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Population growth and industrial development have increased the amount of wastewater generated by urban areas, and one of the major problems facing industrialized nations is the contamination of the environment by hazardous chemicals. Therefore, to meet the standards, suitable treatment alternatives should be established. Advanced Oxidation Processes (AOPs) in Water and Wastewater Treatment is a pivotal reference source that provides vital research on the current, green, and advanced technologies for wastewater treatment. While highlighting topics such as groundwater treatment, environmental legislation, and oxidation processes, this publication explores the contamination of environments by hazardous chemicals as well as the methods of decontamination and the reduction of negative effects on the environment. This book is a vital reference source for environmental engineers, waste authorities, solid waste management companies, landfill operators, legislators, environmentalists, and academicians seeking current research on achieving sustainable management for wastewater treatment.

This book provides useful information about bioremediation, phytoremediation, and mycoremediation of wastewater and some aspects of the chemical wastewater treatment processes, including ion exchange, neutralization, adsorption, and disinfection. Additionally, this book elucidates and

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illustrates the wastewater treatment plants in terms of plant sizing, plant layout, plant design, and plant location. Cutting-edge topics include wet air oxidation of aqueous wastes, biodegradation of nitroaromatic compounds, biological treatment of sanitary landfill leachate, bacterial strains for the bioremediation of olive mill wastewater, gelation of arabinoxylans from maize wastewater, and modeling wastewater evolution.

By combining integrated solid waste management with the traditional coverage of landfills, this new edition offers the first comprehensive guide to managing the entire solid waste cycle, from collection, to recycling, to eventual disposal. * Includes new material on source reduction, recycling, composting, contamination soil remediation, incineration, and medical waste management. * Presents up-to-date chapters on bioreactor landfills, wetland mitigation, and landfill remediation. * Offers comprehensive coverage of the role of geotechnical engineering in a wide variety of environmental issues.

FROM THE PREFACE Sanitary landfills are the most widely utilized method of solid waste disposal around the world. With increased use and public awareness of this method of disposal, there is much concern with respect to the pollution potential of the landfill leachate. Depending on the composition and extent of decomposition of the refuse and hydrological factors, the leachate may become highly contaminated. As leachate migrates away from a landfill, it may cause serious pollution to the groundwater aquifer as well as adjacent surface waters. There is growing concern about surface and groundwater pollution from leachate. Better understanding and prediction of leachate generation, containment, and treatment are needed. This book contains a literature review of various methodologies that have been developed for prediction, generation, characterization,

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containment, control, and treatment of leachate from sanitary landfills. The contents of this book are divided into nine chapters. Each chapter contains theory and definition of the important design parameters, literature review, example calculations, and references. Chapter 1 is devoted to basic facts of solid waste problems current status and future trends towards waste reduction and recycling. Chapter 2 provides a general overview of municipal solid waste generation, collection, transport, resource recovery and reuse, and disposal options. The current status of sanitary landfill design and operation, problems associated with the landfilling, and future trends are presented in Chapter 3. Methods of enhanced stabilization, recycling landfill space, methane recovery, and above grade landfilling, and closure and post closure care of completed landfills are also discussed in detail. Chapter 4 provides a general overview of Subtitle D regulations and its impact upon sanitary landfilling practices. Chapter 5 is devoted entirely to moisture routing and leachate generation mechanisms. Examples of calculation pr

The collection, transportation and subsequent processing of waste materials is a vast field of study which incorporates technical, social, legal, economic, environmental and regulatory issues. Common waste management practices include landfilling, biological treatment, incineration, and recycling – all boasting advantages and disadvantages. Waste management has changed significantly over the past ten years, with an increased focus on integrated waste management and life-cycle assessment (LCA), with the aim of reducing the reliance on landfill with its obvious environmental concerns in favour of greener solutions. With contributions from more than seventy internationally known experts presented in two volumes and backed by the International Waste Working Group and the International Solid Waste Association, detailed chapters cover: Waste

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Generation and Characterization Life Cycle Assessment of Waste Management Systems Waste Minimization Material Recycling Waste Collection Mechanical Treatment and Separation Thermal Treatment Biological Treatment Landfilling Special and Hazardous Waste Solid Waste Technology & Management is a balanced and detailed account of all aspects of municipal solid waste management, treatment and disposal, covering both engineering and management aspects with an overarching emphasis on the life-cycle approach.

Biosafety in the Laboratory is a concise set of practical guidelines for handling and disposing of biohazardous material. The consensus of top experts in laboratory safety, this volume provides the information needed for immediate improvement of safety practices. It discusses high- and low-risk biological agents (including the highest-risk materials handled in labs today), presents the "seven basic rules of biosafety," addresses special issues such as the shipping of dangerous materials, covers waste disposal in detail, offers a checklist for administering laboratory safety--and more.

Municipal solid waste (MSW) disposal is an ever-increasing problem in many parts of the world, especially in developing countries. To date, landfilling is still the preferred option for the disposal and management of MSW due to its low-cost operation. While this solution is advantageous from a cost perspective, it introduces a high level of potential pollutants which can be detrimental to the local environment. Control and Treatment of Landfill Leachate for Sanitary Waste Disposal presents research-based insights and solutions for the proper management and treatment of landfill leachate. Highlighting relevant topics on emerging technologies and treatment innovations for minimizing the environmental hazards of waste disposal, this innovative publication contributes to filling in many of the gaps that exist in the

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current literature available on leachate treatment. Waste authorities, solid waste management companies, landfill operators, legislators, environmentalists, graduate students, and researchers will find this publication beneficial to their professional and academic interests in the area of waste treatment and management.

Solid waste management affects every person in the world. By 2050, the world is expected to increase waste generation by 70 percent, from 2.01 billion tonnes of waste in 2016 to 3.40 billion tonnes of waste annually. Individuals and governments make decisions about consumption and waste management that affect the daily health, productivity, and cleanliness of communities. Poorly managed waste is contaminating the world's oceans, clogging drains and causing flooding, transmitting diseases, increasing respiratory problems, harming animals that consume waste unknowingly, and affecting economic development. Unmanaged and improperly managed waste from decades of economic growth requires urgent action at all levels of society. What a Waste 2.0: A Global Snapshot of Solid Waste Management to 2050 aggregates extensive solid waste data at the national and urban levels. It estimates and projects waste generation to 2030 and 2050. Beyond the core data metrics from waste generation to disposal, the report provides information on waste management costs, revenues, and tariffs; special wastes; regulations; public communication; administrative and operational

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models; and the informal sector. Solid waste management accounts for approximately 20 percent of municipal budgets in low-income countries and 10 percent of municipal budgets in middle-income countries, on average. Waste management is often under the jurisdiction of local authorities facing competing priorities and limited resources and capacities in planning, contract management, and operational monitoring. These factors make sustainable waste management a complicated proposition; most low- and middle-income countries, and their respective cities, are struggling to address these challenges. Waste management data are critical to creating policy and planning for local contexts. Understanding how much waste is generated—especially with rapid urbanization and population growth—as well as the types of waste generated helps local governments to select appropriate management methods and plan for future demand. It allows governments to design a system with a suitable number of vehicles, establish efficient routes, set targets for diversion of waste, track progress, and adapt as consumption patterns change. With accurate data, governments can realistically allocate resources, assess relevant technologies, and consider strategic partners for service provision, such as the private sector or nongovernmental organizations. What a Waste 2.0: A Global Snapshot of Solid Waste Management to

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2050 provides the most up-to-date information available to empower citizens and governments around the world to effectively address the pressing global crisis of waste. Additional information is available at <http://www.worldbank.org/what-a-waste>. Pollution Control and Resource Recovery: Municipal Solid Wastes at Landfill provides pollution control and resource reuse technologies that cover the research and development achievements gained in recent years, providing the most up-to-date information on an emerging field in solid waste management. Provides technology and methods for the recycling of aged refuse from closed landfills Includes leachate generation processes in municipal solid waste landfills Presents novel approaches to landfilling for leachate and methane control, covering the research and development achievements gained in recent years

Prudent Practices in the Laboratory--the book that has served for decades as the standard for chemical laboratory safety practice--now features updates and new topics. This revised edition has an expanded chapter on chemical management and delves into new areas, such as nanotechnology, laboratory security, and emergency planning. Developed by experts from academia and industry, with specialties in such areas as chemical sciences, pollution prevention, and laboratory safety, Prudent Practices in the Laboratory provides guidance on planning

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procedures for the handling, storage, and disposal of chemicals. The book offers prudent practices designed to promote safety and includes practical information on assessing hazards, managing chemicals, disposing of wastes, and more. Prudent Practices in the Laboratory will continue to serve as the leading source of chemical safety guidelines for people working with laboratory chemicals: research chemists, technicians, safety officers, educators, and students.

This book addresses a pollution hazard prevalent in most cities and large towns world-wide by providing an understanding of the scientific and technical control of the landfill method of domestic and non-domestic waste disposal, considered within the framework of integrated waste management. Landfill disposal is practised world-wide, and is cheap and convenient but, if poorly managed, poses a serious threat to the environment. This pollution threat is a source of concern to regulating authorities and environmental pressure groups. This comprehensive text reflects the authority of the author's considerable experience in assessment and remediation of landfill sites, which he has taught in post-graduate courses on hazardous waste management, and in running international programmes on waste and contaminated land-related subjects for industry. Dr. Westlake's expertise also reflects his work in association with

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the Environmental Safety Centre at the Harwell Laboratory. Featuring the microbial degradation of waste within landfills, with an understanding of hazards associated with the production, migration and control of landfill gas and leachate, the book also points to the benefits to be obtained from gas production. There is important discussion on the monitoring of potentially dangerous dormant sites, and much helpful advice on trouble shooting. The text is set in the context of regulatory controls and assesses their impact, while at the same time looking at the way forward for waste disposal by landfill. There is coverage of legislative requirements and constraints including those from the European Union reflecting official attitudes. There is growing international consensus that EU regulations can be interpreted and applied as a benchmark in relation to legal practices and attitudes in all countries throughout the world Addresses a pollution hazard prevalent in most cities and large towns world-wide Provides an understanding of the scientific and technical control of the landfill method of domestic and non-domestic waste disposal, considered within the framework of integrated waste management Provides an important discussion on the monitoring of potentially dangerous dormant sites Pollution Control Technology for Leachate from Municipal Solid Waste explores the physical, chemical and biological factors that produce

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leachate and technological solutions for its control.

The book introduces the integrated and pre-treatment leachate treatment processes that are necessary to deal with the variations of pollutants in leachate. Real world case-studies are provided to illustrate these treatment processes, along with leachate treatment engineering process design and the construction of municipal solid waste incinerator power plants. This book will be of particular interest to Civil, Chemical and Environmental Engineers, but will also be ideal for Environmental Scientists.

Provides quantity and quality prediction models, along with properties of effluent concentrated leachate liquid Includes physical and chemical treatment processes for leachate, including ammonia nitrogen removal using struvite precipitation, crystal variation and microstructure of the struvite, etc.

Covers leachate treatment engineering processes for design and construction of treatment plants

This book is divided into seven chapters, which address various leachate landfill management issues such as the quality, quantity and management of municipal landfill leachate, together with new methods. There are many methods available for the treatment and management of municipal landfill leachate. The waste management methods presented here can be applied in most third-world countries, due to the lack of waste separation and high organic content of waste. The book provides

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descriptions and a hierarchy of waste management, reviews the history of solid waste disposal, and covers a range of topics, including: leachate and gas generation in landfills; natural attenuation landfills; landfill site selection; leachate and stormwater management, collection and treatment; landfill gas management; landfill cover requirements; leachate collection; types of natural treatment systems; and design procedure and considerations. In closing, it provides an overview of the current solid waste management status in Iran.

Strategic Perspectives in Solid Waste and Wastewater Management explores conventional and advanced biotechnologies for waste management, including socio-economic aspects, techno-economic feasibility, models and modeling tools, and a detailed life-cycle assessment approach in solid waste (SW) and wastewater (WW). These innovative technologies are highly applicable to current real-world situations. The enormous increase in the quantum and diversity of SW and WW - including waste materials generated due to human activity and their potentially harmful effects on the environment and public health - have led to increasing awareness about an urgent need to adopt novel technologies for appropriate management of both SW and WW. While there is an obvious need to minimize the generation of wastes and to reuse and recycle them, the technologies for managing such wastes can play

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a vital role in mitigating problems. Besides recovery of substantial energy, these technologies can lead to a considerable reduction in the overall waste quantities requiring final disposal, which can be better managed for safe disposal in a controlled manner while meeting pollution control standards. Outlines appropriate technologies for solid waste and wastewater management systems and their applications Presents and evaluates the Best Available Technology (BAT) and includes global case studies Provides methods for evaluating the way to use appropriate technological systems to develop the best technically and economically feasible projects worldwide Offers an excellent resource for university students to use for their research and dissertations

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from young landfill. The book also describes how the process train can be changed effectively as leachate quality changes with time.

In *Landfill Leachate: Control, Treatment and Environmental Impact*, the treatment of landfill leachate by ozonation process was investigated. For this purpose, the ozonation experiments were carried out at high pH on the effluent of pretreated with lime. The chemical oxygen demand removal efficiencies of 43% and 55% were obtained for pre-treated with lime and ozonation processes, respectively. Following this, the authors review the application of AnSBBR for the treatment of landfill leachate focusing on the selection of the biomass type, biomass acclimation strategy, treatment under different biodegradability conditions, kinetic studies, growth of biomass and its behavior on the inert support. Lastly, the results obtained in the oxidation of a concentrate from reverse osmosis of a sanitary landfill leachate are discussed. A combined treatment of electrocoagulation followed by electro-fenton was applied using iron consumable anodes and the influence of the applied current intensity, process duration, initial pH and stirring speed was assessed.

Japan was ahead of the rest of the world when it introduced intermediate processing of municipal waste by such means as incineration in the 1960s. Owing to the small land area of the country and the difficulty in securing landfill sites, the incineration ratio of municipal combustible waste had reached 100% by the 1990s. Along with the landfill of incineration residues, proprietary technologies such as high salt leachate treatment, desalination treatment, by-product recycling, a focus on the resource of incineration residues, sea surface landfill sites, and covered type landfill sites have spread and developed since then. This book describes the introduction of incineration facilities starting in the 1960s, landfill technology, and issues arising after 1990 following the introduction of the

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facilities. The necessity of a total system from incineration to landfill is explained as well. The volume is a valuable resource for countries that plan to introduce intermediate processing such as incineration and for countries that are developing a waste management policy.

The Handbook of Environment and Waste Management, Volume 1, Air and Water Pollution Control, is a comprehensive compilation of topics that are at the forefront of many technical advances and practices in air and water pollution control. These include air pollution control, water pollution control, water treatment, wastewater treatment, industrial waste treatment and small scale wastewater treatment. Internationally recognized authorities in the field of environment and waste management contribute chapters in their areas of expertise. This handbook is an essential source of reference for professionals and researchers in the areas of air, water, and waste management, and as a text for advanced undergraduate and graduate courses in these fields.

Constructed wetlands are proving to be the best natural treatment system for landfill leachates. Most of the contaminants in landfill leachates are degraded in treatment wetlands. Potential for long-term sustainability and significant cost savings are attractive features of this eco-technology. Documentation of the experience in this use of constructed wetlands has been limited. Constructed Wetlands for the Treatment of Landfill Leachates is the first compilation of the results of research from North America and Europe. Originally presented at an international symposium, this collection of papers offers the most recent research findings from the leading researchers in this new and innovative natural treatment system. Specific issues addressed in the text include: leachate characteristics, and the potential for treatability by constructed wetlands wetland treatment,

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processes and transformation use of constructed wetlands in cold climatic conditions assessment of the tolerance of wetland plants to the toxicity of leachates role of plants in the treatments of leachates integrated wetland systems performance of different wetland treatment systems cost comparisons of wetland technology vs. traditional treatment technologies The potential for environmental contamination due to leachates from landfills is increasing, and there is an urgent need to find ways and means to treat leachates in a sustainable way Constructed Wetlands for the Treatment of Landfill Leachates will provide an invaluable source of information on the subject for scientists, engineers, practitioners, policy makers, and regulatory officials.

The high rate of industrialization around the world has led to an increase in the rate of anthropogenic activities which involves the release of different types of contaminants into the aquatic environment generating high environmental risks, which could affect health and socio-economic activities if not treated properly. There is no doubt that the rapid progress in improving the water quality and management has been motivated by the latest developments in green chemistry.

Over the past decade, sources of water pollutants and the conventional methods used for the treatment of industrial wastewater treatment has flourished. Water quality and its adequate availability have been a matter of concern worldwide particularly in developing countries. According to a World Health Organization (WHO) report, more than 80% of diseases are owing to the consumption of contaminated water. Heavy metals are highly toxic that are a potential threat for water, soil, and air, their consumption in higher concentrations provided hazardous outcomes. The water quality is usually measured keeping in mind chemical, physical, biological, and radiological standards. The discharge of the effluent by industries contains heavy metals,

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hazardous chemicals, and a high amount of organic and inorganic impurities those can contaminate the water environment, and hence, human health. Therefore, it is our primary responsibility to maintain the water quality in our respective countries. This book provides understanding, occurrence, identification, toxic effects and control of water pollutants in aquatic environment using green chemistry protocols. It focuses on water remediation properties and processes including industry-scale water remediation technologies. This book covers recent literature on remediation technologies in preventing water contamination and its treatment. Chapters in this book discuss remediation of emerging pollutants using nanomaterials, polymers, advanced oxidation processes, membranes, and microalgae bioremediation, etc. It also includes photochemical, electrochemical, piezoacoustic, and ultrasound techniques. It is a unique reference guide for graduate students, faculties, researchers and industrialists working in the area of water science, environmental science, analytical chemistry, and chemical engineering.

Using biotechnology to help control landfill processes can mitigate costs, shorten the time needed to process solid waste, and ease the typical ecological damage to the land being used. This first-of-its-kind book provides regulators, designers, landfill owners, and operators with information that supports the utility of landfill bioreactors and provides design and operating criteria essential for the successful application of this technology. It pulls together laboratory, pilot, and full-scale experiences into one concise guide to designing and running municipal landfills as bioreactors. Landfill Bioreactor Design and Operation covers the history and background of landfill technology, research studies of actual bioreactor landfills, expected leachate and gas yields, specific design criteria, operation guidelines, and reuse of landfill sites to

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avoid having to establish new sites. For anyone looking for an alternative to large, wasteful landfill sites, this book provides a practical alternative to the problem.

Landfill Technology covers the selection, design, operation, and final reinstatement of landfill sites. This book is composed of seven chapters that also discuss the theory and practice of landfill technology. After briefly dealing with the composition of municipal and industrial wastes, this book goes on examining the hydrological aspect and site selection planning of a landfill site, including the economic and environmental impact assessments. These topics are followed by a chapter focusing on the several components of site preparation works, such as plant and machinery, methods of landfill operation, and waste disposal. Another chapter describes the involved microbiological processes, biodegradation, gas migration, and leachate production in landfill. Other chapters are devoted to the control and treatment of leachate pollution. These treatment options include aerobic and anaerobic, biological nitrification, ammonia desorption, and leachate recycling. The concluding chapter considers a wide range of afteruse and engineering problems occurring in landfill rehabilitation.

Solid waste management is a global concern, and landfilling remains the predominant management method in most areas of the world. This book provides a comprehensive view of state-of-the-art methods to manage landfills more sustainably, drawing upon more than two decades of research, design, and operational experiences at operating sites across the world.

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Sustainable landfills implement one or multiple technologies to control and enhance the degradation of waste materials to realize a multitude of potential benefits during or shortly after the landfill's operating phase. This book presents detailed approaches in the development, design, operation, and monitoring of sustainable landfills. Case studies showcasing the benefits and challenges of sustainable landfill technologies are also provided to give the reader additional context. The intent of the book is to serve as a reference guide for regulatory personnel, a practical tool for designers and engineers to build on for site-specific applications of sustainable landfill technologies, and a comprehensive resource for researchers who are continuing to explore new and better ways to more sustainably manage waste materials.

Presenting effective, practicable strategies modeled from ultramodern technologies and framed by the critical insights of 78 field experts, this vastly expanded Second Edition offers 32 chapters of industry- and waste-specific analyses and treatment methods for industrial and hazardous waste materials-from explosive wastes to landfill leachate to w

Handbook of Electronic Waste Management: International Best Practices and Case Studies begin with a brief summary of the environmental challenges associated with the approaches used in international e-waste handling. The book's authors offer a detailed presentation of e-waste handling methods that also includes examples to further demonstrate how they work in the real world. This is followed by data that reveals the

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geographies of e-waste flows at global, national and subnational levels. Users will find this resource to be a detailed presentation of e-waste estimation methods that also addresses both the handling of e-waste and their hazardous effect on the surrounding environment. Includes case studies to illustrate the implementation of innovative e-waste treatment technologies Provides methods for designing and managing e-waste management networks in accordance with regulations, fulfilment obligations and process efficiency Reference guide for adapting traditional waste management methods and handling practices to the handling and storage of electronic waste until disposal Provides e-waste handling solutions for both urban and rural perspectives

Solid Waste Landfilling: Concepts, Processes, Technology provides information on technologies that promote stabilization and minimize environmental impacts in landfills. As the main challenges in waste management are the reduction and proper treatment of waste and the appropriate use of waste streams, the book satisfies the needs of a modern landfill, covering waste pre-treatment, in situ treatment, long-term behavior, closure, aftercare, environmental impact and sustainability. It is written for practitioners who need specific information on landfill construction and operation, but is also ideal for those concerned about the possible return of these sites to landscapes and their subsequent uses for future generations. Includes input by international contributors from a vast number of disciplines Provides worldwide approaches and

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technologies Showcases the interdisciplinary nature of the topic Focuses on sustainability, covering the lifecycle of landfills under the concept of minimizing environmental impact Presents knowledge of the legal framework and economic aspects of landfilling This book presents new application processes in the context of anaerobic digestion (AD), such as phosphorus recovery, microbial fuel cells (MFCs), and seaweed digestion. In addition, it introduces a new technique for the modeling and optimization of AD processes. Chapters 1 and 2 review AD as a technique for converting a range of organic wastes into biogas, while Chapter 3 discusses the recovery of phosphorus from anaerobically digested liquor. Chapters 4 and 5 focus on new techniques for modeling and optimizing AD. Chapters 6 and 7 then describe the state of the art in AD effluent treatment. The book's final three chapters focus on more recent developments, including microbial fuel cells (MFCs) (Chapter 8), seaweed production (Chapter 9), and enzyme technologies (Chapter 10). This book reports research on policy and legal issues, anaerobic digestion of solid waste under processing aspects, industrial waste, application of GIS and LCA in waste management, and a couple of research papers relating to leachate and odour management. As the global population grows and many developing countries modernize, the importance of water supply and wastewater treatment becomes a much greater factor in the welfare of nations. Clearly, in today's world the competition for water resources coupled

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with the unfortunate commingling of wastewater discharges with freshwater supplies creates additional pressure on treatment systems. Recently, researchers focus on wastewater treatment by difference methods with minimal cost and maximum efficiency. This volume of the Wastewater Engineering: Advanced Wastewater Treatment Systems is a selection of topics related to physical-chemical and biological processes with an emphasis on their industrial applications. It gives an overview of various aspects in wastewater treatments methods including topics such as biological, bioremediation, electrochemical, membrane and physical-chemical applications. Experts in the area of environmental sciences from diverse institutions worldwide have contributed to this book, which should prove to be useful to students, teachers, and researchers in the disciplines of wastewater engineering, chemical engineering, environmental engineering, and biotechnology. We gratefully acknowledge the cooperation and support of all the contributing authors.

This book offers the most in-depth, step-by-step coverage available of contemporary water treatment plant planning, design and operations. Readers can walk step by step through water treatment plant planning and design, including predesign reports, problem definition, site selection and more.

Pollution and ways to combat it have become topics

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of great concern for researchers. One of the most important dimensions of this global crisis is

wastewater, which can often become contaminated with heavy metals such as lead, mercury, and arsenic, which are released from different industrial wastes, mines, and agricultural runoff.

Bioremediation of such heavy metals has been extensively studied using different groups of bacteria, fungi, and algae, and has been considered as a safer, eco-friendly, and cost-effective option for mitigation of contaminated wasteland. The toxicity of water impacts all of society, and so it is of great importance that we understand the better, cleaner, and more efficient ways of treating water. Recent Advancements in Bioremediation of Metal

Contaminants is a pivotal reference source that explores bioremediation of pollutants from industrial wastes and examines the role of diverse forms of microbes in bioremediation of wastewater. Covering a broad range of topics including microorganism tolerance, phytoremediation, and fungi, the role of different extremophiles and biofilms in bioremediation are also discussed. This book is ideally designed for environmentalists, engineers, policymakers, academicians, researchers, and students in the fields of microbiology, toxicology, environmental chemistry, and soil and water science. Presents practical information on the handling, treatment, & disposal of septage in a concise,

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recommendations-oriented format for use by administrators of waste management programs, septage haulers, & managers or operators of septage handling facilities. Does not provide detailed engineering design information. Septage is the material removed from a septic tank by pumping. This guide focuses on septage of domestic origin. When properly treated, domestic septage is a resource. A valuable soil conditioner, septage contains nutrients that can reduce reliance on chemical fertilizers for agriculture. Charts & tables. The production of wastewater from various human and industrial activities has a harsh impact on the environment. Without adequate treatment, the disposal of this wastewater poses a threat to the quality of water globally. Technologies for the Treatment and Recovery of Nutrients from Industrial Wastewater investigates emergent research and best practices within the field of wastewater management. Highlighting novel technological tools in wastewater treatment, effective nutrient removal technologies, and innovative solutions to quality water preservation practices, this book is a critical reference source for professionals, scientists, academics, and students.

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