Piti Numuang 2007: Study of Flood Simulation and Flood Mitigation of Phetchaburi River Basin. Master of Engineering (Water Resources Engineering), Major Field: Water Resources Engineering, Department of Water Resources Engineering. Thesis Advisor: Associate Professor Chukiat Sapphaisan, M.Eng. 128 pages.

The geographical characteristics of Phetchaburi River Basin are mountain ranges in the upper part and coastal plain in the lower part of basin. The basin is located in a monsoon zone and usually flooded by heavy rain.

In October 2003, the heavy rainfall and floods in the Phetchaburi River Basin made a serious impact to the economy directly and indirectly. Therefore, this research intends to bring in this situation to study by focusing on how to estimate runoff and flood properly.Due to the limitation of recorded data, the Mae Prachan and Huay Phak sub-river basins were selected to be the representative basins. The SCS model was used to find suitable curve numbers (CN) for these sub-basins. In addition, it focuses on flood management by implementing various alternative mitigation measures. With the use of InfoWork RS Model which demonstrates condition of flow in The Phetchaburi River in one dimension, the Manning's coefficient of Phetchaburi River and efficiency of flood mitigation measures could be found.

From the study, during the October 2003 flood in Phetchaburi River Basin, the suitable curve numbers (CN) in the Mae Prachan and Huay Phak sub-river basins were 74 and 76, respectively. The Phetchaburi River's Manning's coefficient of flow in channels was 0.035, and in floodplain was 0.045. The efficiency analysis of the flood mitigation measures can be concluded that the management of Khang Krachan Dam, the construction of two reservoirs in Huay Mae Prachan and Huay Phak rivers and the construction of a canal to divert water from Phetchaburi River to the Gulf of Thailand can reduce the flooding level in Phetchaburi city approximately 2.9 meters.

Piti Numuang — Student's signature

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