

## **Morphometric analysis of upstream Sungai Batu catchment in Selangor, Malaysia using geographical information system (GIS)**

### **ABSTRACT**

The evaluation of morphometric analysis was conducted in upstream Sungai Batu catchment with the total area 24.40 km<sup>2</sup>. The GIS application used as a tool to generate drainage network from ASTER Global Digital Elevation Model (30m) and obtains reliable information of linear, areal and relief morphometric parameters towards the hydrological responses. Results show that the study area is 4<sup>th</sup> order catchment having 99 total streams, indicate the lower stream order. The study area is having elongated shape with high permeability surface, high infiltration rates and moderate surface runoff. The moderate runoff condition is highly associated with lower erosion and sediment transport capacities and tend to form a floods diminution due to the flow from tributaries into the main stream which require greatest basin lag time to peak discharge. The GIS application in morphometric study is very efficient tool for better understanding in terms of the several morphometric parameters and terrain parameters such a surface runoff, capacity of infiltration and lithology which are valuable and act as a guidance for decision makers to make sustainable development in watershed planning, management and mitigation measure control.

**Keyword:** Digital elevation model; GIS; Morphometric analysis; Watershed management