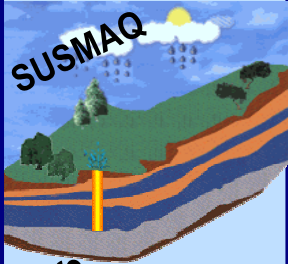




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Sustainable Management of the West Bank and Gaza Aquifers

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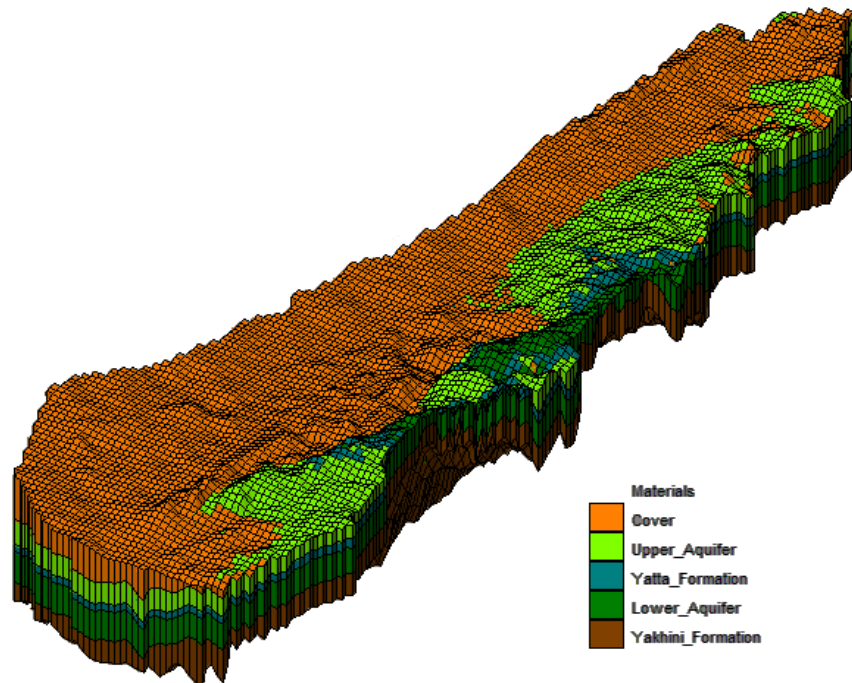
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## West Bank Aquifers- Conceptual Recharge Estimation



Working Report  
SUSMAQ-REC # 04 V 0.1

Prepared by:  
SUSMAQ TEAM

Palestinian Water Authority, Palestine  
Groundwater Systems and Water Quality Programme  
British Geological Survey, UK

June 2001

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<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><b>Recharge Estimation Component</b> is part of the SUSMAQ project which aims at developing improved estimates of groundwater recharge to the West Bank Aquifers with emphasis on the Western Aquifer Basin. This will be achieved through developing object oriented model for recharge and studying the hydrochemistry of the aquifers.</p>
<p><b>Bibliographical Reference</b></p> <p>This report should be referenced as: SUSMAQ (2001). West Bank Aquifers-Conceptual Recharge Estimation The Working report No.: SUSMAQ-REC#04V0.1. Sustainable Management for the West Bank and Gaza Aquifers, Palestinian Water Authority (Palestine) and University of Newcastle upon Tyne (UK).</p> <p><b>Author:</b></p> <p>McKenzie AA, British Geological Survey</p>	<p><b>Feedback</b></p> <p>This is Version 0.1of the Report, “West Bank Aquifers-Conceptual Recharge Estimation”. The Recharge Estimation Team welcomes feedback, both positive and negative! Please, tell us what you think about the ideas and issues raised in this report by contacting the team at one of the addresses above. Your feedback will be appreciated and is necessary for updating and correcting this report in another version.</p>

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# 1 Introduction

This report addresses the issue of recharge to the aquifers of the West Bank, with particular concentration on recharge to the aquifers that make up the Western Aquifer Basin, prepared by British Geological Survey (BGS) and Palestinian Water Authority (PWA) staff for the Department for International Development (DFID) funded project “Sustainable Management of the West Bank and Gaza Aquifers”. It comprises a suggested conceptual model of recharge, and reviews previous work on recharge in the West Bank. An empirical approach is used to estimate recharge and the data that are available and the limitations of these data are discussed. This report is the first product of the recharge component of the project and contains data and analyses collected from the project and PWA sources during a mission to the West Bank during July 2000.

The primary aim of the project is to improve the current understanding of the flow system of the aquifers of the West Bank and Gaza, and to assess the sustainability of the aquifers under a variety of economic, demographic and land use scenarios in terms of meeting the consequent water demand from aquifers. This is achieved through a set of management tools based on mathematical simulation of flow in the aquifers.

An analysis of recharge, i.e. the quantity of water that infiltrates from the land surface to the aquifer, is an essential input for simulation of flow in the aquifers. Recharge is a complex process, but quantification is critical in order to understand the total water availability from the West Bank aquifers.

The assessment of recharge to the aquifers will be an ongoing process, requiring refinement and updating as further data are collected and as the mechanisms governing recharge are investigated further. The preliminary results included in this report were presented at a project workshop held in Nablus on July 19<sup>th</sup> 2000.

The report would not have been possible without the valued co-operation of the staff of PWA Water Resources and Planning Department, as well as staff from the project office.



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