Buspakorn Khantithirakawee 2012: HEC-RAS Model Application for Flood Management in Upper Nan River Basin. Master of Engineering (Water Resources Engineering), Major Field: Water Resources Engineering, Department of Water Resources Engineering. Thesis Advisor: Associate Professor Kobkiat Pongput, Ph.D. 147 pages.

The hydraulic models of river systems from the Hydrologic Engineering Centres - River Analysis System (HEC-RAS) together with the HEC-GeoRas and ArcView GIS programs were applied to analyze the relationship between the flow and the water level for floods mapping and flood management planning in Muang Nan district. An extreme flood event in Nan River Basin which occurred in year 2006 was selected as a case study. In the study, some physical data were limited especially the aerial data and contours in the military area. However, the problem was solved by using GIS technique called mosaic and the Digital Elevation Model (DEM) to generate new contours. The generated contours were compared with field surveys and topography maps of the L7018 series. The results indicated that the area and depth of flooding from models were consistent with the evidences of flooding in year 2006 such as field survey, aerial photography data, contours in Muang Nan district, and information from related agencies. As a result of this study, the flood map derived from the model can be used for planning to provide protection and flood mitigation measures.

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