

EXTRACTING OF HYDROLOGICAL DATA FROM DIGITAL ELEVATION MODEL FOR THE SOIL EROSION MODELLING

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In this paper non-point source pollution and the delivery process of nonpoint pollution using a GIS-based model in the basin of the Teplica River was estimated. The research focuses on the delivery of two types of pollutants - sediments and nutrients, with a focus on nitrogen and phosphorus. Three input raster maps - a digital elevation model, a soil map and a land-use map were used in the modelling, and additional images of slopes in the watershed, the direction of the flow of the water and pollutants, and the length of the flow were created. The amounts of sediment and nutrients available for transport by water depend on land use and soil and topographic conditions. The surface conditions of the basin define what proportion of sediments and nutrients will be trapped in situ and what proportion could be carried away by water. The proportion carried away by water is called the "delivery ratio", and it was calculated for each cell in the watershed. The path of the flow of pollutants from each cell to the watershed outlet was determined to be the "total flow-path delivery ratio", which expresses the amount of available load that actually reaches the stream. The final product of the model is the annual amount of sediments and nutrients in tons that are lost from the basin in a year.