Research Title	Integrated Management of Upstream Area Development: Case Study of Building Simulation Model of upstream dike along with Hydro Power Generation
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Year	2015

This research was conducted in a form of descriptive research classified as applied research in order to design upstream dike for generating hydro power through building Simulation Model. Data were collected by studying the research on the Potential and Feasibility of the Small Hydro Power Project in Phutoei National Park of Suphanburi Province, of Pornthida Tepprasit et al. (2013) as well as studying on data obtained from papers of related organizations and technical field data to determine appropriate dike model as well as selection of type of hydro turbine.

Construction of Simulation Model of upstream dike along with hydro power generation was consisted of development of mathematical model by using C# language. This Simulation Model was created by using Visual Studio that is a program for developing Windows application in order to receive input data of the studied project for analyzing and finding the quantity of generated power in the aspects of filling information of necessary variables and input of data on Mean Annual Runoff in the past. Accordingly, the program would be able to calculate values, process data, and provide required output data (e.g., installed capacity and feasible generated power) immediately. This could be conducted by simulating power generation based on data and specifications of the project including drainage area, Mean Annual Runoff, mean annual flow, net water height, efficiency of hydro turbine, net flow rate, and duration of generation. The program calculated values and gave the outcomes on installed capacity and feasible generated power. For experiment, it was found that supplied power was approximately 20 kilowatts while generated power was approximately 40 kilowatts per hour.

Based on the study, it was found that the model was easy to adjust data and installed capacity including designed flow rate and designed water height, etc