

Project Title: 2-Determination of Potential Soil Erosion with Rusle and Soil Conservation Planning In Kocadere Creek Watershed

Research Area	Soil and Water Resources
Research Program	Conservation and Development of Soil and Water Resources for Watersheds
Executive Institute	International Agricultural Research and Training Center (IARTC)
Supporting Institute/s	Ege University, Faculty of Agriculture, Dept. of Soil Science
Project Leader	Dr. Gülay YILMAZ, Agricultural Engineer, M.Sc
Other Researchers	Kezban ŞAHİN TAYSUN, Agricultural Engineer, M.Sc C. Oğuz ACAR, Agricultural Engineer, M.Sc Dr. Nejat ÖZDEN, Agricultural Engineer, M.Sc Lütfullah Aruğaslan, Geological Engineer Z. Lamia BİLİR, Chemical Engineer Prof. Dr. Alaettin TAYSUN, Agricultural Engineer, M.Sc Prof. Dr. Huriye UYSAL, Agricultural Engineer, M.Sc
Research Period	2005-2013
<p>Project Summary: In the research RUSLE and MUSLE models were used to estimate quantitative and spatial distribution of soil erosion and sediment yield and also for planning of soil conservation in Kocadere Creek Watershed and sub-watershed. The research was conducted between the year of 2005-2013 in Kocadere Creek Watershed. RUSLE model was implemented in GIS environment to determine annual average soil loss and obtain soil erosion map of Kocadere Creek Watershed. The amount of estimated annual soil loss rate in the watershed has been between the 0.00-563.61 ton ha⁻¹y⁻¹. According to the data obtained in the year of 2009 to 2013, 822.18 mm rainfall was corresponds to 191.8 mm flow at the sub-watershed. Sediment rating curve of the watershed has been derived from flow rate and suspended sediment measured in this period at the sub-watershed. With reference to this, annual average sediment yield has been 2.11 ton ha⁻¹y⁻¹ for the sub-watershed. On the other hand, annual average sediment yield predicted by MUSLE has been 2.22 ton ha⁻¹y⁻¹. The soil loss rate estimated with RUSLE has been 9.07 ton ha⁻¹y⁻¹ for sub-watershed. In comperison of the sediment yield measured for individual runoff events and the sediment yield estimated by MUSLE for the same runoff events, the coefficient of determination which illustrates the relationship between both data sets has been 0.92. According to soil loss rate estimated with RUSLE, the effect of different soil control measures for agricultural lands has been calculated within GIS, and the control measures for sustainable agriculture in the watershed have been identified.</p> <p>Key words: Balıkesir Bigadiç Kocadere, Soil erosion, RUSLE, Sediment Yield, MUSLE</p>	