

Jitraporn Sawadee 2011: Spatial Analysis of Drought Area in Mae Klang Watershed for Sustainable Land Use. Master of Science (Sustainable Land Use and Natural Resource Management), Major Field: Sustainable Land Use and Natural Resource Management, Interdisciplinary Graduate Program. Thesis Advisor: Assistant Professor Kankhajane Chuchip, Dr.rer.nat. 147 pages.

The aim of this study was to determine drought risk area in Mae Klang watershed for supporting sustainable land use. This was successfully done by using GIS techniques by means of spatial analysis and multi - criteria analysis. Seven factors related to drought were evaluated, namely, average annual rainfall, land use, soil water holding capacity, evapotranspiration (ET), stream density, area of sub-watershed, and slope. The analytical hierarchy process (AHP) was applied to prioritize each unit area of the watershed and to categorize the area into 5 classes of drought according to risk levels, i.e., severe risk, high risk, moderate risk, low risk, and no risk.

The study showed that the 606.07 square kilometers of Mae Klang watershed could be classified and mapped as severe risky area, high risky area, moderate risky area, and no risky area covering an area of 6.65, 26.47, 164.85, 308.73, and 100.34 sq.km., respectively. To mitigate the hazard by drought for this area, maintaining and rehabilitating forest cover, providing water reservoir, managing appropriate cropping systems in terms of selecting tolerance plant species and proper planting period, and adopting soil and water conservation methods were suggested in order to follow the concept of sustainable land use.

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Thesis Advisor's signature