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KEY=WASTEWATER - LUIS TRAVIS

Water and Wastewater Engineering

McGraw-Hill Education **An In-Depth Guide to Water and Wastewater Engineering** This authoritative volume offers comprehensive coverage of the design and construction of municipal water and wastewater facilities. The book addresses water treatment in detail, following the flow of water through the unit processes and coagulation, flocculation, softening, sedimentation, filtration, disinfection, and residuals management. Each stage of wastewater treatment--preliminary, secondary, and tertiary--is examined along with residuals management. Water and Wastewater Engineering contains more than 100 example problems, 500 end-of-chapter problems, and 300 illustrations. Safety issues and operation and maintenance procedures are also discussed in this definitive resource. Coverage includes: Intake structures and wells Chemical handling and storage Coagulation and flocculation Lime-soda and ion exchange softening Reverse osmosis and nanofiltration Sedimentation Granular and membrane filtration Disinfection and fluoridation Removal of specific constituents Drinking water plant residuals management, process selection, and integration Storage and distribution systems Wastewater collection and treatment design considerations Sanitary sewer design Headworks and preliminary treatment Primary treatment Wastewater microbiology Secondary treatment by suspended and attached growth biological processes Secondary settling, disinfection, and postaeration Tertiary treatment Wastewater plant residuals management Clean water plant process selection and integration

Water and Wastewater Engineering

McGraw-Hill Science, Engineering & Mathematics **Fundamental environmental engineering principles are used as the foundation for rigorous design of conventional and advanced water and wastewater treatment processes. Integrating theory and design, this title follows the flow of water through a water treatment plant and the flow of wastewater through a wastewater treatment plant.**

Water and Wastewater Engineering: Design Principles and Practice, Second Edition

McGraw Hill Professional **Publisher's Note: Products purchased from Third Party sellers are not guaranteed by the publisher for quality, authenticity, or access to any online entitlements included with the product. A Fully Updated, In-Depth Guide to Water and Wastewater Engineering** Thoroughly revised to reflect the latest advances, procedures, and regulations, this authoritative resource contains comprehensive coverage of the design and construction of municipal water and wastewater facilities. Written by an environmental engineering expert and seasoned academic, *Water and Wastewater Engineering: Design Principles and Practice, Second Edition*, offers detailed explanations, practical strategies, and design techniques as well as hands-on safety protocols and operation and maintenance procedures. You will get cutting-edge information on water quality standards, corrosion control, piping materials, energy efficiency, direct and indirect potable reuse, and more. Coverage includes: • The design and construction processes • General water supply design considerations • Intake structures and wells • Chemical handling and storage • Coagulation and flocculation • Lime-soda and ion exchange softening • Reverse osmosis and nanofiltration • Sedimentation • Granular and membrane filtration • Disinfection and fluoridation • Removal of specific constituents • Water plant residuals management, process selection, and integration • Storage and distribution systems • Wastewater collection and treatment design considerations • Sanitary sewer design • Headworks and preliminary treatment • Primary treatment • Wastewater microbiology • Secondary treatment by suspended growth biological processes • Secondary treatment by attached growth and hybrid biological processes • Tertiary treatment • Advanced oxidation processes • Direct and indirect potable reuse

Water and Wastewater Engineering

Design Principles and Practice

Fundamental environmental engineering principles are used as the foundation for rigorous design of conventional and advanced water and wastewater treatment processes. Integrating theory and design, this title follows the flow of water through a water treatment plant and the flow of wastewater through a wastewater treatment plant.

Principles of Environmental Engineering and Science

This text is well-suited for a course in introductory environmental engineering for sophomore, or junior level students. The emphasis is on concepts, definitions, descriptions, and abundant illustrations, rather than on engineering design detail.

Introduction to Environmental Engineering

McGraw-Hill Education **Introduction to Environmental Engineering, 5/e** contains the fundamental science and engineering principles needed for introductory courses and used as the basis for more advanced courses in environmental engineering. Updated with latest EPA regulations, Davis and Cornwell apply the concepts of sustainability and materials and energy balance as a means of understanding and solving environmental engineering issues. With over 720 end-of-chapter problems, as well as provocative discussion questions, and a helpful list of review items found at the end of each chapter, the text is both a comprehensible and comprehensive tool for any environmental engineering course. Standards and Laws are the most current and up-to-date for an environmental engineering text.

Introduction to Environmental Engineering

McGraw-Hill Science, Engineering & Mathematics **This comprehensive new edition tackles the multiple aspects of environmental engineering, from solid waste disposal to air and noise pollution. It places a much-needed emphasis on fundamental concepts, definitions, and problem-solving while providing updated problems and discussion questions in each chapter. Introduction to Environmental Engineering also includes a discussion of environmental legislation along with environmental ethics case studies and problems to present the legal framework that governs environmental engineering design.**

Water and Wastewater Treatment

A Guide for the Nonengineering Professional, Second Edition

CRC Press Lauded for its engaging, highly readable style, the best-selling first edition became the premier guide for nonengineers involved in water and wastewater treatment operations. *Water and Wastewater Treatment: A Guide for the Nonengineering Professional, Second Edition* continues to provide a simple, nonmathematical account of the unit processes used to treat both drinking water and wastewater. Completely revised and expanded, this second edition adds new material on technological advances, regulatory requirements, and other current issues facing the water and wastewater industries. Using step-by-step, jargon-free language, the authors present all the basic unit processes involved in drinking water and wastewater treatment. They describe each unit process, the function of the process in water or wastewater treatment, and the basic equipment used in each process. They also explain how the processes fit together within a drinking water or wastewater treatment system and discuss the fundamental concepts that constitute water and wastewater treatment processes as a whole. Avoiding mathematics, chemistry, and biology, the book includes numerous illustrations for easy comprehension of concepts and processes. It also contains chapter summaries and an extensive glossary of terms and abbreviations for quick reference.

Wastewater Engineering

Treatment, Disposal, Reuse

Development and trends in wastewater engineering;determination of sewage flowrates;hydraulics of sewers;design of sewers;sewer appurtenancesand special structures;pump and pumping stations;wastewater characteristics;physical unit operations;chemical unit processes;design of facilities for physical and chemical treatment of wastewater;design of facilities for biological treatment of wastewater;design of facilities fortreatment and disposal of sludge;advanced wastewater treatment;water-pollution control and effluent disposal;wastewater treatment studies.

Basic Chemistry for Water and Wastewater Operators

American Water Works Association

Fair, Geyer, and Okun's, Water and Wastewater Engineering

Water Supply and Wastewater Removal

John Wiley and Sons This text series of *Water and Wastewater Engineering* have been written in a time of mounting urbanisation and industrialisation and resulting stress on water and wastewater systems. Clean and ample sources of water for municipal uses are becoming harder to find and more expensive to develop. The text is comprehensive and covers all aspects of water supply, water sources, water distribution, sanitary sewerage and urban stormwater drainage. This wide coverage is helpful to engineers in their every day practice.

WASTEWATER TREATMENT

Concepts and Design Approach

PHI Learning Pvt. Ltd. This thoroughly revised Second Edition presents a comprehensive account of the principles of operation and design of wastewater treatment plants. Beginning with the basic concepts of treatment of wastewater and the design considerations required of an efficient treatment plant, the book moves on to spotlight the design criteria for domestic wastewater treatment units. In essence, the text gives the detailed procedures for design computations of all units of a wastewater treatment plant. It also describes the most common types of reactors used for physical operations and biological processes in wastewater treatment plants. Besides additional examples and exercises, this edition also includes a new chapter on "Disinfection of Wastewater". The book is intended for the undergraduate students of Civil and Environmental Engineering. It will also be useful to the practising professionals involved in the design of wastewater treatment plants. Key Features • Provides several examples supported by graphs and sketches to highlight the various design concepts of wastewater treatment units. • Encapsulates significant theoretical and computational information, and useful design hints in Note and Tip boxes. • Includes well-graded practice exercises to help students develop the skills in designing treatment plants.

Membrane Bioreactor Processes

Principles and Applications

CRC Press Grasp the Essential Principles of Membrane Bioreactor Processes Evolved from the conventional activated sludge (CAS) process, membrane bioreactor (MBR) processes have become the next-generation solution for municipal and industrial wastewater treatment and recycle. *Membrane Bioreactor Processes: Principles and Applications* explores nearly all the theoretical and practical aspects of membrane bioreactor technologies. Using the author's expertise obtained from academia and industry, this book provides the crucial details on MBR technology that that you need to know. The book details the theoretical and practical backgrounds of current practices involved with membrane module design, biological and membrane system design, system optimization, and system operation. Outlines the State of the Art of the Membrane Bioreactor Technology The text discusses the fundamentals of membrane filtration, emphasizing the principles of submerged membrane filtration. It also explores the complex interaction among key design and operating parameters, offers comprehensive explanations on the interconnectivity between biological and membrane systems, and covers new findings discovered in recent years. This book clearly explains how small-scale systems perform differently from larger-scale systems and its implications in data interpretation. Using this book as a platform, the technology can be developed further and quickly applied in future processes.

MWH's Water Treatment Principles and Design

John Wiley & Sons the definitive guide to the theory and practice of water treatment engineering THIS NEWLY REVISED EDITION of the classic reference provides complete, up-to-date coverage of both theory and practice of water treatment system design. The Third Edition brings the field up to date, addressing new regulatory requirements, ongoing environmental concerns, and the emergence of pharmacological agents and other new chemical constituents in water. Written by some of the foremost experts in the field of public water supply, *Water Treatment, Third Edition* maintains the book's broad scope and reach, while reorganizing the material for even greater clarity and readability. Topics span from the fundamentals of water chemistry and microbiology to the latest methods for detecting constituents in water, leading-edge technologies for implementing water treatment processes, and the increasingly important topic of managing residuals from water treatment plants. Along with hundreds of illustrations, photographs, and extensive tables listing chemical properties and design data, this volume: Introduces a number of new topics such as advanced oxidation and enhanced coagulation Discusses treatment strategies for removing pharmaceuticals and personal care products Examines advanced treatment technologies such as membrane filtration, reverse osmosis, and ozone addition Details reverse osmosis applications for brackish groundwater, wastewater, and other water sources Provides new case studies demonstrating the synthesis of full-scale treatment trains A must-have resource for engineers designing or operating water treatment plants, *Water Treatment, Third Edition* is also useful for students of civil, environmental, and water resources engineering.

Environmental Chemistry

CRC Press With clear explanations, real-world examples and updated ancillary material, the 11th edition of *Environmental Chemistry* emphasizes the concepts essential to the practice of environmental science, technology and chemistry. The format and organization popular in preceding editions is used, including an approach based upon the five environmental spheres and the relationship of environmental chemistry to the key concepts of sustainability, industrial ecology and green chemistry. The new edition provides a comprehensive view of key environmental issues, and significantly looks at diseases and pandemics as an environmental problem influenced by other environmental concerns like climate change. Features: The most trusted and best-selling text for environmental chemistry has been fully updated and expanded once again The author has preserved the basic format with appropriate updates including a comprehensive overview of key environmental issues and concerns New to this important text is material on the threat of pathogens and disease, deadly past pandemics that killed millions, recently emerged diseases and the prospects for more environment threats related to disease This outstanding legacy appeals to a wide audience and can also be an ideal interdisciplinary book for graduate students with degrees in a variety of disciplines other than chemistry

Design of Urban Stormwater Controls

Mop 23

This manual, a revision of the Water Environment Federation's (WEF's) and the American Society of Civil Engineer's (ASCE's) manual of practice (MOP) titled *Urban Runoff Quality Management (1998)*, takes a holistic view and espouses the concept that systems of stormwater controls can be designed to meet the various objectives of stormwater management, including flood control; stream channel protection; groundwater recharge; water quality improvement; protection of public safety, health, and welfare; and multipurpose public benefits such as the provision of open space, parks, playgrounds, trails, wildlife habitat, and enhancement of property values. This MOP focuses on consolidating technologies under a comprehensive view of stormwater management in an attempt to foster convergence between traditional stormwater controls and green infrastructure. Developed by WEF and ASCE.

Fundamentals of Water Security

Quantity, Quality, and Equity in a Changing Climate

John Wiley & Sons FUNDAMENTALS OF WATER SECURITY Understand How to Manage Water Resources to Equitably Meet Both Human and Ecological Needs Burgeoning populations and the ever-higher standards of living for those in emerging countries increase the demand on our water resources. What is not increasing, however, is the supply of water and the total amount of water in earth's biosphere—water that is integral to all standards of living. *Fundamentals of Water Security* provides a foundation for understanding and managing the quantity-quality-equity nexus of water security in a changing climate. In a broad sense, this volume explores solutions to water security challenges around the world. It is richly illustrated and pedagogically packed with up-to-date information. The text contains chapter learning objectives, foundation sections reviewing quantitative skills, case studies, and vignettes of people who have made important contributions to water security. To further aid comprehension, end-of-chapter problems are included—both qualitative and quantitative, with solutions available to instructors. Finally, extensive references feature books, journal articles, and government and NGO reports. Sample topics discussed include: How the study of water resources has evolved from a focus on physical availability to include social factors and governance How water security affects multiple disciplines across environmental science and engineering, hydrology, geography, water resources, atmospheric science, chemistry, biology, health science, and social and political science fields How to achieve a sufficient quantity and quality of water to equitably meet both immediate and long-term human and ecological needs Analysis of water security in an integrated manner by underscoring the complex interactions between water quantity, water quality, and society Students taking courses on hydrology, water security, and/or water resource management, along with scientists working in fields where water security is a factor will be able to use *Fundamentals of Water Security* as a comprehensive textbook to understand and achieve water security.

Wastewater Treatment Plant Design Handbook

"Prepared by the 'Wastewater Treatment Plant Design Handbook' Task Force of the 'Water Environment Federation' --p. [iii]

Loose Leaf for Principles of Environmental Engineering and Science

McGraw-Hill Education Principles of Environmental Engineering is intended for a course in introductory environmental engineering for sophomore- or junior-level students. This text provides a background in fundamental science and engineering principles of environmental engineering for students who may or may not become environmental engineers. Principles places more emphasis on scientific principles, ethics, and safety, and focuses less on engineering design. The text exposes students to a broad range of environmental topics—including risk management, water quality and treatment, air pollution, hazardous waste, solid waste, and ionizing radiation as well as discussion of relevant regulations and practices. The book also uses mass and energy balance as a tool for understanding environmental processes and solving environmental engineering problems.

Water Quality

Guidelines, Standards, and Health : Assessment of Risk and Risk Management for Water-related Infectious Disease

World Health Organization The quality of water, whether it is used for drinking, irrigation or recreational purposes, is significant for health in both developing and developed countries worldwide. This book is based on a programme of work undertaken by an international group of experts during 1999-2001. The aim was to develop a harmonised framework of effective and affordable guidelines and standards to improve the risk assessment and management of water-related microbial hazards. This book will be useful to all those concerned with issues relating to microbial water quality and health, including environmental and public health scientists, water scientists, policy makers and those responsible for developing standards and regulations.

Fundamentals of Wastewater Treatment and Engineering

CRC Press As the world's population has increased, sources of clean water have decreased, shifting the focus toward pollution reduction and control. Disposal of wastes and wastewater without treatment is no longer an option. *Fundamentals of Wastewater Treatment and Engineering* introduces readers to the essential concepts of wastewater treatment, as well as t

Wastewater Microbiology

John Wiley & Sons *Wastewater Microbiology* focuses on microbial contaminants found in wastewater, methods of detection for these contaminants, and methods of cleansing water of microbial contamination. This classic reference has now been updated to focus more exclusively on issues particular to wastewater, with new information on fecal contamination and new molecular methods. The book features new methods to determine cell viability/activity in environmental samples; a new section on bacterial spores as indicators; new information covering disinfection byproducts, UV disinfection, and photoreactivation; and much more. A PowerPoint of figures from the book is available at ftp://ftp.wiley.com/public/sci_tech_med/wastewater_microbiology.

Water Quality & Treatment: A Handbook on Drinking Water

McGraw Hill Professional The definitive water quality and treatment resource--fully revised and updated Comprehensive, current, and written by leading experts, *Water Quality & Treatment: A Handbook on Drinking Water, Sixth Edition* covers state-of-the-art technologies and methods for water treatment and quality control. Significant revisions and new material in this edition reflect the latest advances and critical topics in water supply and treatment. Presented by the American Water Works Association, this is the leading source of authoritative information on drinking water quality and treatment. **NEW CHAPTERS ON:** Chemical principles, source water composition, and watershed protection **Natural treatment systems** Water reuse for drinking water augmentation **Ultraviolet light processes** **Formation and control of disinfection by-products** **DETAILED COVERAGE OF:** Drinking water standards, regulations, goals, and health effects **Hydraulic characteristics of water treatment reactors** Gas-liquid processes and chemical oxidation **Coagulation, flocculation, sedimentation, and flotation** **Granular media and membrane filtration** **Ion exchange and adsorption of inorganic contaminants** **Precipitation, coprecipitation, and precipitative softening** **Adsorption of organic compounds by activated carbon** **Chemical disinfection** **Internal corrosion and deposition control** **Microbiological quality control in distribution systems** **Water treatment plant residuals management**

Principles of Water Treatment

John Wiley & Sons *Principles of Water Treatment* has been developed from the best selling reference work *Water Treatment*, 3rd edition by the same author team. It maintains the same quality writing, illustrations, and worked examples as the larger book, but in a smaller format which focuses on the treatment processes and not on the design of the facilities.

Traffic Engineering Handbook

John Wiley & Sons "The *Traffic Engineering Handbook* is a comprehensive practice-oriented reference that presents the fundamental concepts of traffic engineering, commensurate with the state of the practice"--

Water Demand Management

IWA Publishing A common characteristic of water demand in urban areas worldwide is its inexorable rise over many years; continued growth is projected over coming decades. The chief influencing factors are population growth and migration, together with changes in lifestyle, demographic structure and the possible effects of climate change (the detailed implications of climate change are not yet clear, and anyway will depend on global location, but must at least increase the uncertainty in security of supply). This is compounded by rapid development, creeping urbanization and, in some places, rising standards of living. Meeting this increasing demand from existing resources is self-evidently an uphill struggle, particularly in water stressed/scarcely regions in the developed and developing world alike. There are typically two potential responses: either "supply-side" (meeting demand with new resources) or "demand-side" (managing consumptive demand itself to postpone or avoid the need to develop new resources). There is considerable pressure from the general public, regulatory agencies, and some governments to minimise the impacts of new supply projects (e.g. building new reservoirs or inter-regional transfer schemes), implying the emphasis should be shifted towards managing water demand by best utilising the water that is already available. *Water Demand Management* has been prepared by the academic, government and industry network **WATERSAVE**. The concept of the book is to assemble a comprehensive picture of demand management topics ranging from technical to social and legal aspects, through expert critical literature reviews. The depth and breadth of coverage is a unique contribution to the field and the book will be an invaluable information source for practitioners and researchers, including water utility engineers/planners, environmental regulators, equipment and service providers, and postgraduates. **Contents** **Water consumption trends and demand forecasting techniques** **The technology, design and utility of rainwater catchment systems** **Understanding greywater treatment** **Water conservation products** **Water conservation and sewerage systems** **An introduction to life cycle and rebound effects in water systems** **Developing a strategy for managing losses in water distribution networks** **Demand management in developing countries** **Drivers and barriers for water conservation and reuse in the UK** **The economics of water demand management** **Legislation and regulation mandating and influencing the efficient use of water in England and Wales** **Consumer reactions to water conservation policy instruments** **Decision support tools for water demand management**

Quantitative Microbial Risk Assessment

John Wiley & Sons *Provides the latest QMRA methodologies to determine infection risk* **cause by either accidental microbial infections or deliberate infections caused by terrorism** • **Reviews the latest methodologies to quantify at every step of the microbial exposure pathways, from the first release of a pathogen to the actual human infection** • **Provides techniques on how to gather information, on how each microorganism moves through the environment, how to determine their survival rates on various media, and how people are exposed to the microorganism** • **Explains how QMRA can be used as a tool to measure the impact of interventions and identify the best policies and practices to protect public health and safety** • **Includes new information on genetic methods** • **Techniques use to develop risk models for drinking water, groundwater, recreational water, food and pathogens in the indoor environment**

Teaching Engineering, Second Edition

Purdue University Press The majority of professors have never had a formal course in education, and the most common method for learning how to teach is on-the-job training. This represents a challenge for disciplines with ever more complex subject matter, and a lost opportunity when new active learning approaches to education are yielding dramatic improvements in student learning and retention. This book aims to cover all aspects of teaching engineering and other technical subjects. It presents both practical matters and educational theories in a format useful for both new and experienced teachers. It is organized to start with specific, practical teaching applications and then leads to psychological and educational theories. The "practical orientation" section explains how to develop objectives and then use them to enhance student learning, and the "theoretical orientation" section discusses the theoretical basis for learning/teaching and its impact on students. Written mainly for PhD students and professors in all areas of engineering, the book may be used as a text for graduate-level classes and professional workshops or by professionals who wish to read it on their own. Although the focus is engineering education, most of this book will be useful to teachers in other disciplines. Teaching is a complex human activity, so it is impossible to develop a formula that guarantees it will be excellent. However, the methods in this book will help all professors become good teachers while spending less time preparing for the classroom. This is a new edition of the well-received volume published by McGraw-Hill in 1993. It includes an entirely revised section on the Accreditation Board for Engineering and Technology (ABET) and new sections on the characteristics of great teachers, different active learning methods, the application of technology in the classroom (from clickers to intelligent tutorial systems), and how people learn.

Elementary Hydraulics

Thomson Learning Elementary Hydraulics is written for the undergraduate level and contains material to appeal to a diversified class of students. The book, divided into three parts, blends fluid mechanics, hydraulic science, and hydraulics engineering. The first part of the text draws upon fluid mechanics and summarizes the concepts deemed essential to the teaching of hydraulics. The second part builds on the first section while discussing the science of hydraulics. The third section looks at the engineering practice of hydraulics and illustrates practical applications of the material covered in the text. In addition to these applications, the text contains a number of numerical problems and a reading aid at the end of each chapter to enhance student learning.

Handbook of Water and Wastewater Treatment Plant Operations

CRC Press The Handbook of Water and Wastewater Treatment Plant Operations is the first thorough resource manual developed exclusively for water and wastewater plant operators. Now regarded as an industry standard, this fourth edition has been updated throughout, and explains the material in easy-to-understand language. It also provides real-world case studies and operating scenarios, as well as problem-solving practice sets for each scenario. Features: Updates the material to reflect the developments in the field Includes new math operations with solutions, as well as over 250 new sample questions Adds updated coverage of energy conservation measures with applicable case studies Enables users to properly operate water and wastewater plants and suggests troubleshooting procedures for returning a plant to optimum operation levels Prepares operators for licensure exams A complete compilation of water science, treatment information, process control procedures, problem-solving techniques, safety and health information, and administrative and technological trends, this text serves as a resource for professionals working in water and wastewater operations and operators preparing for wastewater licensure exams. It can also be used as a supplemental textbook for undergraduate and graduate students studying environmental science, water science, and environmental engineering.

Wastewater Engineering

Treatment and Reuse

College le OVERRUNS

Water, Cultural Diversity, and Global Environmental Change

Emerging Trends, Sustainable Futures?

Springer Science & Business Media Co-published with UNESCO A product of the UNESCO-IHP project on Water and Cultural Diversity, this book represents an effort to examine the complex role water plays as a force in sustaining, maintaining, and threatening the viability of culturally diverse peoples. It is argued that water is a fundamental human need, a human right, and a core sustaining element in biodiversity and cultural diversity. The core concepts utilized in this book draw upon a larger trend in sustainability science, a recognition of the synergism and analytical potential in utilizing a coupled biological and social systems analysis, as the functioning viability of nature is both sustained and threatened by humans.

Sustainable Surface Water Management

A Handbook for SUDS

John Wiley & Sons Sustainable Surface Water Management: a handbook for SUDS addresses issues as diverse as flooding, water quality, amenity and biodiversity but also mitigation of, and adaptation to, global climate change, human health benefits and reduction in energy use. Chapters are included to cover issues from around the world, but they also address particular designs associated with the implementation of SUDS in tropical areas, problems with retrofitting SUDS devices, SUDS modelling, water harvesting in drought-stricken countries using SUDS and the inclusion of SUDS in the climate change strategies of such cities as Tokyo, New York and Strasbourg.

Regional Cooperation for Water Quality Improvement in Southwestern Pennsylvania

National Academies Press The city of Pittsburgh and surrounding area of southwestern Pennsylvania face complex water quality problems, due in large part to aging wastewater infrastructures that cannot handle sewer overflows and stormwater runoff, especially during wet weather. Other problems such as acid mine drainage are a legacy of the region's past coal mining, heavy industry, and manufacturing economy. Currently, water planning and management in southwestern Pennsylvania is highly fragmented; federal and state governments, 11 counties, hundreds of municipalities, and other entities all play roles, but with little coordination or cooperation. The report finds that a comprehensive, watershed-based approach is needed to effectively meet water quality standards throughout the region in the most cost-effective manner. The report outlines both technical and institutional alternatives to consider in the development and implementation of such an approach.

Physicochemical Treatment Processes

Springer Science & Business Media The past 30 years have seen the emergence of a growing desire worldwide to take positive actions to restore and protect the environment from the degrading effects of all forms of pollution: air, noise, solid waste, and water. Because pollution is a direct or indirect consequence of waste, the seemingly idealistic demand for “zero discharge” can be construed as an unrealistic demand for zero waste. However, as long as waste exists, we can only attempt to abate the subsequent pollution by converting it to a less noxious form. Three major questions usually arise when a particular type of pollution has been identified: (1) How serious is the pollution? (2) Is the technology to abate it available? and (3) Do the costs of abatement justify the degree of abatement achieved? The principal intention of the Handbook of Environmental Engineering series is to help readers formulate answers to the last two questions. The traditional approach of applying tried-and-true solutions to specific pollution problems has been a major contributing factor to the success of environmental engineering, and has accounted in large measure for the establishment of a “methodology of pollution control.” However, realization of the ever-increasing complexity and interrelated nature of current environmental problems makes it imperative that intelligent planning of pollution abatement systems be undertaken.

The Greenhouse Gas Protocol

A Corporate Accounting and Reporting Standard

World Resources Institute The GHG Protocol Corporate Accounting and Reporting Standard helps companies and other organizations to identify, calculate, and report GHG emissions. It is designed to set the standard for accurate, complete, consistent, relevant and transparent accounting and reporting of GHG emissions.

Principles of Environmental Engineering & Science

McGraw-Hill Education Principles of Environmental Engineering is intended for a course in introductory environmental engineering for sophomore- or junior-level students. This text provides a background in fundamental science and engineering principles of environmental engineering for students who may or may not become environmental engineers. Principles places more emphasis on scientific principles, ethics, and safety, and focuses less on engineering design. The text exposes students to a broad range of environmental topics—including risk management, water quality and treatment, air pollution, hazardous waste, solid waste, and ionizing radiation as well as discussion of relevant regulations and practices. The book also uses mass and energy balance as a tool for understanding environmental processes and solving environmental engineering problems. This new edition includes an optional chapter on Biology as well as a thorough updating of environmental standards and a discussion of how those standards are created.

The SUDS Manual

This guidance document is aimed at providing comprehensive advice on the implementation of SUDS in the UK. It provides information for all aspects of the life cycle of SUDS, from initial planning, design through to construction and their management in the context of the current regulatory framework.

Environmental Engineering

Principles and Practice

John Wiley & Sons Environmental Engineering: Principles and Practice is written for advanced undergraduate and first-semester graduate courses in the subject. The text provides a clear and concise understanding of the major topic areas facing environmental professionals. For each topic, the theoretical principles are introduced, followed by numerous examples illustrating the process design approach. Practical, methodical and functional, this exciting new text provides knowledge and background, as well as opportunities for application, through problems and examples that facilitate understanding. Students pursuing the civil and environmental engineering curriculum will find this book accessible and will benefit from the emphasis on practical application. The text will also be of interest to students of chemical and mechanical engineering, where several environmental concepts are of interest, especially those on water and wastewater treatment, air pollution, and sustainability. Practicing engineers will find this book a valuable resource, since it covers the major environmental topics and provides numerous step-by-step examples to facilitate learning and problem-solving. Environmental Engineering: Principles and Practice offers all the major topics, with a focus upon: • a robust problem-solving scheme introducing statistical analysis; • example problems with both US and SI units; • water and wastewater design; • sustainability; • public health. There is also a companion website with illustrations, problems and solutions.

Water and Wastewater Engineering

McGraw Hill Professional An In-Depth Guide to Water and Wastewater Engineering This authoritative volume offers comprehensive coverage of the design and construction of municipal water and wastewater facilities. The book addresses water treatment in detail, following the flow of water through the unit processes and coagulation, flocculation, softening, sedimentation, filtration, disinfection, and residuals management. Each stage of wastewater treatment—preliminary, secondary, and tertiary—is examined along with residuals management. Water and Wastewater Engineering contains more than 100 example problems, 500 end-of-chapter problems, and 300 illustrations. Safety issues and operation and maintenance procedures are also discussed in this definitive resource. Coverage includes: Intake structures and wells Chemical handling and storage Coagulation and flocculation Lime-soda and ion exchange softening Reverse osmosis and nanofiltration Sedimentation Granular and membrane filtration Disinfection and fluoridation Removal of specific constituents Drinking water plant residuals management, process selection, and integration Storage and distribution systems Wastewater collection and treatment design considerations Sanitary sewer design Headworks and preliminary treatment Primary treatment Wastewater microbiology Secondary treatment by suspended and attached growth biological processes Secondary settling, disinfection, and post-aeration Tertiary treatment Wastewater plant residuals management Clean water plant process selection and integration