ABSTRACT

This dissertation investigates the relationships between geomorphometric properties and the minimum flow discharge of undisturbed drainage basins in the Taman Bukit Cahaya Alam, Forest Reserve. The drainage basins selected were third-order basins so as to facilitate a common base for sampling and performing an unbiased statistical analyses. Three levels of relationships were observed for the study, significant relationships exists between the geomorphometric properties as shown by the correlation network analysis; secondly, individual geomorphometric properties were observed to influence minimum flow discharge; and finally, the multiple regression model set up shows that minimum flow discharge is dependent of basin area (Au), stream length (LS), maximum relief (Hmax) and stream frequency (SF). These findings further enforced other studies of this nature that drainage basins are dynamic and functional entities whose operations are governed by complex interrelationships occurring within the basins. Changes to any of the geomorphometric properties would influence their role as basin regulators thus influencing a change in basin response. In the case of the basin's minimum low flow, a change in any of the properties considered in the regression model would thus influence the 'time to peak'

of flow. A shorter time period would mean higher discharge, which is generally considered the prerequisite to flooding.