A review of SWAT model on aplication for estimating nutrient dynamics in agricultural watersheds

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Soil and Water Assessment Tool (SWAT) was developed in the early 1990s with a combination of previously published models for predicting the effect of management decisions on water, sediment, nutrient and pesticide yields with reasonable accuracy on large, ungaged river basins. The model grew up as one of the most accurate predictionable model for nutrient flux in watershed-scale today because it has improved by many contributors with its opened source code. One of the advantages of using the model is to estimate of nutrient flux from non-point sources because it could consider various agricultural activities including plant nutrition. This is a reason that the model is able to simulate nutrient dynamics in watersheds, especially in agricultural watersheds, with reasonable accuracy. The model basocally simulates dynamics of water and related substances using physically-based equations. However, some of empirical equations based on observation in U.S. are adopted as well. Hence, it is necessary to confirm capability of the model when it's applied outside U.S. The objective of this study was to reveal capability of SWAT on estimation of nutrient flux from watersheds outside U.S. We reviewed peer-reviewed papers published in international journals which targeted various conditions from mountanious and hilly area dominated watershed to relatively flat area such as typical continental watersheds.

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