



CONDITIONS FOR SOIL EROSION OF THE CATCHMENT OF THE NAMELESS BROOK (WESTERN SERBIA)

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ABSTRACT

This study involves the evaluation of soil erosion within in small catchment within the Kamenica catchment, part of the Zapadna Morava catchment.

As regards the initiation of the wearing away of soil particles from the catchment slope, standard methods were used to quantify soil erosion. The aim of this study was to evaluate erosion factors in the catchment area of the nameless brook, classified as a dry valleys and small flash flood. The annual erosion intensity is $75.43 \text{ m}^3 \text{ km}^{-2}$ of soil. Based on natural and anthropogenic factors, the nameless brook catchment area belongs to erosion category IV, weak intensity, surface type, with the erosion coefficient of 0.22.

Key words: conditions for soil erosion, dry valleys and small flash flood, catchment.

INTRODUCTION

Land degradation and soil loss are global events. Human induced pressures on natural ecosystems are still in progress, along with conservation efforts [1]. The main factor causing soil degradation worldwide is water erosion, which threatens 56% of the world's arable land [2].

Over 90% of the total land area in the Republic of Serbia suffers from different types and intensities of erosion [3]. The erosion process can have both direct and indirect impacts, inducing permanent soil disappearance. The calculated value of the total annual sediment yield suggests that some 16.0 cm of soil are annually eroded off the 21,000 ha of land in Serbia [4]. In the Republic of Serbia (Central Serbia), there are 1.221 million ha of eroded soil, and 36,000 ha are in a steady state, now [5].

Erosion has mostly affected strongly sloping, deforested or cultivated shallow soils on slopes, formed on impermeable geological substrates, due to the effects of intense rainfall and fluctuating air temperatures [4].

The tendency of air temperature to increase and of rainfall to decrease is quite evident in the region of Čačak [6]. Climate change leads to degraded soil physical properties, increases soil erodibility and reduces the protective role of vegetation.

The above factors cause intensification of both surface and deep-cutting processes of erosion.

