



Relationship between gullyng and landslides within the Barlad Plateau, Romania

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Located in the eastern Romania and extending on 8200 km² the Barlad Plateau is considered the most typical subunit of the Moldavian Plateau. The sedimentary Miocene-Pliocene clay-sandy layers, inter-bedded with shallow sandstone and limestone are gently dipping toward S-SE as homoclinal structure. Land degradation through soil erosion, gullyng and landslides represent the most important environmental threat in the region.

By using both the classical research methods such as repeated field surveys and mapping, mathematical–statistical processing as well as the present-day methods based on the GIS software it was possible to precisely measure and evaluate the gully erosion rates and triggered landslides during the last two centuries, especially with a very high accuracy since 1960.

Results have indicated that the landslide development is strongly controlled by gullyng. Generally, by combining the areal growth of both gullyng and new landslides within the selected study catchments, it is noticeable that 62 % of the total recent land degradation occurred during the last 55 years, with the remainder pre-1960. In addition, half of the gully areal growth occurred since 1961 but the new triggered landslides amount over three-quarters of the total area under landslides. This asymmetrical distribution reveals that usually a preparing time lag of tens of years is required for triggering landslides by gullyng and this pattern depicts the common mechanism for landslide development.

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