Contents

Part I

1 Climate Change Impacts on Green Water Fluxes in the Eastern Mediterranean ........................................ 3
   Ibrahim M. Oroud

2 Stormwater Reuse via Aquifer Storage and Recovery: Risk Assessment for Sandy Aquifers ...................... 17
   Anke Steinel

3 Hydrologic Balance of Citarum Watershed under Current and Future Climate ........................................ 43
   Rizaldi Boer, Bambang Dwi Dasanto, Perdinan and Delon Marthinus

4 Towards a Database for an Information Management System on Climate Change: An Online Resource ........ 61
   V. Ramani Bai, S. Mohan and Reza Kabiri

5 Assessing the Impact of Climate Change on Evapotranspiration and Soil Salinization ............................ 69
   Mohammad Hassan Rahimian and Samaneh Poormohammadi

Part II

   Elke Herrfahrdt-Pähle
7 Increase in Port Downtime and Damage in Vietnam Due To a Potential Increase in Tropical Cyclone Intensity ................................. 101
Miguel Esteban, Nguyen Danh Thao, Hiroshi Takagi and Tomoya Shibayama

8 Hydro-Economic Analysis for Water Resources Management in a Changing Climate ................................................................. 127
David Corderi Novoa

9 Climate Change and Water Resource Availability: What to Do? ................................................................. 143
Eugenia Aloj, Mariagrazia De Castro, Michela Totaro and Anna Zollo

10 Adaptations to Climate Change and Variability Among Smallholder Farmers in Tanzania ................................................................. 153
Stephen Justice Nindi and David Gongwe Mhando

11 “Greening” Integrated Water Resources Management Policies for Tackling Climate Change Impacts: A Call for Sustainable Development ................................................................. 173
Nazmul Huq and Jean Hugé

12 Urbanization and Flood Vulnerability in a Peri-Urban Neighbourhood of Dakar, Senegal: How can Participatory GIS Contribute to Flood Management? ................................. 185
Audrey Maheu

13 Vulnerability of Andean Communities to Climate Variability and Climate Change ................................................................. 209
Harry Diaz, Rosa Garay-Fluhmann, Julia McDowell, Elma Montaña, Bernardo Reyes and Sonia Salas

14 Water Management Issues in Southern Tunisia Under a Climate Change Context ................................................................. 225
Nizar Omrani and Dieter Burger

15 Climate Change and its Impacts on the Livelihoods of the Vulnerable People in the Southwestern Coastal Zone in Bangladesh ................................................................. 237
Md. Afjal Hossain, Md. Imran Reza, Sania Rahman and Imrul Kayes
16 Conservation and Management of Water Resources for Livelihood Sustainability in Mountainous Regions of Uttarakhand, India. ........................................... 261
Anil Kumar

17 Ports and Climate Change: Building Skills in Climate Change Adaptation, Australia. ........................... 273
Melissa Nursey-Bray and Tony Miller

18 Preliminary Report on the Socioecology of Rural Groundwater Markets in the Gingee Watershed. . . . . 283
Susan Varughese and K. V. Devi Prasad

19 Impact of Climate Change on Water Supply and Food Security in Seraro District, Southern Ethiopia . . . . . 297
Fikadu Reta Alemayehu

20 Climate Change and Rural Water Supply Planning in Nigeria . . . 305
Salisu Lawal Halliru and Da’u Abba Umar

21 Impact of Climate Change in Bangladesh: Water Logging at South-West Coast ................................ 317
Md. Moniruzzaman

Part III

22 Characterizing Adaptive Capacity in Water Governance Arrangements in the Context of Extreme Events. . . . . 339
Margot Hill

23 The Contribution of Rural Development Programmes in Mitigating Greenhouse Gas Emissions in Italy. . . . . 367
Rocío Dánica Cóndor, Marina Vitullo, Domenico Gaudioso and Marina Colaiezezzi

24 “Climate Proofing” Water Resources Development Policy: The Evidence from Bangladesh. . . . . . . . . . . . . 389
Nazmul Huq, Zakir Hossain, Rashedul Hasan and Al Mamun Azad

25 Developing an Environmental Sustainability Toolkit to Integrate Climate Change Issues in Development Cooperation . . 401
Tom Waas and Jean Hugé
<table>
<thead>
<tr>
<th>Chapter Number</th>
<th>Title</th>
<th>Authors</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>26</td>
<td>Spatio-Temporal Variation of Drought Severity in the Sudano-Sahelian Region of Nigeria: Implications for Policies on Water Management</td>
<td>Maruf Sanni, Theophilus Odeyemi Odekunle and Francis Adeyinka Adesina</td>
<td>415</td>
</tr>
<tr>
<td>27</td>
<td>Climate Change and Sustainable Management of Water Resources</td>
<td>Golda A. Edwin and G. Poyyamoli</td>
<td>431</td>
</tr>
<tr>
<td>28</td>
<td>Problems of Water Resources Management in the Drainage Basin of Lake Balkhash with Respect to Political Development</td>
<td>Pavel Propastin</td>
<td>449</td>
</tr>
<tr>
<td>29</td>
<td>Saline Irrigation Management for Sustainable Use</td>
<td>Medhat Mekhail Tawfik, M. A. Ahmed, Amany A. Bahr, M. F. El Karamany and M. S. Zeidan</td>
<td>463</td>
</tr>
<tr>
<td>30</td>
<td>Modelling of Water Cycle Processes</td>
<td>Viktor Batyreu and Siarhei Zenchanka</td>
<td>473</td>
</tr>
<tr>
<td>31</td>
<td>Bridging the Communication Gap: An Exploration of the Climate Science–Water Management Interface</td>
<td>Katinka Lund Waagsaether and Gina Ziervogel</td>
<td>485</td>
</tr>
<tr>
<td>32</td>
<td>Influences of Public Ecological Awareness and Price on Potable Water Consumption in Geneva</td>
<td>Giuseppe Catenazzo, Jennifer D’Urso, Emmanuel Fragnière and Jean Tuberosa</td>
<td>499</td>
</tr>
<tr>
<td>33</td>
<td>Sustainable Development Through Pathways of Mitigation and Adaptation to Offset Adverse Climate Change Impacts</td>
<td>A. N. Sarkar</td>
<td>515</td>
</tr>
</tbody>
</table>

Part IV

<table>
<thead>
<tr>
<th>Chapter Number</th>
<th>Title</th>
<th>Authors</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>34</td>
<td>Activity-Based Water Resources and Climate Change Education Among School Students in Puducherry</td>
<td>R. Alexandar and G. Poyyamoli</td>
<td>557</td>
</tr>
</tbody>
</table>
35 Water Resources Management in the Peruvian Andes: Participatory Adaptive Measures to Climate Change
Rebecca Clements and Juan Torres

36 Community-Level Environmental and Climate Change Adaptation Initiatives in Nawalparasi, Nepal
Eloise M. Biggs, Gary R. Watmough and Craig W. Hutton

37 Multifunctional Land Use in Urban Spaces to Adapt Urban Infrastructure
Marko Siekmann, Nina Vomberg, Michael Mirgartz, Johannes Pinnekamp and Sarah Mühle

38 Integrated Industrial Water Management as a Tool for Mitigating Climate Change
Rasmi Patnaik and Gopalsamy Poyyamoli

39 Unjust Water: An Investigation of the Drinking Water Situation in Argentina
Sonja Maria Geiger and Natalia Salvático

40 Socio-Environmental Evaluation of Drip Irrigation System Implementation as a Climate Change Adaptation Measure Within the N’hambita Community Carbon Project Area, Mozambique
Jelena Barbir and Walter Leal

41 Social Learning Through Local Water Governance Institutions
Margot Hurlbert

42 These are Our Water Pipes—Sand Dams, Women and Donkeys: Dealing with Water Scarcity in Kenya’s Arid and Semi-Arid Lands
Abigail Cruickshank and Velma I. Grover

43 Urban Rainwater Management Using the Aquifer for Storage as One Measure to Confront Changed Water Availability
Reinhard Marth and Leonel González González
Educating for Sustainable Consumption as a Response to the Global Water Crisis: An Investigation of an Embedded Learning Approach .......................... 743
Daniel Fischer and Eva Freund

Achieving Sustainable Wastewater and Organic Solid Waste Management Taking Advantage of the Clean Development Mechanism .............................. 761
Sören Rüd and Reinhard Marth

Local Wisdom of Danowudu Community in Preserving Forest as a Water Source for the City of Bitung ........................ 773
Trina E. Tallei and Saroyo Sumarto

Education in Global Climate Change at a Botanical Garden: Students’ Perceptions and Inquiry-Based Learning ................ 779
Daniela Sellmann and Franz X. Bogner

The Climate Change Challenge for the Urban Environment: The Use of an Integrated Management System ...................... 787
Esther Kreutz and Kirsi-Marja Lonkila

About the Authors. ........................................ 801
Climate Change and the Sustainable Use of Water Resources
Leal Filho, W. (Ed.)
2012, XII, 823 p. 190 illus., Hardcover
ISBN: 978-3-642-22265-8