

Determination of Soil Loss by Erosion in Different Land Covers Categories and Slope Classes in Bovilla Watershed, Tirana, Albania

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Abstract : As a sediment production mechanism, soil erosion is the main environmental threat to the Bovilla watershed, including the decline of water quality of the Bovilla reservoir that provides drinking water to Tirana city (the capital of Albania). Therefore, an experiment with 25 erosion plots for soil erosion monitoring has been set up since June 2017. The aim was to determine the soil loss on plot and watershed scale in Bovilla watershed (Tirana region) for implementation of soil and water protection measures or payments for ecosystem services (PES) programs. The results of erosion monitoring for the period June 2017 - May 2018 showed that the highest values of surface runoff were noted in bare land of 38829.91 liters on slope of 74% and the lowest values in forest land of 12840.6 liters on slope of 64% while the highest values of soil loss were found in bare land of 595.15 t/ha on slope of 62% and lowest values in forest land of 18.99 t/ha on slope of 64%. These values are much higher than the average rate of soil loss in the European Union (2.46 ton/ha/year). In the same sloping class, the soil loss was reduced from orchard or bare land to the forest land, and in the same category of land use, the soil loss increased with increasing land slope. It is necessary to conduct chemical analyses of sediments to determine the amount of chemical elements leached out of the soil and end up in the reservoir of Bovilla. It is concluded that PES programs should be implemented for rehabilitation of sub-watersheds Ranxe, Vilez and Zall-Bastar of the Bovilla watershed with valuable conservation practices.

Keywords : ANOVA, Bovilla, land cover, slope, soil loss, watershed management

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