

Evaluation of impacts of the establishment of detention dams in flood management (Case study of the Kan River basin)

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Abstract

The occurrence of flood usually associated with huge losses of life and property, and flood control actions due to the extent of aquiverous basins and multiplicity of areas at risk, requires a large budget. Therefore, proper management and beforehand actions are an undeniable necessity. Kan areas due to the special features such as location and as a place of recreation for people are important for flood control realization projects. In this study, flood routing with different return periods in the basin area of Kan was done using HEC-HMS software. According to physiographic conditions of basin, number of four delay dam in the four output under basin were designed and their effect on routing and outflow hydrograph specifications of basin were analyzed. Peak flow rate of basin output as a result of establishing delay dams, showed a significant decrease so that the flood peak discharge for return periods of 2, 5, 10, 25, 50 and 100 years have been obtained respectively from 76.60 to 78.0 - from 79.4 to 51.4 - from 39.1 to 33.7 percent. Also, by increasing the return period of flood the effect of these reservoirs in reducing flood outflow is reduced.

Key words: flood control, Kan basin, detention dams, HEC-HMS

1. Introduction

Due to the natural disasters that exist and happen in different years we can refer to floods that cause huge life and financial losses in human life. The studies which are conducted in this basin indicate that flooding has a great contribution in the natural disasters. As a result of flood occurrence a large volumes of runoff damages the urban and human infrastructures which by sediment transportations caused by degradation and erosion the damages will be even greater. The consequences of floods are usually with huge losses of life and property that their compensation is subject to a lot of spending, on the other hand aquiver us basins flood control measures according to the extent of the watershed area and multiplicity of high risk areas are in need of high funds. Therefore, for proper management the awareness of the