# Efforts of landslide susceptibility mapping for slope disaster risk evaluation

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We introduce the current situation and efforts of the landslide susceptibility mapping method required for risk evaluation of slope disasters in this presentation.

The type of ladnslide movement is controlled by the geological and geomorphological factors. For example, shallow-seated landslides and highly fluidized landslides frequently occur on slope covered by unconsolidated volcanic sediments. Moreover, in Sedimentary rock regions with continuously bedding plane structure, large translational slides prone to occur on dip slope, while shallow-seated landslides prone to occur on steep cliffs of the anti-dip slope. In other words, the factors of data used for landslide susceptibility mapping and their weighting depend to the type of landslide movement at each slope, and on the geological and geomorphological conditions at each region.

On the other hand, rainfall indices such as effective rainfall and soil water index are used for announcement of the landslide disaster alert in Japan, but it does not sufficiently consider geographical and geomorphological conditions. For this reason, the spatial resolution as an evaluation unit is only 5 km square, and issues are still remained for landslide risk evaluation on each slope units and classification of landslide susceptibility areas. In addition, it is generally difficult to evaluate large-scale, deep-seated landslides, which are caused by complicated geological structures and underground hydrological conditions.

In this presentation, as a case study of the landslide susceptibility mapping considering geological and geomorphological factors, the activity evaluation of the landslide slopes using the AHP method, development of susceptibility mapping method for earthquake-induced landslides, and heavy rainfall-induced landsides in the volcanic regions will be introduced. A new slope stability evaluation method using a simple prediction model for shallow groundwater level rising will be introduced as well.

Keywords: landslide, slope, heavy rainfall, earthquake, disaster, susceptibility mapping

 