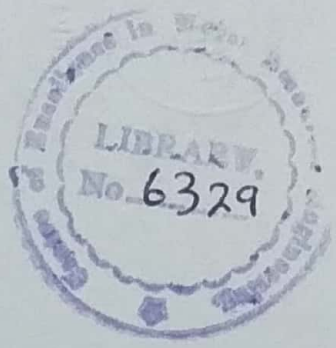
THESIS

APPLICATION OF MODFLOW NUMERICAL MODEL IN PIR MAHAL AREA OF RECHNA DOAB



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ABSTRACT

In sixties, the Government implemented several SCARPs in the country to curb the twin menace of waterlogging and salinity. These projects succeeded in lowering the water table viz. - a - viz. creating awareness with regard to development of tubewells in the private sector. The development of tubewells in fresh groundwater areas of the Province has brought a revolution in irrigated farming by substantially increasing the cropping intensities. However, unplanned and uncontrolled groundwater abstraction has finally lead to mining and saline water intrusion in certain areas such as Pir Mahal in Rechna Doab. A groundwater numerical model was applied to both the fresh groundwater area (Pir Mahal area) and the saline groundwater area lying northwest of Pir Mahal for detailed study. The model was also used to forecast impacts of different groundwater abstraction trends, meteorological conditions and developmental interventions.

The results of the study revealed that water table depth in FGW area south of Pir Mahal is continuously declining and the stress is ever-increasing on areas already being mined. Groundwater flow from northwest part of the aquifer has also shown movement towards the critical area in south and southwest of Pir Mahal. Water quality data also confirmed deterioration of pumped groundwater. In order to protect the fresh groundwater aquifer from its getting impaired or permanently lost and to ensure sustainable groundwater supplies, groundwater management measures in the area are absolutely required.