

WATER MANAGEMENT
in AFRICA and the
MIDDLE EAST

CHALLENGES *and*
OPPORTUNITIES

EDITED BY
EGLAL RACHED, EVA RATHGEBER, AND DAVID BROOKS



INTERNATIONAL DEVELOPMENT RESEARCH CENTRE
Ottawa • Cairo • Dakar • Johannesburg • Montevideo
Nairobi • New Delhi • Singapore

CONTENTS

Preface	v
Acknowledgments	vii
Introduction	ix

Part I. Concepts

Demand-side Management, Conservation, and Efficiency in the Use of Africa's Water Resources — <i>Geoffrey Stiles</i>	3
Allocation of Water Resources in Africa: Potential for Moving Water in and out of Agriculture — <i>Richard MacLean and Joachim Voss</i>	39
Women, Men, and Water-resource Management in Africa — <i>Eva M. Rathgeber</i>	49

Part II. Subregional contributions

Between the Great Rivers: Water in the Heart of the Middle East — <i>David Brooks</i>	73
Sources of Strain and Alternatives for Relief in the Most Stressed Water Systems of North Africa — <i>Mohammed S. Matoussi</i>	94
Water Crises and Constraints in West and Central Africa: The Case of Côte d'Ivoire — <i>Jean Biémi</i>	107
Strain, Social and Environmental Consequences, and Water Management in the Most Stressed Water Systems in Africa — <i>George Khroda</i>	120
Strain, Water Demand, and Supply Directions in the Most Stressed Water Systems of Eastern Africa — <i>Maurice Ndege</i>	153
Strain, Water Demand, and Supply Directions in the Most Stressed Water Systems of Lesotho, Namibia, South Africa, and Swaziland — <i>Kathy Eales, Simon Forster, and Lusekelo Du Mhango</i> ...	166
Strain, Water Demand, and Supply Directions in the Most Stressed Water Systems of Southern Africa Except South Africa and Namibia — <i>Luke Onyekakeyah</i>	203
Improving Water Supply Systems in Rural West and Central Africa — <i>Bassirou Diagana</i>	225

Part III. Special issues

Water Supply and Management in Rural Ghana: Overview and Case Studies — <i>Kwame Karikari</i>	231
Water Management, Use, and Conflict in Small-scale Irrigation: The Case of Rombo in the Kenyan Maasailand — <i>Hartmut Krugmann</i> . . .	253
NGO Experience, Intervention, and Challenges in Water Strain, Demand, and Supply Management in Africa — <i>Oduor Ong'wen</i>	274
Appendix I: Workshop Participants	291

Published by the International Development Research Centre
PO Box 8500, Ottawa, ON, Canada K1G 3H9

May 1996

Legal Deposit: 2nd quarter 1996
National Library of Canada

A microfiche edition is available

Material contained in this report is produced as submitted and, unless otherwise stated, copyright is held by the author(s). The views expressed in this publication are those of the author(s) and do not necessarily represent the views of the International Development Research Centre. Mention of a proprietary name does not constitute endorsement of the product and is given only for information.

To order, please contact IDRC Books.

Mail: PO Box 8500, Ottawa, ON, Canada K1G 3H9

Phone: (613) 236-6163 ext. 2087

E-mail: order@idrc.ca

Our catalogue may be consulted on Internet.

Gopher: <gopher.idrc.ca>

World-Wide Web: <http://www.idrc.ca>

ISBN 0-88936-804-X