

Palestinian National Authority Palestinian Water Authority



السلطة الوطنية الفلسطينية المالة المرام الفاسطينية



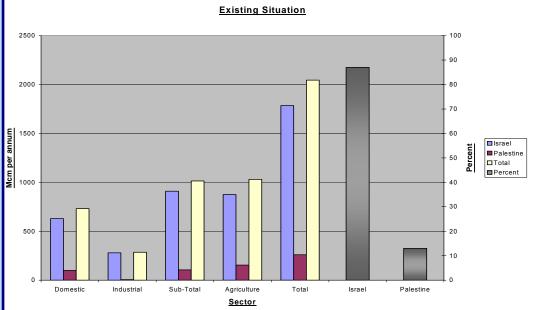
Sustainable Management of the West Bank and Gaza Aquifers NIVERSITY OF NEWCASTLE

Context for Sustainable Water Resources Management under Changing Social and **Economic Conditions in Palestine**









SUSMAQ-SUS #34 V 1.1

July 2005

Disclaimer

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.

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.

Contact Details

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

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

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

The SUSMAQ Project

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.

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).

Project Results Dissemination

The project disseminates its results through the project website www.ncl.ac.uk/susmaq, newsletters, workshops, technical meetings, publications in conference and scientific journals.

Bibliographical Reference

This report should be referenced as: SUSMAQ (2005). Context for Sustainable Water Resources Management under Changing Social and Economic Conditions in Palestine. Report No. SUSMAQ - SUS #34 V1.1, Sustainable Management of the West Bank and Gaza Aquifers, Palestinian Water Authority (Palestine) and University of Newcastle upon Tyne (UK).

Authors: Miles Burton, Khalil Saleh

CONTENTS

| S | SECTION A: INTRODUCTION AND SUMMARY1 | | | | |
|---|---|----|--|--|--|
| 1 | Scope and objectives | 1 | | | |
| 2 | Executive Summary | 2 | | | |
| _ | 2.1 Introduction | | | | |
| | 2.2 Socio-political and economic context and structural framework | | | | |
| | 2.2.1 Macro level socio economic and political context | | | | |
| | 2.2.2 Previous studies | | | | |
| | 2.2.3 Hydropolitics | | | | |
| | 2.2.4 Sector related aspects | | | | |
| | 2.3 Possible futures and management options | | | | |
| | 2.4 Initial assessment of practical management options | | | | |
| | SECTION B: ASSESSMENT OF SOCIO-POLITICAL AND ECONO CONTEXT AND STRUCTURAL FRAMEWORK | 8 | | | |
| 1 | | | | | |
| | 1.1 Economic profile of the region and global drivers | | | | |
| | 1.1.1 Background | | | | |
| | 1.1.2 Global Drivers | | | | |
| | 1.1.3 Potential Action | | | | |
| | 1.2 Economy of the West Bank and Gaza | | | | |
| | 1.2.1 Socio-economic administrative and demographic structure | | | | |
| | 1.2.2 Palestinian economy within a global context | | | | |
| | 1.2.3 Intifada Period | | | | |
| | 1.2.4 Economic relations with Israel | | | | |
| | 1.2.5 Recovery and Growth | | | | |
| | 1.3 Political environment | 19 | | | |
| 2 | Previous Studies | 21 | | | |
| | 2.1 Summary | | | | |
| | 2.2 Comparison between studies | | | | |
| | 2.3 The need for future development | 22 | | | |
| 3 | Hydropolitics | 23 | | | |
| | 3.1 Introduction | | | | |
| | 3.2 The development of conflict | 23 | | | |
| | 3.3 Water availability and water rights | 26 | | | |
| | 3.3.1 Water availability | 26 | | | |
| | 3.3.2 Water rights | 27 | | | |
| | 3.4 Potential solutions | 28 | | | |
| 4 | Water sector related aspects | 31 | | | |
| • | 4.1 Background | | | | |
| | 4.2 Water related institutions | | | | |

| | 4.3 Sector policy | |
|----|---|-----|
| | 4.4 Future developments | 32 |
| S | SECTION C: POSSIBLE FUTURES AND MANAGEMENT OPTIONS | 34 |
| 1 | Introduction | 34 |
| | 1.1 Approach | |
| | 1.2 Needs Analysis | 34 |
| 2 | Possible futures | 36 |
| | 2.1 Water Resources | |
| 3 | Management options | 40 |
| • | 3.1 Introduction | |
| | 3.2 Current Scenario | |
| | 3.3 Consolidating Scenario | 41 |
| | 3.4 Future Scenario | 42 |
| | SECTION D: INITIAL ASSESSMENT OF PRACTICALITY OF | 4.4 |
| IV | MANAGEMENT OPTIONS | 44 |
| 1 | Introduction | 44 |
| 2 | Management Options for Current Scenario | 45 |
| 3 | Management Options for Consolidating Scenario | 47 |
| 4 | Management Options for the Future Scenario | 49 |
| 5 | Quantification of Management Options | 52 |
| | 5.1 Approach | |
| | 5.2 Quantification | 52 |
| | LIST OF FIGURES | |
| F | Figure B3.1: Existing water supply (Mcm/yr) | 26 |
| | Figure B3.2: Distribution of water resources in accordance with Internation | |
| _ | Customary Water Law (Mcm/yr) | |
| F | Figure C3.1: Typical Supply Demand Graph for various scenarios | |
| | | |
| | LIST OF TABLES | |
| T | Cable B3.1: Existing water supply (Mcm/yr) | 26 |
| T | Cable B3.2: Distribution of water resources in accordance with Internation Customary Water Law (Mcm/yr) | |
| | | |

| Table C3.1: Potential management options for the Current Scenario | .40 |
|---|-----|
| Table C3.2: Potential management options for the Consolidating Scenario | .41 |
| Table C3.3: Potential management options for the Future Scenario | .42 |

APPENDICES

| Appendix A | Needs Analysis |
|------------|--------------------------------------|
| Appendix B | Scenarios |
| Appendix C | Consolidated Management Options |
| Appendix D | Management Options Definition Sheets |
| Appendix E | Reference Literature |

Section A: INTRODUCTION AND SUMMARY

1 Scope and objectives

This report presents a background to the macro socio-economic conditions impacting on Sustainable Water Resources Management Options under Changing Social and Economic Conditions in Palestine. The report as such therefore represents a basis on which the Futures, Scenarios and Management Options has been evaluated in order to develop an appropriate Decision Support Toolkit. This report presents the initial background research, record and analysis of the consultations, participatory workshops which took place up to mid- 2004. The subsequent work to develop this framework with measureable data is reported in SUSMAQ Report #39. The work contained in the Phase 1 Management Options report (SUSMAQ Report #14) is not incorporated in this report but references are made as appropriate in the text.

The basis of the findings in the report is as follows:

- Phase 1 Management Options Report
- Discussions with senior PWA staff and other stakeholders in Ramallah during July, August and November, 2003 and January, March, June, July and September, 2004.
- Review of literature as referred to in Annex A
- SUSMAQ MO workshop in Cyprus 14th-15th October, 2003
- Management Options workshop, Ramallah, 29th October, 2003
- Technical meeting, Newcastle, 3rd December, 2003
- SUSMAQ workshop, Cyprus, $21^{st} 22^{nd}$ January, 2004
- SUSMAQ workshop, Ramallah, 28th June 1st July, 2004

The consolidation of the initial information from the various workshops, meetings, discussions and analysis by different members of the SUSMAQ team was put forward for consideration and further development at the SUSMAQ workshop in Cyprus in January 2004. Further follow up on the management options selected at this workshop was carried out together with PWA representatives in Palestine from the 27th to 29th January and was taken forward in further planning to develop the Decision Support Toolkit presented for final approval at the Ramallah workshop in June/July 2004.

This report presents all background information in Section B and the process and logic of developing the possible futures and management options from this in Section C. An initial assessment of practical management options is then presented in Section D. The final definition of these futures, scenarios and management options is presented in report SUS #39.



Full report/document is not available online