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PRIORITIZATION OF TORRENTIAL FLOODS VULNERABLE WATERSHEDS UPSTREAM FROM THE "ROVNI" WATER RESERVOIR USING TOPSIS METHOD

Natalija MOMIROVIĆ[1]*, Tomislav STEFANOVIĆ[1], Tijana VULEVIĆ[2], Nada DRAGOVIĆ[2], Stanimir KOSTADINOV[2], Katarina LAZAREVIĆ[2], Sonja BRAUNOVIĆ[1]

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Abstract: Torrential floods are widespread natural hazards causing a lot of negative effects on people and the environment. During torrential floods, sediment transport increases leading to the deposition of sediment particles in the reservoir which decreases its storage capacity. Water reservoirs represent the most sensitive water management facilities to the erosion processes. Controlling sediment yield and sediment transport in the watershed is of great importance in extending the life of reservoirs, reducing potential economic damages, and supporting sustainable community development. The purpose of this paper is prioritization of sub-watersheds upstream from the "Rovni" water reservoir for conservation measures using the TOPSIS (Technique for Order of Preference by Similarity to Ideal Solution) method in order to extend the life of the reservoir. A total of 10 parameters were analyzed. Weights for each criterion (parameter) were calculated using the AHP (Analytic Hierarchy Process) method. The results showed that watersheds can be prioritized through geomorphological parameters complemented with land use for the selection of conservation measures. This will help decision-makers in better conservation planning of soil and water resources and thus in achieving sustainable development.

Keywords: soil erosion, torrential flood, water reservoir, TOPSIS, AHP

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