DEVELOPING AN EQUATION FOR COMPUTATION OF RUNOFF FOR JILLEDUBANDERU MINOR BASIN

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ABSTRACT

For design of any water resources project, it is necessary to have the information about the runoff data which may not be readily available. In general, empirical methods are being used to compute the runoff. In this paper, an attempt has been made to develop an equation for computation of runoff. For this purpose, Jilledubanderu minor basin has been selected as study area. Jilledubanderu is a minor basin of Chitravathi which is a subbasin of Pennar basin.

To develop the equation for computation of runoff, regression analysis has been used. For regression analysis, 'Statistical Package for Social Sciences (SPSS) 17.0' software is used and an equation has been developed using the coefficients obtained from the regression analysis. Various parameters like basin area, rainfall, bifurcation ratio, elongation ratio, relief ratio and runoff are the inputs for regression analysis.

Out of these, basin area, bifurcation ratio, elongation ratio, relief ratio are computed based on topo sheets of scale 1:50,000. Runoff has been calculated using Strange's table since, runoff data is not readily available. Required rainfall data has been collected from the Chief planning office, Anantapuram. For regression analysis, runoff has been taken as the dependent variable and the remaining parameters have been taken as independent variables. Validity of the equation has been checked and found satisfactory.

ABBREVIATIONS

Basin area - 'A'; Rainfall - 'RF'; Bifurcation ratio - 'Rb'; Elongation ratio - 'Re'; Relief ratio - 'Rr'; Runoff - 'Q'; Millimetres – 'mm'; Metres – 'm'; Kilometres – 'km'; Square Kilometres – 'Sq.km'; and m^3-Cum.

KEYWORDS: Basin Area, Rainfall, Bifurcation Ratio, Elongation Ratio, Relief Ratio , Runoff, Strange's Table and Statistical Package for Social Sciences (SPSS) 17.0' Software