

National Master Plan

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Chapter 1

Mulvaney Equation

The Mulvaney Equation was proposed by the Irish engineer Thomas James Mulvaney (1822-1892). The equation was first published in 1851. The model predicts the peak discharge Q as a function of an empirical constant C , the average rainfall intensity of the catchment I and the area of the catchment A :

$$Q[m^3/s] = C[10^3 * 86400/10^6] * I[mm/hour] * A[km]$$

The intensity being given in mm/hour and the area in km, the constant C needs to perform the transformation of units from mm/hour and km to m/s. This equation is only valid for small catchments in which storage and losses are not significant.