Palestinian National Authority
Palestinian Water Authority

السلطة الوطنية الفلسطينية
سلطة المياه الفلسطينية

Sustainable Management of the West Bank and Gaza Aquifers

UNIVERSITY OF NEWCASTLE

Department for International Development
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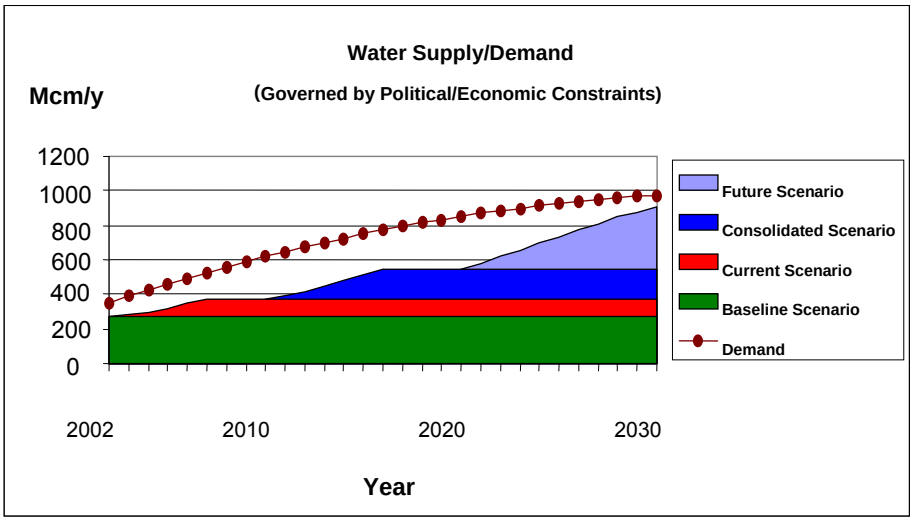
Development of Sustainable Water Resources Management Options for Palestine



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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). Development of Management Options for Sustainable Water Resources Management in Palestine. Report No. SUSMAQ - SUS #39 V1.1, Sustainable Management of the West Bank and Gaza Aquifers, Palestinian Water Authority (Palestine) and University of Newcastle upon Tyne (UK).

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1 Introduction

1.1 Scope of report

This report describes how the initial work in establishing futures, scenarios and the consideration of practical Management Options as described in SUSMAQ (2005a). was developed by utilising the SUSMAQ Package Database (PDB). This was then in turn used as the basis for the evaluation of Basic Indicators (BIs) as part of assessments of the sustainability of a range of water resource Management Options (MOs), for a set of scenarios being considered within the SUSMAQ project (SUSMAQ, 2005a). These evaluations provide data in support of policy making, using a multi-criteria analysis (MCA) methodology (SUSMAQ, 2003) implemented as part of decision support toolkit (DST) software (SUSMAQ, 2005b).

The PDB has been compiled specifically for the SUSMAQ project in order to provide a comprehensive set of information which can be utilised to measure the BIs (SUSMAQ, 2005c). The PDB was compiled principally by using the project implementation database contained in the National Water Plan (NWP) which is currently the most up to date formally adopted database within the Palestinian Water Authority (PWA) and supplemented by the WSSPS database which provides the necessary socio-economic data for measurement of many of the BIs. A more detailed description of the compilation of the PDB is given in section 2.4.

1.2 Overall approach

The selection of the MOs to be used for the demonstration study was based on a series of participatory workshops as those representing an appropriate range of options facing decision makers within the Palestinian water sector at this point of time. However it was recognised that these options were not comprehensive and specific situations in particular locations would most likely necessitate a different range of options from the very comprehensive lists resulting from the various workshops conducted. Nevertheless it was concluded that the selected list of MOs would provide an effective overview of the impact of decision maker's options at this point of time and adequately demonstrate the value and flexibility of the DST for a range of future applications.

The definitions of the current, consolidating and future scenarios selected for the DST implied political and logistical constraints to development that were utilised to develop ceilings of water availability for the selected management options within the various regions and corresponding scenarios, all as described in SUSMAQ (2005a). Project packages were then selected from the SUSMAQ PDB on an implementation priority basis that it would be possible to implement within the ceilings of water availability for each MO within the various regions and corresponding scenarios.

The selected project packages and the relevant information on these within the SUSMAQ PDB were then utilised to evaluate the Identified Basic Indicators (BIs) for the demonstration study.

1.3 Selection of regions

The selection of regions was based on the future planned administration of water delivery under the future water utility structure, namely North, Central and South Regions within the West Bank and Gaza. For purposes of the demonstration study the analysis was limited to the three regions within the West Bank since the necessary updated base data from Gaza were difficult to obtain within the restricted travel and security conditions imposed during the latter part of the study period.

1.4 Test cases used in the demonstration study

The cases tested in the demonstration study were selected from the relevant three scenarios and three regions in order to illustrate impact of the varying conditions from the North to South of the West Bank in regard to water availability and economy and also the impact of the changing constraints of the developing scenarios over time. For this purpose therefore the North Region, current, consolidated and future cases and the central current and south current cases were selected.

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