

Main theme	Sub - Theme	Code Number
Natural Resources	Water	12
Study Name	Ground Water Resources & Quality	
Author	Jane Dottridge	
Date of Study	1994	
Objectives	<p>The aim of the report is to summaries the main findings of the research, combining the conclusions form both the hydraulic and hydro-chemical aspects of the study into a coherent statement of the current knowledge of the Badia's ground water resources. The second objective is to use the results to highlight the critical gaps in the existing database, and to make recommendations for future research to investigate the areas of uncertainty. Looking forward to the implementation of the Badia Research and Development Progamme, preliminary recommendations on the sustainable development of water resources are also included.</p>	
Output and Recommendation	<p><b>Aquifer properties and groundwater flow:</b> Groundwater in north-eastern Jordan occurs in three aquifer complexes, upper, middle and lower. The upper and middle aquifer systems are separated by an aquitard, the Muwaqqar (B3) marls, through which significant leakage is though to occur. <b>Discharge and abstraction:</b> the main natural outlets form the basin are the springs at Azraq, the Druze springs fed by water flowing from the north and the springs at Azraq Shishan fed form the south. The Druze springs are located at the boundary of the basalt and Rijam outcrop and Shishan springs at eh boundary of the Rijam outcrop with the Pleistocene alluvium. <b>Hydrochemistry and water quality:</b> the distribution of Total Dissolved Solids (TDS) in the upper aquifer, confirms the radial flow pattern but contouring reveals tow "tongues" of low concentration coincident with the El-Aritien and Sirhan fault zones. To be zones of high transmissivity.</p>	
Development Aspects	<p>The main recommendations for future research are aimed at reducing the uncertainty in the assessment of available groundwater resources in the north –eastern Badia, Which still persist despite numerous studies. As abstraction rates form the upper aquifer in the Azraq basin are already high, the priority for further investigation of this aquifer is to quantify the renewable resource, by estimation of recharge and accurate dating of the ground water. However, to minimize competition for limited resources, sustainable development in the north-eastern Badia will require alternative sources of water, thus the second priority for future research is evaluation of the alternatives: the middle aquifer in the Azraq basin, the groundwater in the Sirhan and Hammad basins, the feasibility of enhancing recharge or reusing effluent, and water conservation measures.</p>	
Remarks	<p><a href="https://doi.org/10.1007/978-3-030-59320-9_109">https://doi.org/10.1007/978-3-030-59320-9_109</a></p>	