MAGNITUDES AND FREQUENCY OF FLOODS IN MALAYSIA HYDROLOGICAL PROCEDURE NO.4 (HP4) 2017

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Project Description:

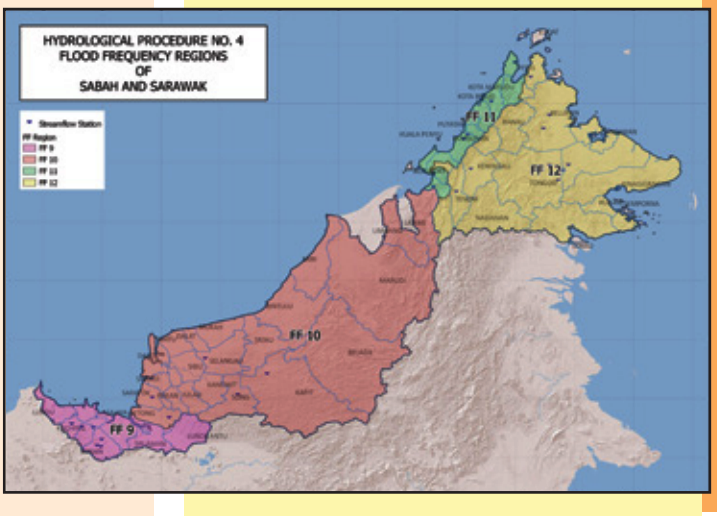
Flooding is a major natural disaster in Malaysia and many projects require estimation of peak flood dicharges, This project is to develop a simple procedure to estimate the peak flood discharge (Qp) for ungauged catchment areas in Malaysia using Regional Flood Frequency Analysis (RFFA). Previously, Hydrological Procedure No 4 (HP4) developed in 1987 used RFFA for estimating peak flood discharge in Peninsular Malaysia. This project reviews HP4 (1987) and extends the coverage of RFFA to include Sabah and Sarawak. In HP4 (1987) two parameters: mean annual rainfall (MAR) and catchment area (A) were used for estimating Qp, In this project, the method of L-Moments was applied instead of the Method of Moments in estimating the statistical floods. The flood estimation procedure also incorporated catchment slope (S) as an additional variable besides MAR and A to determine Qp.

RPM's Role/Contribution in the Project:

RPM carried out this study starting with collection of hydrological data, developed a new formula to estimate peak flood discharges, prepared a manual for the Hydrological Procedure (HP4 Revised and Updated 2018), RPM also developed an interactive software for the new HP4 and conducted trainings for water managers, operators and designers.

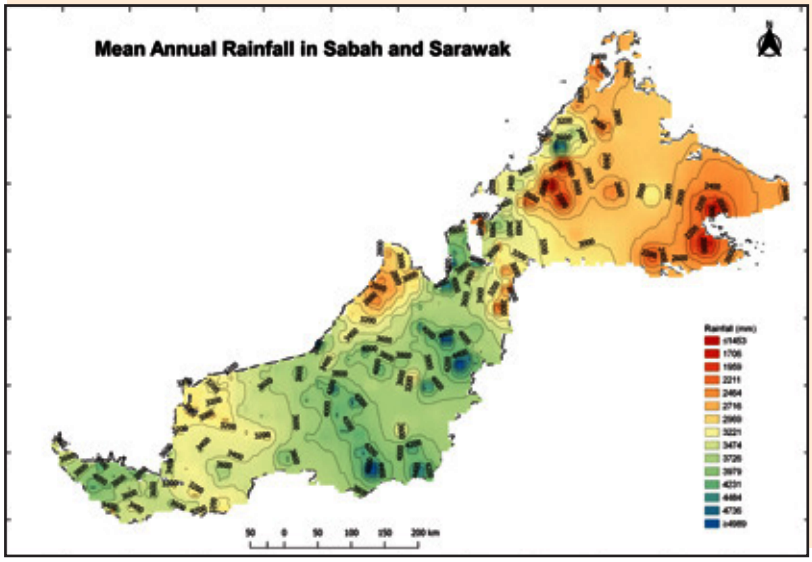
Challenges:

1. To collect data from 1184 rainfall stations and 238 streamflow stations from all states in Malaysia (including Sabah and Sarawak).
2. Data quality was an issue and much effort was made to screen the data collected.
3. The new formula incorporated catchment slope as an additional variable and data statistics fitted using method of L-Moments.
4. An interative software was developed to simplify the use of the procedure and to produce standardised output of the flood estimation computations.



Key Info:

1. A procedure to estimate peak floods for ungauged catchments in Malaysia using Regional Flood Frequency Analysis.
2. A user-friendly software to estimate peak floods in Malaysia.



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