

Radchadapan Pholkerd 2012: The Application of Remote Sensing and Geographic Information System for Soil Erosion Assessment in Huai Nam Rit Watershed, Uttaradit Province. Master of Science (Forest Resource Management), Major Field: Forest Resource Management, Department of Forest Management. Thesis Advisor: Assistant Professor Weeraphart Khunrattanasiri, Dr.rer.net. 89 pages.

The aims of this study were to assess of the distribution and map geomorphology and land use effected on soil erosion of Huay Nam Rit watershed, Uttaradit Province. Using an integration of Landsat - 5 TM image to analyses land use by the supervised classification Maximum Likelihood Model, and indices the training area, with Universal Soil Loss Equation Model for estimating onsite erosion by Geographic Information System. The study also performed on a grid size  $30 \times 30$  m. causing  $900 \times 900$  m. or  $0.81 \text{ km}^2$  system.

The results of this study indicated that land use in Huay Nam Rit Watershed in comparison to the Land Development Department (2545) could be divided into ten land use types, namely mixed deciduous forest, disturbed deciduous forest, natural regeneration forest, hill evergreen forest, abandoned field crop, teak forest plantation, banana orchard, paddy field, community and water source which had the percentage as the following 38.19, 25.54, 9.21, 7.23, 7.10, 6.07, 5.97, 0.64, 0.04 and 0.02 respectively. From this study found that soil erosion in Huay Nam Rit Watershed indicted total soil erosion rate in watershed area was slight rate 0.20 ton/ha/year. Most watershed area covered with abandoned field crop which could produced covered soil erosion at very severe rate 70.66 ton/ha/year or 25.76 percentage. The forest area that had land encroachment were agriculture, such as banana plantations after the natural disaster of 2549, people were left abandoned land. Meanwhile the area of paddy field land use type, rate of soil erosion was in a slight rate 0.03 ton/ha/year due to was lower slope, and that majority was plain. Which had land use characteristics of metamorphic and sedimentary rock geology.

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Thesis Advisor signature