

Contents

List of Figures *vii*

Preface *ix*

- 1 Water Resources Management** *1*
- 2 History of Water Resources Management** *9*
- 3 Water Infrastructure and Systems** *25*
- 4 Demands for Water and Water Infrastructure** *45*
- 5 Hydrologic Principles for Water Management** *67*
- 6 Water Balances as Tools for Management** *89*
- 7 Flood Studies: Hydrology, Hydraulics, and Damages** *103*
- 8 Water Quality, Public Health, and Environmental Integrity** *119*
- 9 Models and Data for Decision Making** *133*
- 10 Operations, Maintenance, and Asset Management** *149*
- 11 Water Governance and Institutions** *165*
- 12 Water Management Organizations** *173*
- 13 Planning Principles, Tools, and Applications** *189*

14 Planning for Water Infrastructure 203

15 Water Quality Planning and Management 211

16 Planning for Sociopolitical Goals 223

17 Environmental Planning and Assessment 235

18 Economics of Water Resources Management 241

19 Financing Water Systems and Programs 261

20 Water Laws, Conflicts, Litigation, and Regulation 289

21 Flooding, Stormwater, and Dam Safety: Risks and Laws 309

22 Water Security: Natural and Human-Caused Hazards 319

23 Integrated Water Resources Management 331

24 Careers in Water Resources Management 345

Appendices

Appendix A

Units, Conversion Factors, and Water Properties 355

Appendix B

Acronyms and Abbreviations 361

Appendix C

Associations, Federal Agencies, and Other Stakeholders of the Water Industry 367

Appendix D

Water Journals 373

Appendix E

Glossary of Water Management Terms 377

Index 395