

Raster-Based Derivation of a Flood Runoff Susceptibility Map using the Revised Runoff Curve Number (CN) for the Kuantan Watershed, Malaysia

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ABSTRACT

This study aims to develop a methodology for generating a flood runoff susceptibility (FRS) map using a revised curve number (CN) method. The study area is in the Kuantan watershed (KW), Malaysia, which was seriously affected by floods in December 2013 and December 2014. A revised runoff CN map was developed for the study area and then compared with those available in the SCS standard tables. The CN obtained from the revised approach range between 18 and 100, which reveals a stretching effect on the CN, which initially ranged between 33 and 100. Subsequently, the FRS map was developed for the KW. Approximately 5 % of the study area was identified as a very high-risk zone and 13 % as high-risk zone. However, the spatial extent of a high-risk zone in the downstream end and lowland areas of the KW could be considered to be the main cause of flood damage in recent years. From practical point of view, the finding of this research provides a road map for government agencies to effectively implement flood mitigation projects in the study area.

Keywords: SCS; Flood; Kuantan