

Soil Erosion Assessment Using SWAT at Tonle Sap Basin, Cambodia

Sarath Yam^{1,2} and Pipat Reungsang²

¹ Department of Geography and Land Management, Royal University of Phnom Penh, Phnom Penh, Cambodia; E-mail: yamsarath@me.com

² Department of Computer Science, Khon Kaen University, Khon Kaen 40002, Thailand;
E-mail: reungsang@kku.ac.th
E-mail: yamsarath@me.com

Abstract: Climate change is a hot issue nowadays which impacts on earth in various aspects. The most direct impact is soil erosion which is expected to change in its extent, frequency and size. Cambodia today is vulnerably facing to this problem, specifically the Tonle Sap Lake where has the lowest altitude in Cambodia. This study aimed to calibrate and validate the stream flows of the Tonle Sap Lake using SWAT model from year 2008 to 2010. The Tonle Sap River, a main connector between the Mekong River and the Lake within a sub watershed (less than 10,000 km²) located in Kampong Chhnang province, was selected to study and the data were obtained from the gauge station at Prek Kdam bridge. Model calibration was done from year 2008 through 2009 and model validation was performed for year 2010. Evaluation of the model predictions was verified by using Coefficient of correlation (R-value) and the Nash-Sutcliffe (E_{NS}). The study results matched well between the output (prediction values) and the input (observed values), which are in most commons of $R^2 \geq 0.6$ and $E_{NS} \geq 0.5$. Details of the research will be submitted later in full paper.

KEY WORDS: GIS, SWAT, calibration, validation, and simulation