This book consists of 11 chapters and provides a comprehensive and broad description of global water challenges and step-by-step insightful discussions on water resources assessment and development of corporate water stewardship. This book allows corporations and stakeholders to understand the fundamental concepts of integrated water resources management and take proper actions toward sustainable development of water resources.

The introductory chapter (Chapter 1) of the book provides an overview of the status of global water, the allocation of water among different sectors such as domestic, agriculture, and industry, and the ecological effects of such water-sharing processes. Chapter 1 also discusses water values, ethics, water and energy nexus, and the impact of climate change. 

I found that the author illustrated well the corporate–society conflicts over water by using a number of case studies, such as the story of Coca-Cola in India vs. other water uses. 

Chapter 2, “Water Scenarios and Business Models,” describes the global trend of business and the perspective of a water crisis faced by industry and population growth. The water scenarios of some selected countries are reviewed and compared based on the long-term availability of water resources in 1995 and 2014. This chapter also introduces water assessment policies and methods, such as the business-as-usual model and alternative models, with a focus on an integrated water resource management model.

Chapter 3, “Understanding Water,” covers basic concepts of hydrology, surface water management, groundwater systems, and the relationship between groundwater withdrawal and stream flow. Groundwater is a major source of industrial water; this chapter discusses in detail the methods for measurement of groundwater resources. This chapter introduces an overview of how to deal with the development and conservation of water resources; it focuses on activities at the interface of water with industry, society, ecology, and the water cycle. It is important that this chapter emphasizes river basin–watershed interactions to help readers understand the balance between river basin dynamics, surface water resources, and groundwater withdrawal.

Chapter 4 presents the concept of corporate water stewardship that aims to institutionalize fair distribution of water for all uses from industry, urban uses, and agriculture to ecology and the environment. It discusses the methods for developing a corporate water strategy, involvement of stakeholders in industrial water management, and challenges and opportunities in water stewardship. It is very helpful for readers that this chapter includes examples of various engagement policies and tools, and illustrates these methods with case studies. The role of global organizations that deal with corporate water stewardship is highlighted, and the global standard of corporate water stewardship is incorporated.

Water governance framework and water laws are introduced in Chapter 5. While introducing the concepts of a water framework (legal and institutional) and water policy,
the social, environmental, and political drivers of the concept are highlighted. The water governance framework and water policies of nine countries are discussed as case studies, including the European Union, Australia, Brazil, Canada, China, India, Indonesia, Namibia, and South Africa. In agreement with an OECD report (Organisation for Economic Co-operation and Development, 2015), these case studies indicate that water is a fragmented sector and is sensitive and dependent on multilevel governance and connections across sectors, countries, and geological boundaries.

The first part of Chapter 6 focuses on water quality and water pollution. The water quality standards of different countries and international organizations are discussed. Physical, chemical, and microbiological parameters of water quality and their major sources of pollution are listed, and their potential risks to human health and the environment are summarized in different tables. National guidelines on drinking water quality of six countries are compared. The second part of this chapter discusses the different aspects of industrial water pollution in boiler water, cooling water, textile plants, pulp and paper, the chemical industry, and petrochemicals. The effluent discharge requirements in Uganda, South Africa, India, China, Brazil, Mexico, and Canada are compared. This chapter also discusses the effects of industrial pollution on society, environment, and economics that cause conflicts, loss of reputation, and brand value for industries.

Chapter 7 focuses on water extraction, purification, and distribution. It explains the five stages in the water distribution process in an industrial environment, including water sourcing (e.g., availability, license, surface water intakes, and groundwater wells), conveyance, water treatment, water storage, and water delivery. A water delivery and distribution software, EPANET 2.0 developed by the USEPA, is described in this chapter. A variety of conventional and advanced water purification technologies are briefly discussed. Readers can refer to other more useful textbooks on this topic (Crittenden et al., 2012; Tchobanoglous et al., 2014).

Chapter 8 discusses qualitative and quantitative estimation of source water. The different methods of source water assessment are described for both surface and groundwater resources of a drainage basin. For example, the Hydrologic Soil Cover Complex method, developed by the USDA–NRCS, is presented. This chapter provides useful tools for a systematic assessment of water resources and a periodic monitoring of water flow in streams and groundwater levels, which will help industry in planning water management activities and water stewardship initiatives.

“Corporate Water Accounting and Disclosure” is the ninth chapter of the book. Ten available tools developed by various organizations for water accounting are introduced and compared in a table. Methods of water profiling by industries are discussed for water risk disclosure and water accounting reports. The methods of calculating a “business water footprint” are presented, and how the “business water footprint” is useful in estimating corporate water sustainability is discussed. Several case studies are used to discuss corporate water sustainability assessments.

Chapter 10 focuses on detection of water loss and methods of water conservation in industry. The topics include: (i) water overuse using a benchmarking tool; (ii) identification of water loss through a water audit; (iii) prevention of loss through leakage detection and management; (iv) water saving in agricultural industries; and (v) augmentation of water resources through rainwater harvesting and artificial groundwater recharge. The chapter also explains the use of water auditing software developed by the American Water Works Association.

The last chapter of the book discusses corporate social responsibility (CSR) in water and human rights. The CSR policies of the United States and the European Commission are highlighted, and several case studies are included to illustrate the CSR of industrial organizations. Corporate water stewardship offers a framework and method to reduce industrial water footprints and enhance economic, social, and environmental sustainability.

The book is well written, with case studies, illustrations, and tables to explain the underlying concepts in each chapter. The chapters are structured well and provide consistent and step-by-step information from simple concept introduction to more complex topics. This book provides useful tools for industry, communities, policy makers, as well as advanced-level undergraduate and graduate students to develop a sustainable water strategy.

References