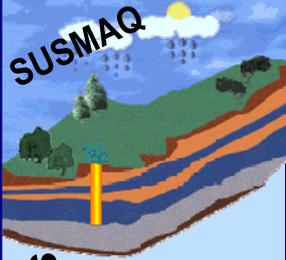




Palestinian National Authority  
Palestinian Water Authority



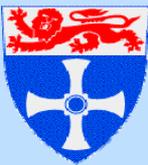
السلطة الوطنية الفلسطينية  
سلطة المياه الفلسطينية



## Sustainable Yield of Palestinian Aquifers

Sustainable Management of the West Bank and Gaza Aquifers

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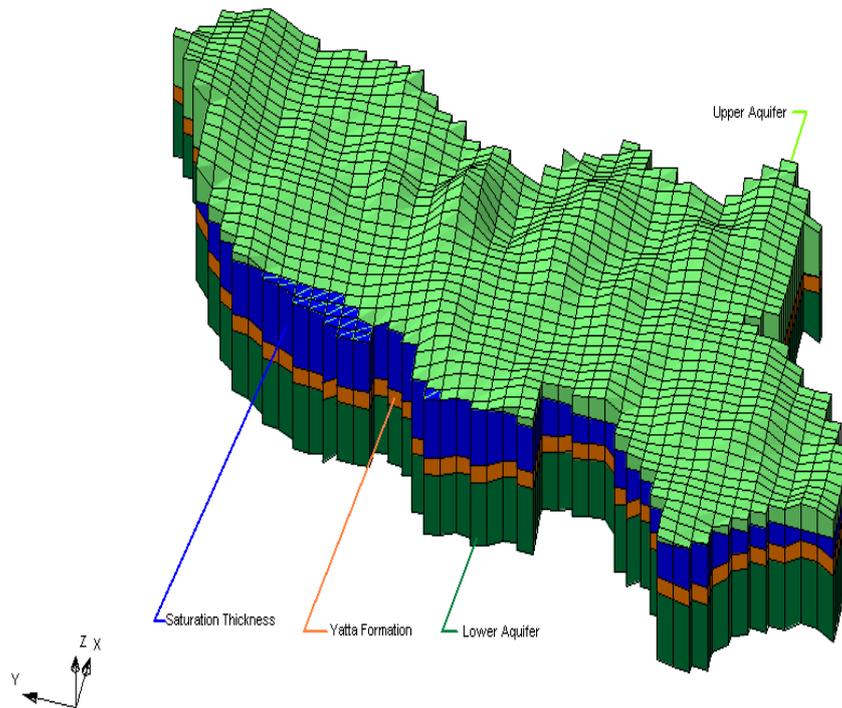


NERC British  
Geological Survey



Department for  
International  
Development

**DFID**



Final Report  
SUSMAQ-SUS # 70 V 0.1

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August 2004

<p><b>Disclaimer</b></p> <p>This report is an output from the Sustainable Management Planning , part of the susmaq project.</p> <p>The findings, interpretations and conclusions expressed are those of the authors (the team) and should not be attributed to other collaborators on the susmaq project.</p> <p>The project does not guarantee the accuracy of the data included in this publication. Boundaries, colours, denominations and other information shown in maps, figures, tables and the text does not imply any judgment on legal status of territory or the endorsement of boundaries. The typescript of this report has not been prepared in accordance with procedures appropriate to formal printed texts, and the partners and funding agency accept no responsibility for errors.</p>	<p><b>Contact Details</b></p> <p>Professor Enda O’Connell Project Director University of Newcastle upon Tyne Tel: 0191 222 6405 Fax: 0191 222 6669 Email: P.E.O’Connell@ncl.ac.uk</p> <p>Engineer Fadle Kawash Deputy Chairman Palestinian Water Authority Ramallah, Palestine Tel:02 295 9022 Fax 02 2981341 Email: fkawash@pwa-pna.org</p> <p>Dr. Amjad Aliewi Operations and Technical Manager Team Leader, Hydrogeology and Flow Modelling Sunrise Building Al-Irsal Road Al-Bireh/Ramallah, Palestine Tel. 02 2988940 Fax. 02 2988941 e-mail: a.s.aliewi@susmaq.org</p>
<p><b>The SUSMAQ Project</b></p> <p>The aim of the project is to increase understanding of the sustainable yield of the West Bank and Gaza aquifers under a range of future economic, demographic and land use scenarios, and evaluate alternative groundwater management options. The project is interdisciplinary, bringing together hydrogeologists and groundwater modellers with economists and policy experts. In this way, hydrogeological understanding can inform, and be informed by, insights from the social sciences. The results of the study will provide support to decision-making at all levels in relation to the sustainable yield of the West Bank and Gaza aquifers.</p> <p>The project runs from November 1999 to October 2004, and is a partnership between the Palestinian Water Authority, University of Newcastle and the British Geological Survey. The project is funded by the United Kingdom’s Department for International Development (DFID).</p>	<p>This component aims at evaluating the different SUSMAQ management options in the Palestinian water sector taking into consideration all technical (environmental), political and socio-economic aspects.</p> <p>This report provides an insight of the sustainable yield of the Palestinian Aquifer Basins</p>
<p><b>Bibliographical Reference</b></p> <p>This report should be referenced as: “Sustainable Yield of Palestinian Aquifers”. Report No.: SUSMAQ-SUS #70 V 0.1. Sustainable Management for the West Bank and Gaza Aquifers, Palestinian Water Authority (Palestine) and University of Newcastle upon Tyne (UK).</p> <p><b>Study Team</b></p> <p><b>Authors:</b> Dr. Amjad Aliewi Eng. Muath Abu Saada- GIS and Modeller. Dr. Anan Jayyousi.</p>	<p><b>Feedback</b></p> <p>The SUSMAQ and PWA teams will appreciate any feedback on this report. Feedback should be sent to the above contacts.</p>

## 1. Background

Groundwater is the primary source of water for the Palestinians in the West Bank and Gaza Strip. The groundwater resources of Palestine are extracted from wells and springs. The surface water in Palestine is mainly from numerous seasonal wadis, as well as the Jordan River, which is currently controlled and used exclusively by the Israelis. Palestine is among the countries with the scarcest renewable water resources per capita due to both natural and artificial constraints, averaging to only 100 cubic meters per capita per year. This amount is far below the per capita water resources available in other countries in the Middle East and the World. At present, water demand exceeds the available water supply. The gap between water supply and water demand is growing due to population growth, a higher standard of living, and the need to expand irrigated agriculture and industrialisation. This growing gap calls now for structural and non-structural measures for the mobilisation of any additional conventional and non-conventional water resources, and for efficient management of these resources. These needed actions are called the Palestinian Management Options.

This gap, if not bridged in a timely sustainable manner, will inevitably have serious adverse effects on future Palestinian socio-economic and commercial development. Based on current estimates, Palestinians should be able to develop an additional amount of 650 Mcm/year from the different resources by the year 2020. Bridging the growing gap will be totally dependent on the development options and the action plans to be implemented (based on 250 Mcm/yr as a current amount).

There is a great need to identify the possible management options, and finally to recommend guidelines for sustainable water resources management in Palestine. The issue of sustainable water resources development in Palestine is complex. This is because the development of additional water sources is restricted and based on the approval of the Israelis, since Palestinian water rights are still a subject to be determined and defined within the results of the Final Status Negotiations. In addition to the scarcity of water resources under the existing political constraints, the protection of the water resource environment is another constraint that makes it difficult to develop sustainable demand/supply scenarios for Palestine which has an unclear socio-economic future.



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