

ESTIMATION OF ANNUAL RAINFALL PENETRATION FROM SATURATED HYDRAULIC
CONDUCTIVITY, SOIL MOSTURE CONTENT AND POTENTIAL,
AND ACTUAL MONSOON PERIOD

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There are many empirical formulae for estimation of this factor, but these are not universal in their application regarding their methodologies. Datta et al. (1973) have attempted in a classical way for assessing annual rainfall penetration with the help of annual rainfall and average clay percentage of top soil. In the present studies the attempt is made for estimating annual rainfall penetration using saturated hydraulic conductivity of top soil and actual monsoon period for a village (J.L.No.388, Contai Block III) in Contai ($22^{\circ}36'-22^{\circ}11'N$ latitude, $87^{\circ}59'-87^{\circ}25'E$ longitude). The proposed hydraulic method for assessing annual rainfall penetration showed the result as 8.82 cm/year whereas that from Datta et al. (1973) formula it was 7.096 cm/year. So, from the above result it was postulated that the use of saturated hydraulic conductivity of top soil might be directly helpful for assessing the annual rainfall penetration in a area. So, another studies was planned at Kalyani ($23^{\circ}.5N$ latitude, $89^{\circ}E$ longitude; altitude 9.75m from m.s.l.; BCKV hostel Campus) from June 1989 to 2 January 1992. AMP was considered in that studies because there is maximum probability of top soil to be at saturated condition which is congenial for rainfall penetration. From the result it is found that the rainfall penetration during effective monsoon period is around 28 to 29 percent of average annual rainfall and during the monsoon period it is 34.115 percent and from Datta et al. formula (1973) it is 21.496 percent of average annual rainfall of 1989 to 1991, whereas the estimated annual rainfall recharge from daily fluctuation of water table is about 14 to 16 percent of average annual rainfall in these three years.

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