

ANALYSIS OF GROUND WATER LEVELS AND WATER QUALITY OF MUSI RIVER BASIN IN TELANGANA STATE

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ABSTRACT

The primary objective of this thesis is to gain better understanding of Ground water level variations in the Upper Musi Catchment. The objective is achieved by studying the ground water levels in the Musi catchment for the past 20 years period between 1985 to 2004, along with digital water level records for the past 2 to 3 years.

Using ground water level data contour maps are prepared for the past 20 years. From contour maps it is observed that there is a progressive increase of area under the successive deeper ground water contours suggesting large scale over ground water withdrawal in the region. From hydrographs of piezometer wells and observations wells, it is observed that ground water levels are in decreasing trend with cyclic variation of rainfall. Parallely the rainfall trend is decreasing at some stations, increasing at other stations and remaining constant at some other stations.

Using digital water level records a relation is obtained between raise in ground water level and amount of rainfall event. The R^2 values obtained from this relation are used to identify the zones favorable for ground water recharge.

With help of 20 years ground water level data rainfall recharge is calculated. Using this rainfall recharge an infiltration rate for the basin is estimated. An estimation of ground water draft and change in ground water volumes is also done. Using ground water draft and ground water volumes, the ground water balance available for future use is evaluated and is found to be 24.49 MCM.

KEYWORDS: Ground water, canals, tanks, rainfall, ecosystem, Agriculture.