Sureerat Kosantiae 2012: Application of SCS-CN Model for Estimation Runoff at Upper Yom Watershed. Master of Science (Watershed and Environmental Management), Major Field: Watershed and Environmental Management, Department of Conservation. Thesis Advisor: Mr. Piyapong Tongdeenok, Ph.D. 115 pages.

The aim of this research were to applied geoinformatic data and SCS-CN model for estimation runoff and compare with measurement data. The research procedure were collect data from various source such as topographic data, soil data and land use data. All spatial data were analyzed physiographic and hydrological characteristic of upper yom watershed for determination curve number (CN) and concern with rainfall amount for estimation runoff. The results were indicated watershed status in term of hydrology and potential runoff of upper yom watershed.

The results showed that annual runoff from SCS-CN model was 763.05 MCM. The highest runoff was 223.12 MCM. in August and the least runoff was apperance in March with 8.10 MCM.. During wet period the runoff was 685.08 MCM. or 89.78 percent of annual rainfall while in dry period runoff was 77.98 MCM. or 10.22 percent of annual rainfall amount. The relationship between rainfall and runoff was moderately with R^2 as 0.64 and similarity variation in wet period with R^2 as 0.65. While in dry period was non significant. The model verification was explain that accuracy was high efficiency with R^2 as 0.98. The results was nearly in wet period with R^2 as 0.97 while in dry period with R^2 as 0.91. Watershed hydrological characteristic were used for explained watershed hydrological potential as percentage of rainfall and runoff, ratio between wetflow and dryflow and timing portion between wet and dry period. The results were indicated that the percentage between rainfall and runoff was 62.79 percent. The runoff ratio between wet and dry period was 89:11 and timing portion between wet and dry period from model was 7:5 month. The model application selected 2 scenario with watershed classification condition and slope condition. The results showed that runoff data from watershed classification and slope condition was 695.89 and 714.01 MCM. respectively.

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