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DESIGN FLOOD ESTIMATION FOR SUNGAI KERAYONG USING RORB MODEL TO STUDY RIVER CHANNEL STABILITY.

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ABSTRACT

Hydrological studies of rainfall runoff processes provide the basis for estimating design flood for urban stormwater drainage systems. This paper outlines the technique for estimating design flood using RORB model (Runoff Routing Program) for Kerayong River Catchment. RORB model is characterised by two routing parameters K_c and m . The calibration and validation procedure suggested that the value of K_c and m for Kerayong Catchment are 8.5 and 0.74 respectively.

INTRODUCTION

The runoff-routing program (RORB) is developed by Laurenson and Mein (1985). RORB has been widely used for flood estimation in Australia and in this region, Malaysia (Nawang et. Al, 1990) and in Singapore (Selvalingam et. Al, 1987). In the present study, the RORB model is used to estimate the design flood discharges at several locations along Kerayong River based on present or future development scenario. This paper presents the results of calibration and validation of the model using recent flood data.

BRIEF DESCRIPTION OF RORB MODEL

A short description of Rorb model as given by Laurenson et.al (1995) is presented herein. Rorb model is an interactive runoff and streamflow routing program that calculates catchment losses and streamflow hydrograph resulting from rainfall events and/or other forms of inflow to channel networks. This program can be used for Flood estimation, Spillway and retarding basin and Flood routing.

In flood estimation application, the program may be used on rural, urban or partly rural and partly urban catchments. It is widely used to determine design flood from corresponding design rainfall with selected return period. The program can also be used for flood forecasting if the user can provide independently a procedure for evaluating the loss parameter in real-time. In retarding basin and spillway design applications, the