

GEOLOGICAL ASPECTS OF EROSION VULNERABILITY

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Studying the geological aspects of soil erosion, three factors have crucial influence on the process: relief, precipitation and grain size distribution of the near-surface sediments. Relief could be characterised by slope angle, in the case of using the "Bacsó" precipitation-index, the grain size distribution of the near-surface sediments was taken into consideration on the basis of geological maps.

From the available data, the erosion vulnerability could be counted by the "Farkas-formula": $E_v = (S_c \times P_i) + G_c$ (E_v : erosion vulnerability, S_c : slope category, P_i : precipitation-index, G_c : grain composition so the type and grain size of the near-surface sediments. Based on the calculated value, four erosion vulnerability categories were defined: not vulnerable, slightly-, fairly and strongly vulnerable.

The erosion vulnerability map of Hungary (scale 1:500,000) was completed in the Environmental Geology Department of the Geological Institute of Hungary. The map can give a prognosis about the probable formation of different processes based on geological background. The parent material influences the main characteristics of soil, and it has an effect on slope angles, too. So the quality of the sediments under the soil can promote or hinder erosion.

The derived regional erosion map shows where strict soil protection rules should be adopted, but it also helps to choose the optimal branch of cultivation from environmental point of view, and to choose plants with proper surface coverage. In the future it would be useful to extend the research to the connection between the parent material and the baserock, from an erosion vulnerability point of view.