



## **Assessment of watershed regionalization for the land use change parameterization**

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The estimation of design discharges and water levels of extreme floods is one of the most important parts of the design process for a large number of engineering projects and studies. Floods and other natural hazards initiated by climate, soil, and land use changes are highly important in the 21st century. Flood risks and design flood estimation is particularly challenging. Methods of design flood estimation can be applied either locally or regionally. To obtain the design values in such cases where no recorded data exist, many countries have adopted procedures that fit the local conditions and requirements. One of these methods is the Soil Conservation Service – Curve number (SCS-CN) method which is often used in design flood estimation for ungauged sites. The SCS-CN method is an empirical rainfall-runoff model developed by the USDA Natural Resources Conservation Service (formerly called the Soil Conservation Service or SCS). The runoff curve number (CN) is based on the hydrological soil characteristics, land use, land management and antecedent saturation conditions of soil. This study is focused on development of the SCS-CN methodology for the changing land use conditions in Slovak basins (with the pilot site of the Myjava catchment), which regionalize actual state of land use data and actual rainfall and discharge measurements of the selected river basins. In this study the state of the water erosion and sediment transport along with a subsequent proposal of erosion control measures was analyzed as well. The regionalized SCS-CN method was subsequently used for assessing the effectiveness of this control measure to reduce runoff from the selected basin. For the determination of the sediment transport from the control measure to the Myjava basin, the SDR (Sediment Delivery Ratio) model was used.