Parinya Kamwaree 2012: Effect of Para Rubber (*Hevea brasiliensis* Mull.) Area on Water Quality in Trang Watershed. Master of Science (Watershed and Environmental Management), Major Field: Watershed and Environmental Management, Department of Conservation. Thesis Advisor: Associate Professor Sittichai Tantanasarit, Ph.D. 183 pages.

This study the effect of para rubber (*Hevea brasiliensis* Mull.) area on water quality in Trang watershed, aimed to estimate and compare surface water quality in forest and rubber catchment areas. Furthermore, application of Soil and Water Assessment Tool (SWAT) to evaluate water quality and to created scenarios in land use change of para rubber area on nitrate and phosphate. Determination of selected sampling areas by dividing to 2 land use types were forest areas and para rubber areas. Water collected sampling in dry period (January, February and March 2011) and wet period (May, June and July 2011). Additionally, this study was created 3 scenarios, including scenario 1 was the change of forest area to para rubber area, scenario 2 was the change of para rubber area in conservation zone to forest area and scenario 3 was the change of agricultural area to para rubber area.

This study found that the average total solids, suspended solids, total dissolved solids, electrical conductivity, turbidity, potential of hydrogen ion, biochemical oxygen demand, nitrate and phosphate were non significant defferent at the 95% confidence level between sites. And the water temperature and dissolved oxygen were significant defferent at the 99% confidence level between sites. This study showed that the water quality was non significant defferent at the 95% confidence level between periods in both sites. The average of water quality were categorize within the standard value of surface water quality and natural water quality.

In addition, the SWAT model showed that the increase of para rubber area effected an increase rate of nitrate and phosphate, and categorized within the standard value of surface water quality and natural water quality.

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