software for running this study.
With defining criterion and sub criteria that are effective in occurring landslide and also specifying in groups and inter groups weight of values on the data layers and defining objectives in this classification and with using different effective criteria that are related to this issue, landslide zoning in the case study area has been prepared.
The most important criteria that have been used for running this model are Topography, Slope, Aspect, Hill-shade,landuse, climate (mouthy, seasonal and annual precipitation during 15 years ago from 2001 until 2007), state of earth dynamic ( earthquake density, distance of faults and others factors), state of existing flora ( density and percentage flora, kind of specious) geomorphology (geomorphology unit , landforms and fancies geomorphologic). After running the this model, output of this model is classification and part of area defined with height potential of landslide occurring.
Output of classification landslide zoning with survey GPS pointes that defined real position landslide used in artificial neural network with supervised learning (Multi-Layer Perceptions) .
Recently have defined that 5 area of total of suitable area with height potential landslide occurring are important areas with highly positional landslide occurring.

Key words: Land slide- Natural Disaster Zoning-GIS-Spatial Multi Criteria Evaluation