



## **Landslide potential zonation in Baleghlu watershed (NW Iran) using AHP Fuzzy method**

Keristineh Jananeh (1) and Shahram Roostai (2)

(1) University of Tabriz, Geography Department, Tabriz, Iran, Islamic Republic Of (krestinj@yahoo.com), (2) University of Tabriz, Geography Department, Tabriz, Iran, Islamic Republic Of

Landslides and slope instabilities are among the important natural hazards, which cause human and financial casualties and loss of economic resources every year. These hazards mostly occur in natural slopes or those manipulated by human. Zonation of areas with regard to landslide potential is one of the means to identify areas prone to produce landslide and so, to conduct plannings and management based on the prepared zonation maps in order to reduce the casualties.

This contribution investigates on the landslide potential zonation within the Baleghlu watershed. This watershed is located in the southeast of Sabalan volcano (NW Iran) within the longitudes of  $47^{\circ} 48'$  and  $48^{\circ} 12'$  E and northern latitudes of  $37^{\circ} 51'$  and  $38^{\circ} 16'$  N. Its main river is Baleghlu, which is later connected to the Arax river through the Qarasu and Dareh Roud rivers, and is finally terminated to the Caspian sea. The method of investigation is Fuzzy AHP in the GIS environment. First, the main factors including the slope and its direction, geology, soil, climate, distance from the road and river and land usage were investigated and then, after preparing data layers based on the above-mentioned parameters and giving weights to them in the GIS environment, the landslide potential map was prepared by Fuzzy AHP method.

It was revealed that the slope factor with the value of 0.3882 has the highest weight, while the land usage factor with the value of 0.0287 has the lowest weight. According to the final zonation map of the landslide potential, the watershed was divided into 5 classes, ranging from very high potential class to the very low potential. The obtained results showed that the largest part of the watershed (32.21%) has low landslide potential, while about 13.5% of it has very high potential. Areas with very high and high landslide potential (327.39 km<sup>2</sup> area) are mainly located in the northwest of the watershed, with some small areas distributed in the south and east, while areas with very low and low potential (504.06 km<sup>2</sup>) are mainly found in the central to northwestern and southern parts of the watershed.