

# Landslides Susceptibility Mapping Using Frequency Ratio Model and GIS in Central Parts of Badakhshan Province, Afghanistan

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Landslide awareness, especially in regions where natural disasters are always happening, is of the most extreme importance. To anticipate the disaster, several statistical methods have been proposed, but it is still unclear which one is more accurate. However, few studies have proposed a dependable method. These strategies are considered rather indiscriminate in this digital world where every study is based on the new technology. Thus, this study endeavors to identify landslides causative factors effectiveness and landslide susceptibility area by the geographic information system (GIS) and frequency ratio (FR) in central parts of Badakhshan province, Afghanistan, which is usually suffering from landslide hazards. The dataset which we have obtained from the Ministry of mines and petroleum of Afghanistan's will be used to track down the expected relationship of the area of the past landslides with landslides' causative variables within the study area for developing the landslide susceptibility map. To determine the major factors' affection to the landslides, spatial databases were constructed from landslides trigger factors related to the landslides those occurred from the data sets. The weight of each factor was estimated by the FR model to analyze their effectiveness in landslides hazard identification and construction of landslides susceptibility map. To verify the results, the constructed susceptibility map was compared with landslides area. The result showed susceptibility mapping of landslides using the GIS and FR model.

*Keywords* : Geographic information system, Mapping System, Frequency ratio model