Kamphol Kesjinda 2011: Numerical Grid Methods for Landslide Hazard Prediction Model at Huai Mae Mhae Watershed; Chiang Dao District, Chiang Mai Province, Thailand. Master of Science (Earth Science and Technology), Major Field: Earth Science and Technology, Department of Earth Science. Thesis Advisor: Associate Professor Veerasak Udomchoke, D.Tech.Sc. 101 pages.

Landslide hazard prediction model at Huai Mae Mhae watershed in Chiang Dao district of Chiang Mai Province aims to establish model for mapping landslide area by numerical grid method using 30 m x 30 m finite grids over multilayers of data in the Geographic Information System (GIS). Data included were antecedent precipitation index from daily rainfall distribution and field moisture content in soil, recession coefficient of the watershed from weir at the outlet, effective soil depth that obtain from soil profiles at road cuts and related in exponential function of aspect, slope and elevation of the study area, landuse and soil strength those are analyzed by slope stability model accompanied with moisture distribution module in Weather Research and Forecasting Model (WRF) to obtain the slope stability factors, then map the landslide area of the mountainous watershed. The results revealed that most of the watershed area is in moderate degree of landslide level due to steep slope on high mountain and loamy sandy soil derived from granitic rock that exist very high water holding capacity and easily slide down the slope. Fortunately, these areas are mostly covered with dense hill - evergreen forest that their deep roots can retain high stability on slope. Area subjected to high potential landslide is covered by tea and orchard plantation due to lack of deep roots of large tree to anchorage in soil for landslide retardation. The areas that show low degree of landslide level were demarked on the gentle slope and undulating area. The antecedent precipitation index at critical level (critical API) of this area ranged between 340 to 370 millimeters in the steep slope area that cover with agricultural land use or in the high potential landslide area.

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