



Impact of land use change on microbial transport in a tropical mountain watershed

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Many studies demonstrated that land use change could lead to the variation of hydrology and sediment yield. However, few studies assessed the relationship between land use change and microbial transport at a watershed scale. Therefore, this research examined the impact of land use change on microbial transport, by targeting daily numbers of *Escherichia coli* (*E. coli*), a fecal indicator organism of possible waterborne diseases. The study area was a 60-ha catchment in Northern Laos where land use consists of annual crop, fallow, secondary forest, and teak. The land use change from 2011 to 2013 was considered in the study, from annual crop dominant watershed to grassland and teak dominant one. We calibrated the Soil and Water Assessment Tool (SWAT) and assessed the sensitivity of this model to land use change using the same record of rainfall during the 3-year simulation period. As a result, the model simulated an increased surface runoff and decreased suspended solids as land use changed. However, transported *E. coli* numbers decreased from 2011 to 2012 and increased from 2012 to 2013 due to leaf area index (LAI) changes. This work can be the basis to further develop the land use and bacteria modules of SWAT.