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Finite element ground water flow model (aquifer)-Upper Ganga Command Area

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ABSTRACT

Computer models of ground water aquifers have become a commonly used tool for the analysis and evaluation of ground water schemes. A computer model allows the scientists to do a better job in an efficient manner. Use of numerical models has gained momentum on the advent of fast computers, the recent trend being of finite element models. AQUIFEM-1 is a numerical technique based on the finite element approach developed by Wilson and Costov at MIT, USA. It was originally developed under UNDP sponsorship to basins in Greece and Yugoslavia. AQUIFEM-1 is written in Fortran-IV for an IBM 370 version and subsequently modified by MIT to run on ICL 1902. The programme is based on an incore aquifem solver which can run on micro computers with a facility of overlaying to accomodate on small computers.

This revised version was adopted and suitable alterations and modifications have been made to implement on VAX-11/780 system. The details of the programme modifications and restructuring of the programme are discussed in the report. The programme was subsequently tested using the test data. A typical study area in the alluvial plains of Western Uttar Pradesh has been considered to conduct a case study. The system characterisation of the study area and other pertinent details including the water balance in the study area are also discussed and presented.

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