

## **MANAGEMENT OF AGHIA VARVARA'S AQUIFER, USING LINEAR PROGRAMMING**

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### **EXTENDED ABSTRACT**

The present research project analyzes the behavior of Aghia Varvara's aquifer in Drama, Greece. As increase of water demand has created a lot of problems in the last years it is imperative need to develop water resources management plans in the world. Groundwater represents one of the most important resources, so many of the plans are related to the exploitation of the aquifers. The main objective of this study is the application of a comprehensive and complete simulation-management combination model, capable of finding the water mass balance of the aquifer and defining the optimal management way . In order to simulate the aquifer, a finite difference model is used. Applying this model and the Response Matrix Method, the management of the aquifer is achieved. Once the simulation of the aquifer is finished, the Linear Programming analysis is performed to obtain the optimal values of piezometric heads and flow rates. The objective scope of the subject is to maximize the total amount of pumped water.

**Key words:** confined aquifer, simulation models, management and optimization techniques.