



Soil Erosion and TOrrential Flood
Prevention: Curriculum Development at the
Universities of Western Balkan Countries



SETOF CONFERENCE

ABSTRACT BOOK

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PREFACE

Soil erosion and torrential floods are destructive processes, with serious consequences on the economy, society, and environment. Compared to large river floods, torrential floods occur suddenly, for a couple of hours after the rains of high intensity and therefore the defense against torrential floods is much more complex than in the case of large rivers. Due to climate change, which is also pronounced in the region of the Western Balkans, the intensity of erosion, and frequency and intensity of torrential floods will increase in the future.

Considering these facts, there is a need for a more detailed study of the problems of erosion and torrential floods and opportunities for the control of these destructive processes. For graduates to know the necessities for soil and torrent control, it is necessary to improve and modernize the existing study programs and develop a new master's program. This goal is achieved through the implementation of the Erasmus+K2 project "Soil Erosion and Flood Prevention: Curriculum Development at the universities of Western Balkan countries (SETOF)".

THE LEAD PARTNER of the SETOF project is the University of Belgrade (Faculty of Forestry). Members from partner countries are the University of Novi Sad, the University of Niš, the University of Banja Luka, the University of Sarajevo, and the Institute for Forestry (Belgrade). Members from program countries are BOKU University (Austria), University of Mediterranean, Reggio Calabria (Italy), and University Ss. Cyril and Methodius in Skopje, Hans Em Faculty of Forest Sciences (North Macedonia), and Forest Research Institute at the Bulgarian Academy of Sciences (Bulgaria). Associated members are the Serbian Chamber of Engineers, Forest Management Unit "Donjevrasko" Banja Luka, and Cantonal Public Company "Sarajevo-forests". Five universities from Serbia and Bosnia and Hercegovina are participating in the development and implementation of a joint master study program "Soil Erosion and Torrential Flood Prevention".

At the final conference of the SETOF project, the scientific papers of the project participants and other experts dealt with the study of soil and water resources. The Conference is organized into four topics. The participants of this conference deal with problems related to soil erosion assessment (mechanism/processes, modelling, and mapping), torrential floods (genesis, impacts, risks), prevention and management of soil erosion and torrential floods, and management of sustainable development in degraded are.

Nada Dragović

SOIL EROSION AND TORRENTIAL FLOOD PREVENTION: CURRICULUM DEVELOPMENT AT THE UNIVERSITIES OF WESTERN BALKAN COUNTRIES

SETOF

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APPLICATION OF SIMPLE ADDITIVE WEIGHTING METHOD FOR SELECTION OF APPROPRIATE MEASURES IN THE REHABILITATION OF THE LANDSLIDE

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Abstract: Changeable climatic conditions, a large amount of precipitation in a short period, as well as the complexity of the terrain structure can affect the occurrence of landslides in many areas. The paper deals with the problem of landslide rehabilitation on the regional road Stolice - Krupanj, which arose as a result of the steep slope, soil water saturation, and traffic loads. The technical measures for rehabilitating landslides that have been analyzed are: concrete retaining wall, gabion retaining wall, and geogrid. Slope stability analyses with applied technical measures were performed in the GEO5 program. All technical measures have increased the stability of the slope. The final decision about the appropriate solution was made after ranking all alternatives and applying the Simple Additive Weighting (SAW) method. This Multi-criteria decision analysis method is used to find the sum of the weighted performance rating for each alternative on all criteria. The criteria used for the analysis are: C1 – Construction costs, C2 – Fitting into the environment, C3 – Lifetime of the object, C4 – Susceptibility to damage. The application of the SAW method also requires determining the weight of the criteria and for this was used Rank sum method. As a result of the application of the multi-criteria decision analysis method, the use of geogrid proved to be the best solution to prevent damage caused by landslides.

Keywords: landslide rehabilitation, simple additive weighting method, multi-criteria analyses, slope stability

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