

Integrated Solid Waste Management Engineering Principles And Management Issues

Design of Landfills and Integrated Solid Waste Management
Chemical Fate and Transport in the Environment
Sustainable Solid Waste Management
Towards Life Cycle Sustainability Management
Sustainable Solid Waste Management
Water Resources and Environmental Engineering
Solid and Hazardous Waste Management
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Waste Management and Resource Recovery
Advances in Waste-to-Energy Technologies
Solid Waste Technology and Management, 2 Volume Set
The Solid Waste Handbook
Integrated Waste Management in India
Solid Waste Management
Solid Waste Management in Rural Areas
Handbook of Solid Waste Management
Advances in Waste Management
Integrated Solid Waste

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Management Proceedings of the 18th Asia Pacific Symposium on Intelligent and Evolutionary Systems -Landfill Bioreactor Design & Operation Composting and Recycling Municipal Solid Waste Integrated Solid Waste Management: Engineering Principles and Management Issues Principles of Integrated Solid Waste Management Treatment and Disposal of Solid and Hazardous Wastes Integrated Solid Waste Management Integrated Solid Waste Management Handbook

Design of Landfills and Integrated Solid Waste Management

This book provides insights into the current status of waste management in India and research approaches to minimize waste and convert useful waste into energy alternatives towards achieving environmental sustainability. It also discusses the implications of waste on human health and approaches to minimize the burden. Waste disposal, especially municipal solid waste (MSW), is one of the major environmental problems facing Indian cities. Inadequate management of MSW poses risks to inhabitants and is also a breeding ground for various diseases. Environmental health and the impact of waste on health is another major topic that has to be addressed. In India, non-governmental organizations (NGOs) and social welfare groups play a major role in collecting and managing waste. However, waste management is still a huge problem and has also expanded into rural areas. Contributed research papers from academic studies and industry focus on applied

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waste-management methods currently being practiced, waste strategies and ecofriendly approaches such as bioremediation. The outcomes of the research contributions in the book will be useful in implementing and developing a task force to combat the waste-management and energy-demand crises.

Chemical Fate and Transport in the Environment

The interactions between human activities and the environment are complicated and often difficult to quantify. In many occasions, judging where the optimal balance should lie among environmental protection, social well-being, economic growth, and technological progress is complex. The use of a systems engineering approach will fill in the gap contributing to how we understand the intricacy by a holistic way and how we generate better sustainable solid waste management practices. This book also aims to advance interdisciplinary understanding of intertwined facets between policy and technology relevant to solid waste management issues interrelated to climate change, land use, economic growth, environmental pollution, industrial ecology, and population dynamics.

Sustainable Solid Waste Management

The first edition described the concept of Integrated Waste Management (IWM),

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and the use of Life Cycle Inventory (LCI) to provide a way to assess the environmental and economic performance of solid waste systems. Actual examples of IWM systems and published accounts of LCI models for solid waste are now appearing in the literature. To draw out the lessons learned from these experiences a significant part of this 2nd edition focuses on case studies - both of IWM systems, and of where LCI has been used to assess such systems. The 2nd edition also includes updated chapters on waste generation, waste collection, central sorting, biological treatment, thermal treatment, landfill and materials recycling. This 2nd edition also provides a more user-friendly model (IWM-2) for waste managers. To make it more widely accessible, this edition provides the new tool in Windows format, with greatly improved input and output features, and the ability to compare different scenarios. A detailed user's guide is provided, to take the reader through the use of the IWM-2 model, step by step. IWM-2 is designed to be an "entry level" LCI model for solid waste - user-friendly and appropriate to users starting to apply life cycle thinking to waste systems - while more expert users will also find many of the advanced features of the IWM-2 model helpful. IWM-2 is delivered on CD inside the book.

Towards Life Cycle Sustainability Management

Sustainable Solid Waste Management

Water Resources and Environmental Engineering

Solid and Hazardous Waste Management

This book presents some of the latest technologies in waste management, and emphasizes the benefits that can be gained from the use of recycled products. Divided into four sections, it deals with phytoremediation, aquatic weed management and the treatment of solid- and water-based wastes, such as those arising from agricultural, industrial and medical activities. With its special emphasis on the utilization of recycled products, this volume will be of interest to students, academicians, policy makers and others who have a practical and academic interest in dealing with the waste society generates.

Municipal Solid Waste Management in Asia and the Pacific Islands

Solid and Hazardous Waste Management: Science and Engineering presents the

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latest on the rapid increase in volume and types of solid and hazardous wastes that have resulted from economic growth, urbanization, and industrialization and how they have challenged national and local governments to ensure effective and sustainable management of these waste products. The book offers universal coverage of the technologies used for the management and disposal of waste products, such as plastic waste, bio-medical wastes, hazardous wastes, and e-wastes. Covers both traditional and new technologies for Identifying and categorizing the source and nature of the waste Provides methods for the safe disposal of municipal solid wastes, plastic waste, bio-medical wastes, hazardous wastes, and e-wastes Presents technologies that can be used for transportation and processing (including resource recovery) of the waste Discusses reclamation, reuse, and recovery of energy from MSW

Problem Solving in Solid Waste Engineering

Life is often considered to be a journey. The lifecycle of waste can similarly to be a journey from the cradle (when an item becomes be considered is placed in the dustbin) to the grave (when value valueless and, usually, is restored by creating usable material or energy; or the waste is transformed into emissions to water or air, or into inert material placed in a landfill). of this book This preface provides a route map for the journey the reader will undertake. Who? Who are the intended readers of this book? Waste managers (whether in public service or private

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companies) will find a holistic approach for improving the environmental quality and the of managing waste. The book contains general principles economic cost based on cutting edge experience being developed across Europe. Detailed data and a computer model will enable operations managers to develop data-based improvements to their systems. oj waste will be better able to understand how their actions can Producers influence the operation of environmentally improved waste management systems. oj products and packages will be better able to understand how Designers their design criteria can improve the compatibility of their product or package with developing, environmentally improved waste management systems. Waste data specialists (whether in laboratories, consultancies or environ mental managers of waste facilities) will see how the scope, quantity and quality of their data can be improved to help their colleagues design more effective waste management systems.

Solid Waste Engineering: A Global Perspective

A junior/senior- level introductory text aimed at civil and environmental engineers taking a basic introduction to Solid-Waste Management. The text includes the latest 1990-1991 laws and regulations.

Municipal Solid Waste to Energy Conversion Processes

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This book on solid waste management is meant for college students, policy makers, city planners and environmentalists. It gives a comprehensive guide on solid waste management, through all steps including detailed sanitary landfill design, operational, closing and post-closure management. It is a must-read for developing countries whose cities are choked with garbage, and are keen to be at the level of sanitary landfills. It is an essential handbook for Kenyan county environmental managers.

Management of Municipal Solid Waste

Improving solid waste management is crucial for countering public health impacts of uncollected waste and environmental impacts of open dumping and burning. This practical reference guide introduces key concepts of integrated solid waste management and identifies crosscutting issues in the sector, derived mainly from field experience in the technical assistance project Mainstreaming Integrated Solid Waste Management in Asia. This guide contains over 40 practice briefs covering solid waste management planning, waste categories, waste containers and collection, waste processing and diversion, landfill development, landfill operations, and contract issues.

Decision-Maker's Guide to Solid-Waste Management

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This book is a selection of the most relevant contributions to the LCM 2011 conference in Berlin. The material explores scientific and practical solutions to incorporating life cycle approaches into strategic and operational decision making. There are several sections addressing methodological topics such as LCSM approaches, methods and tools, while more application-oriented sections deal with the implementation of these approaches in relevant industrial sectors including agriculture and food, packaging, energy, electronics and ICT, and mobility.

Sustainable Solid Waste Collection and Management

A technical and economic review of emerging waste disposal technologies. Intended for a wide audience ranging from engineers and academics to decision-makers in both the public and private sectors, *Municipal Solid Waste to Energy Conversion Processes: Economic, Technical, and Renewable Comparisons* reviews the current state of the solid waste disposal industry. It details how the proven plasma gasification technology can be used to manage Municipal Solid Waste (MSW) and to generate energy and revenues for local communities in an environmentally safe manner with essentially no wastes. Beginning with an introduction to pyrolysis/gasification and combustion technologies, the book provides many case studies on various waste-to-energy (WTE) technologies and creates an economic and technical baseline from which all current and emerging WTE technologies could be compared and evaluated. Topics include:

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Pyrolysis/gasification technology, the most suitable and economically viable approach for the management of wastes Combustion technology Other renewable energy resources including wind and hydroelectric energy Plasma economics Cash flows as a revenue source for waste solids-to-energy management Plant operations, with an independent case study of Eco-Valley plant in Utashinai, Japan Extensive case studies of garbage to liquid fuels, wastes to electricity, and wastes to power ethanol plants illustrate how currently generated MSW and past wastes in landfills can be processed with proven plasma gasification technology to eliminate air and water pollution from landfills.

Integrated Solid Waste Management

Readers gain the knowledge to address the growing and increasingly intricate problem of controlling and processing the refuse created by global urban societies with SOLID WASTE ENGINEERING: A GLOBAL PERSPECTIVE, 3E. While the authors prepare readers to deal with issues, such as regulations and legislation, the main emphasis throughout the book is on mastering solid waste engineering principles. The book first explains the basic principles of the field and then demonstrates through worked examples how readers can apply these principles in real world settings. Readers learn to think reflectively and logically about the problems and solutions in today's solid waste engineering. Important Notice: Media content referenced within the product description or the product text may not be available

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in the ebook version.

Integrated Solid Waste Management

Solid Wastes Management begins with a focus on processing municipal and similar commercial, as well as industrial wastes; assessing and minimising the environmental impacts of processing and disposal. The second section reviews the treatment technologies available (physical, biological and thermal), their advantages, disadvantages and environmental performance. The third section considers the environmental and health impacts of the technologies and reviews the use of models to predict landfill leachate, gas formation and pollution dispersion. The fourth section is on the human health impact of waste management and draws on the previous sections, bringing in pollutants such as bioaerosols and ultra-fine particulate material. In the fifth and sixth sections, the importance of adopting an integrated approach to waste management is demonstrated through consideration of life cycle assessment and its use to determine optimum waste management solutions. Discover our e-book series on Environmental Monitoring and Protection, published in partnership with The Open University! Find out more about the series editors, the titles in the series and their focus on water, noise, air and waste, and The Open University courses in Environmental Management. Visit a <http://www.wiley.com/go/ouebookseries>

Integrated Solid Waste Management

Solid waste management issues, technologies and challenges are dynamic. More so, in developing and transitory nations in Asia. This book, written by Asian experts in solid waste management, explores the current situation in Asian countries including Pacific Islands. There are not many technical books of this kind, especially dedicated to this region of the world. The chapters form a comprehensive, coherent investigation in municipal solid waste (MSW) management, including, definitions used, generation, sustainable waste management system, legal framework and impacts on global warming. Several case studies from Asian nations are included to exemplify the real situation experienced. Discussions on MSW policy in these countries and their impacts on waste management and minimization (if any) are indeed an eye-opener. Undoubtedly, this book would be a pioneer in revealing the latest situation in the Asian region, which includes two of the world's most dynamic nations in the economic growth. It is greatly envisaged to form an excellent source of reference in MSW management in Asia and Pacific Islands. This book will bridge the wide gap in available information between the developed and transitory/developing nations.

Integrated Solid Waste Management: A Lifecycle Inventory

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The book points out that rural regions need proper attention at the global level concerning solid waste management sector where bad practices and public health threats could be avoided through traditional and integrated waste management routes. Solid waste management in rural areas is a key issue in developing and transitioning countries due to the lack of proper waste management facilities and services. The book further examines, on the one hand, the main challenges in the development of reliable waste management practices across rural regions and, on the other hand, the concrete solutions and the new opportunities across the world in dealing with municipal and agricultural wastes. The book provides useful information for academics, various professionals, the members of civil society, and national and local authorities.

Solid Wastes Management

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

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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 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.

Integrated Solid Waste Management for Local Governments

The third edition of Chemical Fate and Transport in the Environment—winner of a 2015 Textbook Excellence Award (Texty) from The Text and Academic Authors Association—explains the fundamental principles of mass transport, chemical partitioning, and chemical/biological transformations in surface waters, in soil and groundwater, and in air. Each of these three major environmental media is introduced by descriptive overviews, followed by a presentation of the controlling physical, chemical, and biological processes. The text emphasizes intuitively based mathematical models for chemical transport and transformations in the environment, and serves both as a textbook for senior undergraduate and graduate courses in environmental science and engineering, and as a standard reference for environmental practitioners. Winner of a 2015 Texty Award from the Text and Academic Authors Association Includes many worked examples as well as extensive exercises at the end of each chapter Illustrates the interconnections and similarities among environmental media through its coverage of surface waters,

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the subsurface, and the atmosphere Written and organized concisely to map to a single-semester course Discusses and builds upon fundamental concepts, ensuring that the material is accessible to readers who do not have an extensive background in environmental science

Integrated Solid Waste Management Plan

In a world where waste incinerators are not an option and landfills are at over capacity, cities are hard pressed to find a solution to the problem of what to do with their solid waste. Handbook of Solid Waste Management, 2/e offers a solution. This handbook offers an integrated approach to the planning, design, and management of economical and environmentally responsible solid waste disposal system. Let twenty industry and government experts provide you with the tools to design a solid waste management system capable of disposing of waste in a cost-efficient and environmentally responsible manner. Focusing on the six primary functions of an integrated system--source reduction, toxicity reduction, recycling and reuse, composting, waste- to-energy combustion, and landfilling--they explore each technology and examine its problems, costs, and legal and social ramifications.

Sustainable Solid Waste Management

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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.

Waste Management and Resource Recovery

This Guide has been developed particularly for solid waste management practitioners, such as local government officials, facility owners and operators, consultants, and regulatory agency specialists. Contains technical and economic information to help these practitioners meet the daily challenges of planning, managing, and operating municipal solid waste (MSW) programs and facilities. The Guide's primary goals are to encourage reduction of waste at the source and to foster implementation of integrated solid waste management systems that are cost-effective and protect human health and the environment. Illustrated.

Advances in Waste-to-Energy Technologies

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A junior/senior-level introductory text aimed at civil and environmental engineers taking a basic introduction to Solid Waste Management. The text includes the latest 1990-1991 laws and regulations.

Solid Waste Technology and Management, 2 Volume Set

A comprehensive, single-source reference of current issues in solid waste management designed as an aid in decision-making and assessment of future trends. Covers public perceptions, legislation, regulation, planning and financing, and technologies and operation. Reviews the evolution of waste management since the passage of the Resource Conservation and Recovery Act of 1976, amended in 1978, 1980 and 1984. Examines common and divergent public and private concerns, including an in-depth review of public perceptions and their effect on planning and implementation. Also includes a discussion of the inadequacies of most waste quantity and composition estimates, with techniques for adequate evaluation. Looks at the misunderstanding and controversy over source separation and issues in municipal resource recovery from the viewpoint of the private scrap process industry. Also includes an unprecedented examination of the problem of bulky waste logistics and its effect on current disposal practice, and case histories and the current status of energy recovery from industrial waste. With over 500 tables, graphs, and illustrations.

The Solid Waste Handbook

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 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.

Integrated Waste Management in India

This book provides a basic understanding of waste management problems and issues faced by modern society. Scientific, technical, and environmental principles are emphasized to illustrate the processes of municipal and industrial solid wastes and liquid wastes, and the nature of impacts resulting from waste dispersal and disposal in the environment. Economic, social, legal, and political aspects of waste management are also addressed. Environmental issues and concerns receive thorough coverage in discussing waste reduction, resource recovery, and efficient and practical waste disposal systems. Other specific topics include recycling, physical and chemical processing, the biological treatment of waste solids, incineration, pyrolysis, and energy recover, hazardous wastes, and landfill management. The role of government and other institutions in waste management and resource recovery matters is also detailed. Discussion questions, worked examples, and end-of-chapter problems reinforce important concepts. Waste Management and Resource Recovery is particularly suitable as a text in waste management courses in environmental science or engineering programs. It also works well as a reference for practitioners in the waste management field.

Solid Waste Management

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This book contains a collection of the papers accepted in the 18th Asia Pacific Symposium on Intelligent and Evolutionary Systems (IES 2014), which was held in Singapore from 10-12th November 2014. The papers contained in this book demonstrate notable intelligent systems with good analytical and/or empirical results.

Solid Waste Management in Rural Areas

Due to the rapid increase in the production and consumption processes, societies generate as well as reject solid materials regularly from various sectors. The primary goals of this book are to encourage reduction of waste at the source and to foster implementation of cost-effective integrated solid waste management systems.

Handbook of Solid Waste Management

This volume focuses on the collection of waste and waste streams as an integral aspect of sustainable waste management. The authors take economic models and behavioral studies into account to go beyond just descriptions of waste collections technologies and collection route design. Models and tools for sustainable waste collection are described in detail, and the authors provide a comprehensive,

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integrated methodology to design waste collection systems that reduce environmental impacts, are economically viable, and achieve buy-in and participation from target populations. Part I of the book provides fundamentals and context on waste hierarchy, including waste prevention, reduction and reuse, waste collection itself, and steps such as preparation for recycling, recycling, treatment, and landfilling. Background in environmental, social, and economic concerns surrounding waste collection is also provided here. Part II addresses tools for design, operation, and maintenance of waste collection systems. Part III focuses on how the tools presented in Part II can be used to support sustainability assessments and decisions that consider the entire life cycle of waste and the role of waste collection programs in waste prevention, reduction, reuse, recycling, treatment, and disposal. Part IV addresses the challenges of developing sustainable waste management systems and addresses the role of waste collection in sustainable waste management in the future.

Advances in Waste Management

Safe and effective management of solid waste generated by the community and governmental as well as commercial institutions is the need of the hour. This compact book describes how to avoid, minimize and manage solid waste and discusses models which, if implemented, can solve many of the current solid waste problems. The text discusses the various sources of waste generation, composition

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of solid waste and the need for designing a strategic plan for solid waste management. It explains the importance of public involvement, and public awareness in managing solid waste besides giving an account of solid waste management hierarchy. In addition, the text describes in detail factors to be considered while developing a waste management programme, techniques for the recovery, reuse or recycling of solid waste, techniques of composting, and how to manage special wastes such as bio-medical waste, plastic, and e-waste. Case Studies of selected municipal corporations lend a practical flavour to the book. The book is intended as a text for B.Tech. (Civil/Chemical Engineering) and M.Tech. (Civil/Environment Engineering, Environmental Science). Besides, it will be quite handy for consultants in solid waste management, environmental engineers, and municipal corporations.

Integrated Solid Waste Management

The second volume of this book is a compilation of the high-quality papers from the International Conference on Emerging Trends in Water Resources and Environmental Engineering (ETWREE 2017). Written by researchers and academicians from prestigious institutes across India, the contributions present various scenarios and discuss the challenges of climate change and its impact on the environment, water resources and industrial and socio-economic developments. The book is a valuable resource for scientists, faculties,

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policymakers, and stakeholders working in the field of climate and environment management to address the current global environmental challenges.

Proceedings of the 18th Asia Pacific Symposium on Intelligent and Evolutionary Systems -

As global populations continue to increase, the application of biotechnological processes for disposal and control of waste has gained importance in recent years. *Advances in Waste-to-Energy Technologies* presents the latest developments in the areas of solid waste management, Waste-to-Energy (WTE) technologies, biotechnological approaches, and their global challenges. It combines biotechnological procedures, sophisticated modeling, and techno-economic analysis of waste, and examines the current need for the maximum recovery of energy from wastes as well as the associated biotechnological and environmental impacts. Features: Presents numerous waste management practices and methods to recover resources from waste using the best biotechnological approaches available. Addresses the challenges, management, and policy issues of waste management and WTE initiatives. Includes practical case studies from around the world. Serves as a useful resource for professionals and students involved in cross-disciplinary and trans-disciplinary research programs and related courses. Discusses the economic and regulatory contexts for managing waste. This book

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will serve as a valuable reference for researchers, academicians, municipal authorities, government bodies, waste managers, building engineers, and environmental consultants requiring an understanding of waste management and the latest WTE technologies.

Landfill Bioreactor Design & Operation

Composting and Recycling Municipal Solid Waste is a comprehensive guide that identifies, describes, explains, and evaluates the options available when composting and recycling municipal solid waste (MSW). The book begins with an introductory chapter on the nature of MSW and the importance of solid waste management programs and resource recovery. Chapter 2 discusses MSW storage and collection, with emphasis on recyclables. Chapter 3 examines issues involved in determining the quantity, composition, and key physical characteristics of the MSW to be managed and processed. The book's other chapters cover topics such as the steps required for processing MSW for material recovery, the use of uncomposted organic matter as a soil amendment, composting and use of compost product, the marketing of recyclables, biogasification, and integrated waste management. Composting and Recycling Municipal Solid Waste provides essential information needed by solid waste professionals, consultants, regulators, and planners to arrive at rational decisions regarding available economic and technological resources for MSW composting and recycling.

Composting and Recycling Municipal Solid Waste

Designed for undergraduate courses in civil or environmental engineering departments which take an engineering approach to solid waste management, this is the solutions manual to a work which provides coverage of separation, transformation and recycling of waste materials, and offers a presentation of the integrated solid waste management system. Spreadsheets are used to develop results for waste generation, transportation, recycling, transformation and disposal.

Integrated Solid Waste Management: Engineering Principles and Management Issues

Principles of Integrated Solid Waste Management

"Problem solving in solid waste engineering" is primarily designed as a supplement and a complementary guide to municipal solid waste engineering. Nonetheless, it can be used as an independent problem solving text in solid waste collection, treatment and disposal. The book targets university students and solid waste engineering candidates taking first degree courses in environmental, civil,

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mechanical, construction and chemical engineering or related fields. The manuscript is expected to be of beneficial use to postgraduate students and professional engineers. Likewise, it is hoped that the book will stimulate problem solving learning and facilitate self-teaching. By writing such a script it is hoped that the included worked examples and problems will ensure that the booklet is a valuable aid to student-centered learning. To achieve such objectives immense care was taken to present solutions to selected problems in a clear and distinct format using step-by-step procedure and explanation of the related solution utilizing necessary methods, approaches, equations, data, figures and calculations. The book is mainly used as a course supplement and support in problem solving issues. Constructive comments, valuable remarks, precious notes and helpful observations were received from students, users within the college, colleagues, engineers, officials at solid waste departments and municipalities, members of engineering societies and enterprises. In this second issue problem modeling techniques has been introduced. Visual Basic.NET, programmed using Microsoft Visual Studio 2010 IDE was used in writing computer programs for selected examples in the book. Set programs are constructed using the IDE designing and buildings tools, and were tested and run on a MS-Windows XP and 7 workstations.

Treatment and Disposal of Solid and Hazardous Wastes

This book compiles many different treatment options and best practices for the

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treatment and recycling of municipal solid waste from all over the globe, factoring in cost-effectiveness, sanitation, and environmental degradation. Important to professors, researchers, students, policymakers, and municipal offices, this informed book looks into innovative waste management systems from a number of developing countries, which may prove useful to developed countries of the world as well. This book is unique in that it focuses on state-of-the-art urban solid waste management and future trends.

Integrated Solid Waste Management

The first edition described the concept of Integrated Waste Management (IWM), and the use of Life Cycle Inventory (LCI) to provide a way to assess the environmental and economic performance of solid waste systems. Actual examples of IWM systems and published accounts of LCI models for solid waste are now appearing in the literature. To draw out the lessons learned from these experiences a significant part of this 2nd edition focuses on case studies - both of IWM systems, and of where LCI has been used to assess such systems. The 2nd edition also includes updated chapters on waste generation, waste collection, central sorting, biological treatment, thermal treatment, landfill and materials recycling. This 2nd edition also provides a more user-friendly model (IWM-2) for waste managers. To make it more widely accessible, this edition provides the new tool in Windows format, with greatly improved input and output features, and the

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ability to compare different scenarios. A detailed user's guide is provided, to take the reader through the use of the IWM-2 model, step by step. IWM-2 is designed to be an "entry level" LCI model for solid waste - user-friendly and appropriate to users starting to apply life cycle thinking to waste systems - while more expert users will also find many of the advanced features of the IWM-2 model helpful. IWM-2 is delivered on CD inside the book.

Integrated Solid Waste Management Handbook

Interest in solid and hazardous waste management is relatively recent, i.e., in the last three decades, and is driven by regulations in most countries. It began with industrial hazardous waste followed by municipal solid waste, and subsequently by many other categories of waste. This book presents numerous examples and case studies of innovative tools, treatment methods and applications in this growing area of research and development. It describes in detail laboratory methods of measuring the biodegradation of specific organic fractions, like floral waste, and also discusses the treatment of yard and food waste by anaerobic digestion and landfill leachate using constructed wetlands. Case studies are provided that show how remote sensing (RS) and GIS were used to develop an integrated solid waste management plan for a city and to evaluate the environmental impacts of stone quarrying activities. The book also features chapters discussing the implications of natural radioactivity in beach placers and their impact on groundwater and other

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parts of the environment, as well as the twelve principles of green chemistry and their application in the reuse and recycling of solid waste. Moreover, it includes examples of waste to energy, like refuse derived fuel and biofuel generation and an evaluation of their potential, and covers topics such as life cycle assessment as a tool for developing integrated solid waste management systems and an overview of municipal solid waste management rules, illustrating the importance of technological inputs in the development of regulatory frameworks. Written by leading practitioners and scholars in the field, the book enables readers to understand and apply these principles and practices in their endeavours.

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