Evolution Of Water Supply Through The Millennia Ntua

"In Liquid Assets, author Diane Galusha traces for the first time between the covers of a single volume the development of the amazing water system that altered landscapes, transformed lives, and made possible New York's preeminence among the world's great cities."--Back cover.

This illustrated report sets out a global review of the state of the world's freshwater resources, based on the collective work of 24 United Nations agencies, following on from the conclusions of the first UN World Water Development Report 'Water for People, Water for Life' published in 2003 (ISBN 9231038818). This second edition discusses progress towards the water-related targets of the UN Millennium Development Goals and examines a range of key issues including population growth and increasing urbanisation, changing ecosystems, food production, health, industry and energy, as well as risk management, valuing and paying for water and increasing knowledge and capacity. It contains 16 case studies which consider key challenges in water resource management and makes a number of recommendations to guide future action and encourage sustainable use, productivity and management of our increasingly scarce freshwater resources.

This volume presents papers on the topics covered at the National Academy of Engineering's 2016 US Frontiers of Engineering Symposium. Every year the symposium brings together 100 outstanding young leaders in engineering to share their cutting-edge research and innovations in selected areas. The 2016 symposium was held September 19-21 at the Arnold and Mabel Beckman Center in Irvine, California. The intent of this book is to convey the excitement of this unique meeting and to highlight innovative developments in engineering research and technical work.

This Book includes selected papers that has been published in the Water journal Special Issue (SI) on Water Supply and Water Scarcity. Moreover, an overview of the SI is included. The papers selected for publication in the SI include review and research papers on water history, on water management issues under water scarcity regimes, on rainwater harvesting, on water quality and degradation, and on climatic variability impacts on water resources. Overall, the issue identify and highlight the main challenges in water sector, and particularly in management and protection of water resources and in use of alternative (non-conventional) water resources, especially in areas with demographic change and climate vulnerability in order to achieve sustainable and secure water supply. Furthermore, general guidelines and possible solutions for an improved and sophisticated water management system are proposed and discussed, such as the adoption of advanced technological solutions and practices that improve water-use efficiency and the use of alternative water resources, to address the growing environmental and health issues and to reduce the emerging conflicts among water users.

Most of the technological developments relevant to water supply and wastewater date back to more than to five thousand years ago. These developments were driven by the necessity to make efficient use of natural resources, to make civilizations more resistant to destructive natural elements, and to improve the standards of life, both at public and private level. Rapid technological progress in the 20th century created a disregard for past sanitation and wastewater and stormwater technologies that were considered to be far behind the present ones. A great deal of unresolved problems in the developing world related to the wastewater management principles, such as the decentralization of the processes, the durability of the water projects, the cost effectiveness, and sustainability issues, such as protection from floods and droughts were intensified to an unprecedented degree. New problems have arisen such as the contamination of surface and groundwater. Naturally, intensification of unresolved problems has led to the reconsideration of successful past achievements. This retrospective view, based on archaeological, historical, and technical evidence, has shown two things: the similarity of physicochemical and biological principles with the present ones and the advanced level of wastewater engineering and management practices. Evolution of Sanitation and Wastewater Technologies through the Centuries presents and discusses the major achievements in the scientific fields of sanitation and hygienic water use systems throughout the millennia, and compares the water technological developments in several civilizations. It provides valuable insights into ancient wastewater and stormwater management technologies with their apparent characteristics of durability, adaptability to the environment, and sustainability. These technologies are the underpinning of modern achievements in sanitary engineering and wastewater management practices. It is the best proof that “the past is the key for the future”. Evolution of Sanitation and Wastewater Technologies through the Centuries is a textbook for undergraduate and graduate courses of Water Resources, Civil Engineering, Hydraulics, Ancient History, Archaeology, Environmental Management and is also a valuable resource for all researchers in the these fields. Authors: Andreas N. Angelakis, Institute of Iraklion, Iraklion, Greece and Joan B. Rose, Michigan State University, East Lansing, MI, USA

This report contains a collection of papers from a workshop---Strengthening Science-Based Decision-Making for Sustainable Management of Scarce Water Resources for Agricultural Production, held in Tunisia. Participants, including scientists, decision makers, representatives of non-profit organizations, and a farmer, came from the United States and several countries in North Africa and the Middle East. The papers examined constraints to agricultural production as it relates to water scarcity; focusing on 1) the state of the science regarding water management for agricultural purposes in the Middle East and North Africa 2) how science can be applied to better manage existing water supplies to optimize the domestic production of food and fiber. The cross-cutting themes of the workshop were the elements or principles of science-based decision making, the role of the scientific community in ensuring that science is an integral part of the decision making process, and ways to improve communications between scientists and decision makers.

Supplying water to millions is not simply an engineering and logistical challenge. As David Soll shows in his finely observed history of the nation’s largest municipal water system, the task of providing water to New Yorkers transformed the natural and built environment of the city, its suburbs, and distant rural watersheds. Almost as soon as New York City completed its first municipal water system in 1842, it began to expand the network, eventually reaching far into the Catskill Mountains, more than one hundred miles from the city. Empire of Water explores the history of New York City’s water system from the late nineteenth century to the early twenty-first century, focusing on the geographical, environmental, and political repercussions of the city’s search for more water. Soll vividly recounts the profound environmental implications for both city and countryside. Some of the region’s most prominent landmarks, such as the High Bridge

across the Harlem River, Central Park's Great Lawn, and the Ashokan Reservoir in Ulster County, have their origins in the city's water system. By tracing the evolution of the city's water conservation efforts and watershed management regime, Soll reveals the tremendous shifts in environmental practices and consciousness that occurred during the twentieth century. Few episodes better capture the long-standing upstate-downstate divide in New York than the story of how mountain water came to flow from spigots in Brooklyn and Manhattan. Soll concludes by focusing on the landmark watershed protection agreement signed in 1997 between the city, watershed residents, environmental organizations, and the state and federal governments. After decades of rancor between the city and Catskill residents, the two sides set aside their differences to forge a new model of environmental stewardship. His account of this unlikely environmental success story offers a behind the scenes perspective on the nation's most ambitious and wide-ranging watershed protection program.

An environmental engineer turned ecology writer relates the history of our waterways and her own growing understanding of what needs to be done to save this essential natural resource. Water: A Natural History takes us back to the diaries of the first Western explorers; it moves from the reservoir to the modern toilet, from the grasslands of the Midwest to the Everglades of Florida, through the guts of a wastewater treatment plant and out to the waterways again. It shows how human-engineered dams, canals and farms replaced nature's beaver dams, prairie dog tunnels, and buffalo wallows. Step by step, Outwater makes clear what should have always been obvious: while engineering can de-pollute water, only ecologically interacting systems can create healthy waterways. Important reading for students of environmental studies, the heart of this history is a vision of our land and waterways as they once were, and a plan that can restore them to their former glory: a land of living streams, public lands with hundreds of millions of beaver-built wetlands, prairie dog towns that increase the amount of rainfall that percolates to the groundwater, and forests that feed their fallen trees to the sea.

Turn on the faucet, and water pours out. Pull out the drain plug, and the dirty water disappears. Most of us give little thought to the hidden systems that bring us water and take it away when we're done with it. But these underappreciated marvels of engineering face an array of challenges that cannot be solved without a fundamental change to our relationship with water, David Sedlak explains in this enlightening book. To make informed decisions about the future, we need to understand the three revolutions in urban water systems that have occurred over the past 2,500 years and the technologies that will remake the system.div /DIVdivThe author starts by describing Water 1.0, the early Roman aqueducts, fountains, and sewers that made dense urban living feasible. He then details the development of drinking water and sewage treatment systems—the second and third revolutions in urban water. He offers an insider's look at current systems that rely on reservoirs, underground pipe networks, treatment plants, and storm sewers to provide water that is safe to drink, before addressing how these water systems will have to be reinvented. For everyone who cares about reliable, clean, abundant water, this book is essential reading./DIV

First published in 2011, Water Law in India is the only book to offer a comprehensive survey of the legal instruments concerning water in India. It presents a variety of national and state-level instruments that make up the complex and diverse field of water law and policy. This book fills a critical gap in the study of water law, providing a rich reference point for the entire gamut of legal mechanisms available in India. This edition has been extensively revised to include new instruments on water regulation, such as the draft National Water Framework Bill, 2016, and the Model Groundwater (Sustainable Management) Act, 2016; new water-related instruments in such varied fields as criminal law, land acquisition law, and rural employment legislation; and a chapter on international legal instruments. Chapters on drinking water supply, environmental dimensions of water conservation, water infrastructure for irrigation and flood control, groundwater regulation, and institutions catering to water have been thoroughly updated for a complete coverage of water law.

It is not the purpose of this work to propose a specific format for the settlement of the city's current difficulties with the valley, to resolve the environmental questions associated with Los Angeles's proposed groundwater pumping program, or to promote any cause associated with the developing situation in the Owens Valley. But by performing the essential historical task of separating what happened from what did not, and by distinguishing in this way the choices which have been made from those which have yet to be decided, it is my hope that this effort will help to establish that common basis for understanding which is essential for the debate over specific issues to proceed most effectively. This book, then, is scarcely the last word on the Owens Valley conflict: the final chapter, after all, has yet to be written. The story that has emerged here is at once very different and more troubling than the conventional treatments of the conflict as a simplistic political morality play. Any attempt to deal with so controversial a subject, however, is almost certain to spark controversy itself. For that reason, with the exception of a small collection of private letters, this work is constructed entirely from the published documents and other materials available to the general public, anchoring the narrative in sources the reader can consult to trace the line of my argument on any point with which he or she may disagree. In addition, the work as a whole has been reviewed for technical accuracy by officials of the Los Angeles Department of Water and Power, although the department is in no way responsible for the content of this study or the conclusions drawn from it.

"This book advocates a more thoughtful approach to urban water management, including for example, exponents of the Water Sensitive Urban Design (WSUD) approach in Australia and Low Impact Development in the US. This new approach involves reducing water consumption, harvesting rainwater, recycling rainwater and adopting Sustainable Drainage Systems (SuDS) where surface water is not sent straight to drains but is intercepted by features like green roofs, rain gardens, swales and ponds. This water sensitive approach conserves water, reduces flooding, cleans water (and therefore streams, rivers and seas). It is compatible with the greener city and green infrastructure agendas, whereby policy makers want to make cities more liveable. This subject matters because the current use of water by cities is unsustainable. Cities in particular need to change the existing linear model of water consumption and use to a more circular one in order to survive. Aquifers all over the world, including some that have taken millions of years to form, are predicted to dry up in the coming decades. Reservoirs, eg Lake Mead near Las Vegas once believed to have permanently solved water supply problems, are falling to dangerously low levels. This book is needed in order to bring together the various specialised technical discussions that have been continuing for some time into a volume that is more accessible to designers (engineers and architects), urban planners and managers, and policymakers. People need to understand that urban water management should increasingly become their concerns rather than a technical matter to be addressed by specialists alone"--

With an increasing population, use of new and diverse chemicals that can enter the water supply, and emergence of new microbial pathogens, the U.S. federal government is faced with a regulatory dilemma: Where should it focus its attention and limited resources to ensure safe drinking water supplies for the future? Identifying Future Drinking Water Contaminants is based on

a 1998 workshop on emerging drinking water contaminants. It includes a dozen papers that were presented on new and emerging microbiological and chemical drinking water contaminants, associated analytical and water treatment methods for their detection and removal, and existing and proposed environmental databases to assist in their proactive identification and regulation. The papers are preceded by a conceptual approach and related recommendations to EPA for the periodic creation of future Drinking Water Contaminant Candidate Lists (CCLs--produced every five years--include currently unregulated chemical and microbiological substances that are known or anticipated to occur in public water systems and that may pose health risks).
Supplying water to millions is not simply an engineering and logistical challenge. As David Soll shows in his finely observed history of the nation's largest municipal water system, the task of providing water to New Yorkers transformed the natural and built environment of the city, its suburbs, and distant rural watersheds. Almost as soon as New York City completed its first municipal water system in 1842, it began to expand the network, eventually reaching far into the Catskill Mountains, more than one hundred miles from the city. Empire of Water explores the history of New York City's water system from the late nineteenth century to the early twenty-first century, focusing on the geographical, environmental, and political repercussions of the city's search for more water. Soll vividly recounts the profound environmental implications for both city and countryside. Some of the region's most prominent landmarks, such as the High Bridge across the Harlem River, Central Park's Great Lawn, and the Ashokan Reservoir in Ulster County, have their origins in the city's water system. By tracing the evolution of the city's water conservation efforts and watershed management regime, Soll reveals the tremendous shifts in environmental practices and consciousness that occurred during the twentieth century. Few episodes better capture the long-standing upstate-downstate divide in New York than the story of how mountain water came to flow from spigots in Brooklyn and Manhattan. Soll concludes by focusing on the landmark watershed protection agreement signed in 1997 between the city, watershed residents, environmental organizations, and the state and federal governments. After decades of rancor between the city and Catskill residents, the two sides set aside their differences to forge a new model of environmental stewardship. His account of this unlikely environmental success story offers a behind the scenes perspective on the nation's most ambitious and wide-ranging watershed protection program.
In December 2002, a group of specialists on water resources from the United States and Iran met in Tunis, Tunisia, for an interacademy workshop on water resources management, conservation, and recycling. This was the fourth interacademy workshop on a variety of topics held in 2002, the first year of such workshops. Tunis was selected as the location for the workshop because the Tunisian experience in addressing water conservation issues was of interest to the participants from both the United States and Iran. This report includes the agenda for the workshop, all of the papers that were presented, and the list of site visits.
From its 1908 beginnings, the history of drinking water chlorination is a compelling subject with controversy that surprises the modern reader. This thorough but accessible science-history book provides the dramatic details on the reduction of waterborne illness and how “the most significant public health advance of the millennium” came to pass.
Evolution of Water Supply Through the MillenniaIWA Publishing
The 2020 edition of the WWDR, titled 'Water and Climate Change' illustrates the critical linkages between water and climate change in the context of the broader sustainable development agenda. Supported by examples from across the world, it describes both the challenges and opportunities created by climate change, and provides potential responses - in terms of adaptation, mitigation and improved resilience - that can be undertaken by enhancing water resources management, attenuating water-related risks, and improving access to water supply and sanitation services for all in a sustainable manner. It addresses the interrelations between water, people, environment and economics in a changing climate, demonstrating how climate change can be a positive catalyst for improved water management, governance and financing to achieve a sustainable and prosperous world for all. The report provides a fact-based, water-focused contribution to the knowledge base on climate change. It is complementary to existing scientific assessments and designed to support international political frameworks, with the goals of helping the water community tackle the challenges of climate change, and informing the climate change community about the opportunities that improved water management offers in terms of adaptation and mitigation.
The substantial burden of death and disability that results from interpersonal violence, road traffic injuries, unintentional injuries, occupational health risks, air pollution, climate change, and inadequate water and sanitation falls disproportionally on low- and middle-income countries. Injury Prevention and Environmental Health addresses the risk factors and presents updated data on the burden, as well as economic analyses of platforms and packages for delivering cost-effective and feasible interventions in these settings. The volume's contributors demonstrate that implementation of a range of prevention strategies-presented in an essential package of interventions and policies-could achieve a convergence in death and disability rates that would avert more than 7.5 million deaths a year.
This volume approaches the history of water in the Iberian Peninsula in a novel way, by linking it to the ongoing international debate on water crisis and solutions to overcome the lack of water in the Mediterranean. What water devices were found? What were the models for these devices? How were they distributed in the villas and monastic enclosures? What impact did hydraulic theoretical knowledge have on these water systems, and how could these systems impact on hydraulic technology? Guided by these questions, this book covers the history of water in the most significant cities, the role of water in landscape transformation, the irrigation systems and water devices in gardens and villas, and, lastly, the theoretical and educational background on water management and hydraulics in the Iberian Peninsula between the sixteenth and the nineteenth centuries. Historiography on water management in the territory that is today Spain has highlighted the region’s role as a mediator between the Islamic masters of water and the Christian world. The history of water in Portugal is less known, and it has been taken for granted that is similar to its neighbour. This book compares two countries that have the same historical roots and, therefore, many similar stories, but at the same time, offers insights into particular aspects of each country. It is recommended for scholars and researchers interested in any field of history of the early modern period and of the nineteenth century, as well as general readers interested in studies on the Iberian Peninsula, since it was the role model for many settlements in South America, Asia and Africa.
Water for Gotham tells the spirited story of New York's evolution as a great city by examining its struggle for that vital and basic element--clean water. Drawing on primary sources, personal narratives, and anecdotes, Gerard Koeppel demonstrates how quickly the shallow wells of Dutch New Amsterdam were overwhelmed, leaving the English and American city beleaguered by filth, epidemics, and fires. This situation changed only when an outside water source was finally secured in 1842--the Croton Aqueduct, a model for urban water supplies in the United States. As the fertile wilderness enjoyed by the first Europeans in Manhattan vanishes and the magnitude of New York's water problem grows, the reader is introduced to the plans of Christopher Colles, builder of the first American steam engine, and of Joseph Browne, the first to call for a mainland water source for this island-city. In this vividly written true-life fable of the "Fools of Gotham," the chief obstacle to the aqueduct is the Manhattan Company. Masterminded by Aaron Burr, with the complicity of Alexander Hamilton and other leading New Yorkers, the company was a ruse, serving as the charter for a bank--today's Chase Manhattan. The cholera epidemic of 1832 and the great fire three years later were instrumental in forcing the city's leaders to finally unite and regain New York's water rights. Koeppel's account of the developments leading up to the

Croton Aqueduct reveals it as a triumph not only of inspired technology but of political will. With over forty archival photographs and drawings, Water for Gotham demonstrates the deep interconnections between natural resource management, urban planning, and civic leadership. As New York today retakes its waterfront and boasts famous tap water, this book is a valuable reminder of how much vision and fortitude are required to make a great city function and thrive.

"The definitive work on the West's water crisis." --Newsweek The story of the American West is the story of a relentless quest for a precious resource: water. It is a tale of rivers diverted and dammed, of political corruption and intrigue, of billion-dollar battles over water rights, of ecological and economic disaster. In his landmark book, Cadillac Desert, Marc Reisner writes of the earliest settlers, lured by the promise of paradise, and of the ruthless tactics employed by Los Angeles politicians and business interests to ensure the city's growth. He documents the bitter rivalry between two government giants, the Bureau of Reclamation and the U.S. Army Corps of Engineers, in the competition to transform the West. Based on more than a decade of research, Cadillac Desert is a stunning expose and a dramatic, intriguing history of the creation of an Eden--an Eden that may only be a mirage. This edition includes a new postscript by Lawrie Mott, a former staff scientist at the Natural Resources Defense Council, that updates Western water issues over the last two decades, including the long-term impact of climate change and how the region can prepare for the future.

Since 1935, the U.S.

Far more than oil, the control of water wealth throughout history has been pivotal to the rise and fall of great powers, the achievements of civilization, the transformations of society's vital habitats, and the quality of ordinary daily lives. Today, freshwater scarcity is one of the twenty-first century's decisive, looming challenges, driving new political, economic, and environmental realities across the globe. In Water, Steven Solomon offers the first-ever narrative portrait of the power struggles, personalities, and breakthroughs that have shaped humanity from antiquity's earliest civilizations through the steam-powered Industrial Revolution and America's century. Meticulously researched and masterfully written, Water is a groundbreaking account of man's most critical resource in shaping human destinies, from ancient times to our dawning age of water scarcity.

Water auditing is a method of quantifying water flows and quality in simple or complex systems, with a view to reducing water usage and often saving money on otherwise unnecessary water use. There is an increasing awareness around the globe of the centrality of water to our lives. This awareness crosses political and social boundaries. In many places people have difficult access to drinking water. Often it is polluted. Water auditing is a mechanism for conserving water, which will grow in significance in the future as demand for water increases. Water Auditing and Water Conservation is aimed at undergraduate and graduate students in environmental engineering and science programs, water auditors and professionals in the water field, especially those motivated by quantitative water conservation needs. There is a strong emphasis on principles, and on the relationship of water auditing with associated activities like environmental auditing, environmental management systems, resource conservation, flow measurement, water quality and legal frameworks. Alongside the theoretical materials we integrate field experience from professionals. Chapters outline the processes and issues at stake in a variety of typical applications (arenas) in which water auditing are conducted. These include buildings (interior and exterior), landscape, external commercial applications requiring irrigation, aquatic centres, material transport by water, cooling systems and non-metal manufacturing (e.g. paper manufacture). This book will lead the prospective water auditor to a sufficiently thorough knowledge of water auditing to be able to apply the principles to many situations and make recommendations for water conservation measures.

The fresh, clean taste of New York's water is legendary. Less well known is the fascinating story of the massive program of exploration and construction that was required to achieve such purity. The story of that monumental undertaking is told in Water-Works and illustrated with an astonishing archive of drawings and photographs documenting the design and construction of dams, reservoirs, aqueducts, and tunnels. This complex system brings millions of gallons of water to the city every day from rivers many hundreds of miles away. Kevin Bone, Gina Pollara, Paul Deppe, and students from the Irwin S. Chanin School of Architecture of the Cooper Union spent nine years cataloging and preserving this remarkable archive, which is held by the City of New York Department of Environmental Protection. Essays by Bone, former DEP commissioner Albert F. Appleton, and scholars Peter H. Gleick and Gerard Koeppel trace the history of the system from its beginnings in the mid-1800s to the current construction of City Water Tunnel #3. The story of New York's water system is illuminated in expert detail on the pages of Water-Works, revealing the beauty and power of these magnificent works of public architecture and engineering.

Water Management and Water Loss contains a selection of papers and articles written by various internationally recognised specialists in the field of water loss reduction. The articles have been drawn together from IWA conferences during the past 5 years and provide details of how water losses from Municipal distribution systems can be reduced. The book provides useful background information and reference materials to help explain the different approaches and interventions that are used to reduce water losses. Numerous real case studies are provided that highlight the processes and methodologies employed around the world to reduce water losses. Water Management and Water Loss covers many aspects of water loss control including, pressure management, leak detection and repair, Internal plumbing losses and retrofitting, community involvement and education/awareness, schools education and leak repair projects. Authors: Stuart Hamilton, Hydrotec Ltd.,Thorpe Underwood, Northants, UK and Ronnie McKenzie, Groenkloof, Pretoria, South Africa

All over the world countries struggle with water stress. Problems vary from water scarcity and a degrading water quality, to floods and a rising sea level due to climate change. The European Union adopted a Water Framework Directive to improve the sustainability of water management in its member states. Water management should be coordinated at the level of river basins as a whole. Interests of various user groups should be better represented. River basin visions should take into account the impact of all human activities on the status of the resource. Water legislation needs streamlining and more focus on its implementation. The European Union advocates regulating water prices by charging the costs of water services on the basis of full cost recovery and the polluter pays principle. This book examines the development of water management in the Netherlands, Belgium, France, Spain, Italy and Switzerland. It is based on the European research project EUWARENESS. The authors apply a theoretical framework for the analysis of institutional regimes, water governance and property rights. The evolution of national water resource regimes is described over a period of almost 200 years (1800-2000). The long-term perspective enables the reader to see the conditions under which regime transformation and paradigm change are made possible. The book also includes a critical analysis of policy making by the European Union, and a comparative review and analysis of regime development in the six countries involved. This book is followed by another volume published with Kluwer Academic Publishers on "Integrated Governance and Water Basin Management", edited by Hans Bressers and Stefan Kuks.

In the quest to reduce costs and improve the efficiency of water and wastewater services, many communities in the United States are exploring the potential advantages of privatization of those services. Unlike other utility services, local governments have generally assumed responsibility for providing water services. Privatization of such services can include the outright sale of system assets, or various forms of public-private partnershipsâ€"from the simple provision of supplies and services, to private design construction

and operation of treatment plants and distribution systems. Many factors are contributing to the growing interest in the privatization of water services. Higher operating costs, more stringent federal water quality and waste effluent standards, greater customer demands for quality and reliability, and an aging water delivery and wastewater collection and treatment infrastructure are all challenging municipalities that may be short of funds or technical capabilities. For municipalities with limited capacities to meet these challenges, privatization can be a viable alternative. Privatization of Water Services evaluates the fiscal and policy implications of privatization, scenarios in which privatization works best, and the efficiencies that may be gained by contracting with private water utilities.

The World Water Development Report 2003 pointed out the extensive problem that: 'Sadly, the tragedy of the water crisis is not simply a result of lack of water but is, essentially, one of poor water governance.' Cross-sectional and historical intra-national and international comparisons have been recognized as a valuable method of study in different sectors of human life, including technologies and governance. Environmental History of Water fills this gap, with its main focus being on water and sanitation services and their evolution. Altogether 34 authors have written 30 chapters for this multidisciplinary book which divides into four chronological parts, from ancient cultures to the challenges of the 21st century, each with its introduction and conclusions written by the editors. The authors represent such disciplines as history of technology, history of public health, public policy, development studies, sociology, engineering and management sciences. This book emphasizes that the history of water and sanitation services is strongly linked to current water management and policy issues, as well as future implications. Geographically the book consists of local cases from all inhabited continents. The key penetrating themes of the book include especially population growth, health, water consumption, technological choices and governance. There is great need for general, long-term analysis at the global level. Lessons learned from earlier societies help us to understand the present crisis and challenges. This new book, Environmental History of Water, provides this analysis by studying these lessons.

Evolution of Water Supply Through the Millennia presents the major achievements in the scientific fields of water supply technologies and management throughout the millennia. It provides valuable insights into ancient water supply technologies with their apparent characteristics of durability, adaptability to the environment, and sustainability. A comparison of the water technological developments in several civilizations is undertaken. These technologies are the underpinning of modern achievements in water engineering and management practices. It is the best proof that "the past is the key for the future." Rapid technological progress in the twentieth century created a disregard for past water technologies that were considered to be far behind the present ones. There are a great deal of unresolved problems related to the management principles, such as the decentralization of the processes, the durability of the water projects, the cost effectiveness, and sustainability issues such as protection from floods and droughts. In the developing world, such problems were intensified to an unprecedented degree. Moreover, new problems have arisen such as the contamination of surface and groundwater. Naturally, intensification of unresolved problems led societies to revisit the past and to reinvestigate the successful past achievements. To their surprise, those who attempted this retrospect, based on archaeological, historical, and technical evidence were impressed by two things: the similarity of principles with present ones and the advanced level of water engineering and management practices.