

**CONFIGURATION OF SOIL AND WATER ASSESSMENT TOOL TO
ENDANE MODEL CATCHMENT, RATHNAPURA, SRI LANKA**

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The soil and water assessment tool (SWAT) is a widely used hydrological model that evaluates the effects of land management practices on water, sediment and agricultural chemical yields within large and intricate watersheds. This study aimed to configure the SWAT+ model in QGIS interface for the *Endane* model catchment in *Rathnapura*. A land use map of the study area was produced using Google Earth Pro. The catchment area of 720 ha included 67.25% forest cover, 24.56% home gardens and 7.24% tea lands as the major land use types. Daily rainfall and maximum and minimum temperatures were collected as weather data formatted into a text file for SWAT model input. In order to create a soil properties map for SWAT model input, 52 soil samples were collected using the grid sampling method, representing the different land uses of the study area. The soils were analyzed for pH, electrical conductivity (EC) and bulk density. Inverse distance weighting (IDW) and Kriging interpolation techniques were employed to map the soil properties with IDW interpolation determined to be the most effective technique based on the RMSE and MAE values in the *Endane* area. The soil in the forest region was acidic with very low EC levels, while home gardens showed higher EC levels compared to other land uses. These results indicated that different land uses exhibit varying EC and pH levels. The input files developed from this research will support the configuration of the SWAT model for the *Endane* watershed.

Keywords: IDW Interpolation, Land uses, QGIS, Soil mapping