If rainfall intensity and duration is more, large will be the quantity of storm water available. If the rainfall takes place very slowly even though it continues for the whole day, the quantity of storm water available will be less.

Harder surface yield more runoff than soft, rough surfaces. Greater the catchment area greater will be the amount of storm water. Fan shaped and steep areas contribute more quantity of storm water. In addition to the above it also depends on the temperature, humidity, wind etc.

Estimate of quantity of storm water:-

Generally there are two methods by which the quantity of storm water is calculated:

1. Rational method 2. Empirical formulae method

In both the above methods, the quantity of storm water is a function of the area, the intensity of rainfall and the co-efficient of runoff.

Rational method:-

Runoff from an area can be determined by the Rational Method. The method gives a reasonable estimate up to a maximum area of 50 ha (0.5 Km2).

Assumptions and Limitations Use of the rational method includes the following assumptions and limitations: Precipitation is uniform over the entire basin. Precipitation does not vary with time or space. Storm duration is equal to the time of concentration. A design storm of a specified frequency produces a design flood of the same frequency. The basin area increases roughly in proportion to increases in length. The time of concentration is relatively short and independent of storm intensity. The runoff coefficient does not vary with storm intensity or antecedent soil moisture. Runoff is dominated by overland flow. Basin storage effects are negligible. The minimum duration to be used for computation of rainfall intensity is 10 minutes. If the time of concentration computed for the drainage area is less than 10 minutes, then 10 minutes should be adopted for rainfall intensity computations.

This method is mostly used in determining the quantity of storm water. The storm water quantity is determined by the rational formula:

\[ Q = \]