

KINEROS2 application for land use/cover change impact analysis at the Hulu Langat Basin, Malaysia

ABSTRACT

The impacts of land use/cover changes (LUCC) on a developed basin in Malaysia were evaluated. Three storm events in different intensities and durations were required for KINEROS2 (K2) calibration and LUCC impact analysis. K2 validation was performed using three other rainfall events. Calibration results showed excellent and very good fittings for runoff and sediment simulations based on the aggregated measure. Validation results demonstrated that the K2 is reliable for runoff modelling, while K2 application for sediment simulation was only valid for the period 1984-1997. LUCC impacts analysis revealed that direct runoff and sediment discharge increased with the progress of urban development and unmanaged agricultural activities. These observations were supported by the NDVI, landscape and hydrological trend analyses.

Keyword: Impact analysis; KINEROS2; LUCC; Runoff; Sediment