



## **Modeling Soil Erosion in Khamar-Daban Mountain Forests**

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The GIS project reported here addresses soil erosion dynamics projections at different forest vegetation disturbance scenarios for the forests of Khamar-Daban mountainous area. The project consists of a hydrometeorological, a geomorphological, and a soil/vegetation blocks and enables soil erosion predictions under a range of human impacts on forest ecosystems. A digital relief model was based upon to build a set of precipitation models for complicated topography. These precipitation patterns combined with data from other blocks of the GIS project were used for predicting erosion processes. This approach allowed us to have a close look at soil erosion dynamics depending on initial soil mineralization level, hydrological conditions, topography, soil, and vegetation characteristics.

Our analysis of these modeling efforts showed human activity-caused soil erosion to decrease drastically one or two years following the disturbance. Further on, soil erosion appeared to fade gradually disregarding initial soil mineralization level. Erosion was found not to exceed its natural level on 8-10-year-old logged sites with successful post-logging vegetation regeneration.

Soil erosion processes were modeled using ArcGIS 9. The modeling results are presented both in a digital form and as thematic maps.