SUB-SURFACE WATER REGIME RELATED TO LANDFORM STUDIES THROUGH SATELLITE IMAGES
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ABSTRACT

Based on the visual interpretation of satellite (Landsat) false colour composite imagery, the entire Haryana State is divided into eleven landform units. Seven major landform units are studied in details with respect to water table fluctuation, ground water quantum and draft. The studies reveal that usable recharge and draft per unit area are maximum in case of areas of water seepage and periodic flooding followed by Yamuna and Ghaggar flood plain and upper alluvial plains with occasional sand dunes. The minimum recharge and draft are observed in case of dune areas.

INTRODUCTION

Haryana displays a variety of landscapes. On the east, the State is bounded by perennial river Yamuna and on the west flow the seasonal rivers like the Ghaggar, Markanda, Saraswati and Chutang. Its northern parts slope imperceptibly from the northeast to the southwest and the southern region is undulating due to the presence of a number of small hills of the Aravalli system and also sand dunes of varying magnitude. The chain of Aravalli hills run from south to north so that number of small seasonal streams like Sahibi, Krishnawati, Dohan etc. bring floods from Rajasthan Gurgaon, Rohtak and Mahendergarh districts. A number of small lakes and depressions have also been formed in Gurgaon district between the Aravalli ridges.

In the present studies, the whole State has been divided into different landform units on the basis of visual interpretation of Landsat Images. An attempt has been made to correlate major landform units with water table fluctuation, ground water quantum and draft.

METHODS AND MATERIAL

False colour composite Landsat images covering Haryana State have been visually interpreted. Eleven landform units as shown in Fig. 1 are demarcated. Seven major landform units (Table 1) are selected for detailed study. The area under each landform units is calculated by planimeter. Data for groundwater recharge and draft have been collected from H.S.M.I.T.C. and Ground Water Cell, Department of Agriculture, Haryana. Based upon these data, ground
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UPPER ALLUVIAL PLAINS WITH OCCASIONAL SAND DUNES
SALINITY PATCHES
UPPER ALLUVIAL PLAINS WHERE IRRIGATED SCHEMES TEND TO BE RELATIVELY RECENT
YAMUNA AND GHAGGAR FLOOD PLAIN
RAINED SEMI IRRIGATED STABILIZED AEOLIAN COVER DEPRESSIONS
AREA OF WATER SEEPAGE AND PERIODIC FLOODING DUNE AREAS
EPHEMERAL FLOOD BASINS IN PSAMMOMETS
HILLS EXTENSION OF ARAValli HILL RANGE

LEGEND
1. SHIWA LIK HILLS
2. SHIWA LIK ROLLING PLAIN
3. UPPER ALLUVIAL PLAINS WITH OCCASIONAL SAND DUNES
4. SALINITY PATCHES
5. UPPER ALLUVIAL PLAINS WHERE IRRIGATED SCHEMES TEND TO BE RELATIVELY RECENT
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Fig. 1. Tentative landform map of Haryana State.