



Palestinian National Authority
Palestinian Water Authority



السلطة الوطنية الفلسطينية
سلطة المياه الفلسطينية



Implementation of a Decision Support Framework for the Sustainability Assessment of SUSMAQ Management Options

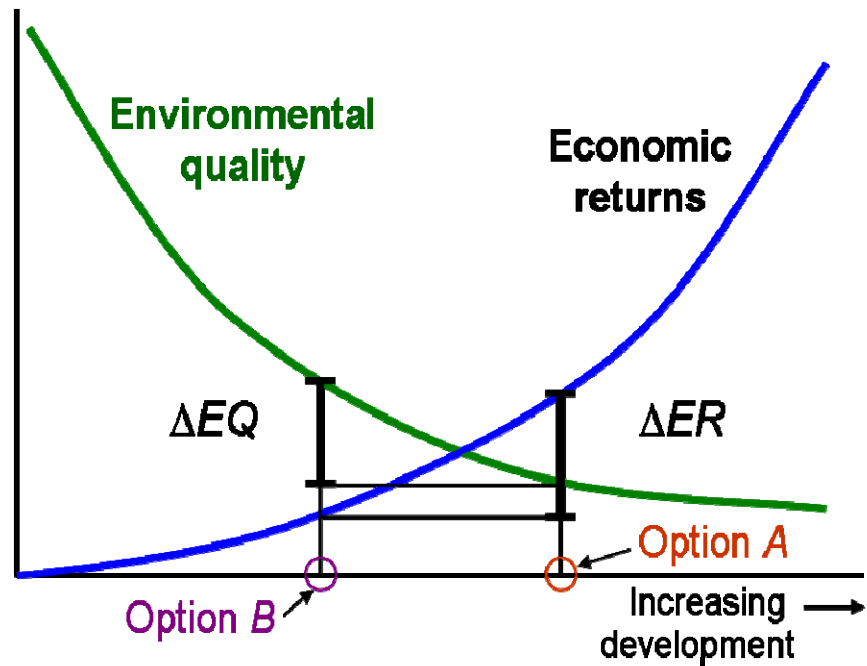
Sustainable Management of the West Bank and Gaza Aquifers

UNIVERSITY OF
NEWCASTLE



Department for
International
Development

DFID



SUSMAQ- SUS # 41 V 1.0

Oct 2003

<p>Disclaimer</p> <p>This report is an output from the SUSMAQ project “Sustainable Management of the West Bank and Gaza Aquifers”. The findings, interpretations and conclusions expressed are those of the authors 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>Contact Details</p> <p>Professor Enda O’Connell Project Director University of Newcastle upon Tyne Tel: +44 (0)191 222 6405 Fax: +44 (0)191 222 6669 Email: P.E.O’Connell@ncl.ac.uk</p> <p>Eng. Fadle Kawash Deputy Chairman Palestinian Water Authority Ramallah, Palestine Tel: +972 (0)2 295 9022 Fax: +972 (0)2 2981341 Email: fkawash@pwa-pna.org</p> <p>Dr. Amjad Aliewi Operations and Technical Manager House of Water and the Environment Al-Irsal Road, Al-Bireh, Palestine Tel:+972 (0)2 240 1776 Fax: +972 (0)2 240 1776 Email: amjad.aliewi@hwe.org.ps</p>
<p>The SUSMAQ Project</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 to 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 upon Tyne. The project is funded by the United Kingdom Government’s Department for International Development (DfID).</p>	<p>Project Results Dissemination</p> <p>The project disseminates its results through the project website www.ncl.ac.uk/susmaq, newsletters, workshops, technical meetings, publications in conference and scientific journals.</p>
<p>Bibliographical Reference</p> <p>This report should be referenced as: SUSMAQ (2003). Implementation of a Decision Support Framework for the Sustainability Assessment of SUSMAQ Management Options. Report No. SUSMAQ - SUS #41 V1.0, Sustainable Management of the West Bank and Gaza Aquifers, Palestinian Water Authority (Palestine) and University of Newcastle upon Tyne (UK).</p> <p>Author: P E O’Connell</p>	

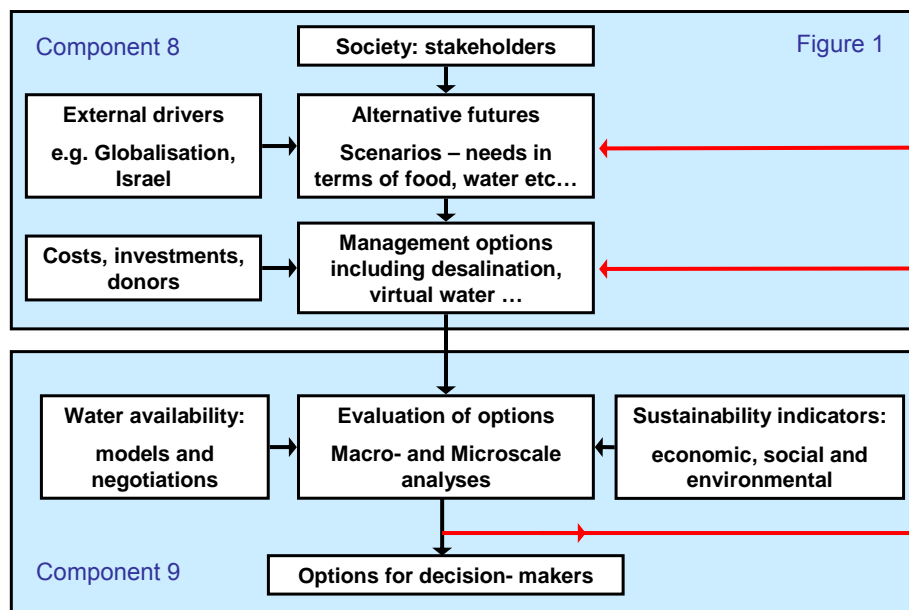
CONTENTS

	<u>Page</u>
1. Introduction	1
2. Pressure-State-Response System	1
3. Describing Pressures on Palestinian Water Resources	3
3.1 Climatic Scenarios	3
3.2 Hydropolitical Scenarios	4
3.3 Socio-Economic Scenarios	4
3.4 SUSMAQ Scenarios	6
4. Describing the State of Palestinian Water Resources	7
5. Measuring Responses to Management Options	9
5.1 Indicators of Environmental Sustainability	9
5.2 NWP Indicators	11
6. Multi-criteria Assessment of Management Options	12
6.1 UNESCO MCDA Method and Case Study	12
6.2 SUSMAQ Management Options	18
7. A Decision Support Tool (DST) for the Evaluation of SUSMAQ Management Options	19
References	20
Annex 1	21
Annex 2	23

1. Introduction

Based on discussions which took place at the Cyprus Workshop (2003), a framework was proposed for evaluating Management Options for the sustainable management of Palestinian water resources in the future (Aliewi et al 2003). This framework is shown schematically in Figure 1. This note is concerned with the practicalities of developing the framework e.g.

- who are the stakeholders, and how are they to be represented?
- what future scenarios are required, and what data are needed to specify them?
- what model simulations will be needed, and what information needs to be extracted from them?
- how are the alternative Management Options to be specified, and what data are required to do this?
- how are the Management Options to be evaluated, and how is the resulting information to be presented to the decision-makers?



NOTE: Management Options includes
 a) structural measures – wells, pumping, water transfers, desalination etc
 b) non-structural measures – virtual water, legislation, regulation (environmental and economic)

Figure 1. Framework for Assessing SUSMAQ Management Options



Full report/document is not available online