

|                         |  |
|-------------------------|--|
| 1. Record Nr.           | UNINA9910520058703321  |
| Titolo                  | Solid waste engineering and management / / edited by Lawrence K. Wang [and five others]  |
| Pubbl/distr/stampa      | Cham, Switzerland : , : Springer, , [2021]<br>©2021  |
| ISBN                    | 3-030-84180-4  |
| Descrizione fisica      | 1 online resource (752 pages)  |
| Collana                 | Handbook of Environmental Engineering ; ; v.23   |
| Disciplina              | 628.44   |
| Soggetti                | Refuse and refuse disposal   |
| Lingua di pubblicazione | Inglese  |
| Formato                 | Materiale a stampa   |
| Livello bibliografico   | Monografia   |
| Nota di bibliografia    | Includes bibliographical references and index.   |
| Nota di contenuto       | Intro -- Preface -- Contents -- About the Editors -- Contributors -- Chapter 1: Introduction to Solid Waste Management -- 1.1 Introduction -- 1.1.1 Definition of Solid Waste -- 1.1.2 Sources of Solid Waste -- 1.2 Waste Generation and Quantity -- 1.3 Types and Composition of Solid Waste -- 1.3.1 Types of Solid Wastes -- 1.3.2 Composition of Solid Waste -- 1.4 Special Types of Solid Waste -- 1.4.1 Industrial Solid Waste -- 1.4.1.1 Extractive Industries -- 1.4.1.2 Basic Industries -- 1.4.1.3 Manufacturing Industries -- 1.4.2 Construction and Demolition Waste -- 1.4.2.1 Definition -- 1.4.2.2 Quantity -- 1.4.2.3 Management -- 1.4.3 Electronic Waste (E-waste) -- 1.4.3.1 Definition -- 1.4.3.2 Categories -- 1.4.3.3 Impacts -- 1.4.3.4 Quantity -- 1.4.3.5 E-waste Recycling -- 1.4.3.6 What Can We Do About E-waste -- 1.4.4 Radioactive Waste -- 1.4.4.1 Definition and Sources -- 1.4.4.2 Form and Half-Life -- 1.4.4.3 Radioactive Waste Management -- 1.4.5 Litter -- 1.4.6 Scrap Tyre -- 1.4.6.1 Introduction -- 1.4.6.2 Quantity -- 1.4.6.3 Tyre Recycling -- 1.4.7 Solid Waste from Air and Water Pollution Controls -- 1.5 Functional Elements of a Waste Management System -- 1.5.1 Onsite Handling and Storage -- 1.5.2 Waste Collection -- 1.5.3 Pneumatic Waste Conveyance System (PWCS) -- 1.5.4 Transfer Station -- 1.5.5 Waste Processing and Recovery -- 1.5.6 Composting -- 1.5.6.1 Basic Composting -- 1.5.6.2 On-Site Composting -- 1.5.6.3 Vermicomposting -- 1.5.6.4 Aerated (Turned) Windrow Composting -- 1.5.6.5 Aerated Static Pile Composting -- |

1.5.6.6 In-Vessel Composting -- 1.5.7 Thermal Treatment Methods --  
1.5.8 Final Disposal by Landfilling -- 1.5.8.1 Introduction -- 1.5.8.2  
Landfills in the World -- 1.5.8.3 Categories of Landfill -- 1.5.8.4  
Landfill Leachate and Its Treatment -- 1.5.8.5 Design, Operation,  
and Challenges for Landfilling.  
1.6 Integrated Solid Waste Management -- 1.7 Legislative Aspects  
of Solid Waste -- 1.8 Concluding Remarks -- References -- Glossary --  
Chapter 2: Legislation for Solid Waste Management -- 2.1 Introduction  
to Solid Waste Management Legislation -- 2.1.1 Highlights of the Scope  
and Focus of the Chapter -- 2.1.2 The Trends of Waste Management  
Controls -- 2.1.2.1 Sources Reduction -- 2.1.2.2 Reuse of Existing  
Materials -- 2.1.2.3 Recycling and Composting -- 2.1.2.4 Regeneration  
of Resources -- 2.1.2.5 Refining and Disposal -- 2.1.3 Movement  
of Legislation to Eliminate Waste -- 2.2 Solid Waste Management  
Legislation Overview -- 2.2.1 Identify the Types of Solid Waste  
and the Specific Legislation -- 2.2.2 The Solid Waste Management  
Legislation Overview -- 2.3 Implementation of Solid Waste Legislation  
Act -- 2.4 Introductory to Solid Waste Legislation Enforcement Act --  
2.5 United States of America -- 2.5.1 Solid Waste Disposal Act (1965)  
and Resource Recovery Act (1970) -- 2.5.2 Resource Conservation  
and Recovery Act (1976), Comprehensive Environmental Response,  
Compensation, and Liability Act (1980), Solid Waste Disposal Act  
Amendments (1980), Used Oil Recycling Act (1980), and Hazardous  
and Solid Waste Amendments (1986) -- 2.5.3 Continuous US Legislation  
for Solid and Hazardous Waste Management -- 2.5.4 Clean Air Act  
(1970) Related to Solid and Hazardous Waste Management -- 2.5.5  
Clean Water Act (1972) and Water Quality Act (1987) Related to Solid  
and Hazardous Waste Management -- 2.5.6 Toxic Substances Control  
Act (1976) Related to Solid and Hazardous Waste Management -- 2.5.7  
Safe Drinking Water Act (1974) Related to Solid and Hazardous Waste  
Management -- 2.6 Europe -- 2.6.1 Waste Framework Directive  
(75/442/1975) -- 2.6.2 Landfill of Waste Directive 1999 -- 2.6.3  
Directive 2008/98/EC (2008) -- 2.6.4 Directive 2006/12/EC (2006).  
2.6.5 Regulation (EC) No 1013/2006 of the European Parliament  
and of the Council of 14 June 2006 -- 2.7 Japan -- 2.7.1 Urgent  
Measures Law on Capacity Increasing of Waste Management Facilities  
1963 -- 2.7.2 Air Pollution Control Law 1968 -- 2.7.3 Water Pollution  
Control 1970 -- 2.8 Korea -- 2.8.1 Waste Management Act (1986) --  
2.8.2 Act on the Control of Transboundary Movement of Hazardous  
Wastes and Their Disposal (1994) -- 2.8.3 Act on the Promotion  
of Saving and Recycling of Resources -- 2.8.4 Guidelines  
on the Reduction of Industrial Wastes (2001) -- 2.9 Malaysia -- 2.9.1  
Overview of Malaysian Legal Framework in Integrated Solid Waste  
Management (ISWM) -- 2.9.2 Local Government Act (Act 171) 1976 --  
2.9.3 Town and Country Planning Act (Act 127) 1976 -- 2.9.4  
Environmental Quality Act (Act 127) 1974 -- 2.9.5 Street, Drainage  
and Building Act 1974 -- 2.9.6 Solid Waste and Public Cleansing  
Management Act 2007 -- 2.9.7 Overview of Institutional Framework  
in ISWM -- 2.9.8 National Solid Waste Management Department  
(NSWMD) -- 2.9.9 Solid Waste and Public Cleansing Management  
Corporation (SWPCMC) -- 2.9.10 Private Waste Manager -- 2.9.11 Non-  
Governmental Organizations (NGOs) -- 2.10 The Issues and Effect  
of Legislation Towards Waste Reduction -- 2.11 Improvement in Future  
of Solid Waste Legislation -- 2.12 Conclusion -- References --  
Glossary -- Chapter 3: Waste Transportation and Transfer Station --  
3.1 Introduction -- 3.2 Municipal Solid Waste (MSW) -- 3.2.1  
Introduction -- 3.2.2 Collection of Municipal Solid Waste -- 3.3 Waste  
Transportation -- 3.3.1 The Importance of Solid Waste Transportation

-- 3.3.2 Role of Waste Transportation -- 3.3.3 Selecting the Waste Transport -- 3.3.4 Type of Waste Transportation Vehicle -- 3.3.4.1 Small Vehicles -- 3.3.4.2 Non-compaction vehicle -- 3.3.4.3 Semi-Compaction Vehicle -- 3.3.4.4 Full-Compaction Vehicle.  
3.3.5 A Pneumatic Waste Transportation System -- 3.3.6 Waste Transportation System -- 3.3.6.1 Hauled Container Mode -- 3.3.6.2 Stationary Container Mode -- 3.3.7 Waste Transportation Routes -- 3.3.7.1 Introduction -- 3.3.7.2 Factors for Routing Planning -- 3.4 Transfer Station -- 3.4.1 Role of Transfer Station -- 3.4.2 Planning of Transfer Stations -- 3.4.2.1 Wastes Handled in Transfer Stations -- 3.4.2.2 Determination of Transfer Station Capacity -- 3.4.2.3 Location of Transfer Station -- 3.4.2.4 Siting of Transfer Station -- 3.4.3 Types of Transfer Station -- 3.4.3.1 Small and Medium Size -- 3.4.3.2 Large Size -- 3.4.4 Operating Systems at the Transfer Station -- 3.4.4.1 Open-Top Vehicle System -- 3.4.4.2 Surge-Pit System -- 3.4.4.3 Compaction System -- 3.4.4.4 Pre-compaction System -- 3.4.4.5 Balers System -- 3.4.4.6 Intermodal Container System -- 3.4.5 Advantages and Disadvantages of Transfer Station System -- 3.4.6 Types of Bulk Transportation -- 3.4.6.1 Road Transport -- 3.4.6.2 Rail Transport -- 3.4.6.3 Water Transport -- 3.5 Issues and Challenges of Waste Transportation -- 3.5.1 Constraint in Budget -- 3.5.2 Poor Operational Scheduling -- 3.5.3 Lack of Priority -- 3.5.4 Poor Road Network -- 3.5.5 Inadequate Technical Expertise -- 3.6 Conclusion and Prospects -- References -- Glossary -- Chapter 4: Characterization and Measurement of Solid Waste -- 4.1 Introduction -- 4.1.1 Waste Quantity -- 4.1.2 MSW Source -- 4.1.3 Waste Generation Status -- 4.2 Waste Measurement -- 4.2.1 Landfill Infrastructure -- 4.2.2 Weighbridge -- 4.2.3 Waste Quantification -- 4.2.4 Composition by Identifiable Items -- 4.2.5 Moisture Content -- 4.2.6 Particle Size -- 4.2.7 Ash Content -- 4.2.8 Calorific Value -- 4.2.9 Elemental Analysis -- 4.2.10 Proximate Analysis -- 4.2.11 Heavy Metals in Waste -- 4.2.11.1 Measurement of Heavy Metal -- 4.3 Landfill Gas.  
4.3.1 Landfill Gas Collection -- 4.3.2 Measurement of Landfill Gas -- 4.4 Landfill Leachate Measurement -- 4.4.1 Leachate Flow -- 4.4.2 Hydrological System of the Landfill -- 4.4.3 Leachate Production and Water Budget -- 4.4.4 Leachate Flow and Transport Process -- 4.4.5 Quantification of Landfill Leachate Using the Mathematical Model -- 4.4.6 Leachate Plume -- 4.4.7 The Decomposition Process in Landfills -- 4.4.8 Characterization of Landfill Leachate -- 4.4.9 Leaching Procedure -- 4.4.10 Leaching Test -- 4.4.11 Available Tests -- 4.4.12 Methods of Leaching Tests -- 4.4.13 Risk Analysis -- 4.4.14 Applications and Limitations -- 4.4.15 Analytical Procedures for Landfill Leachate -- 4.5 Concluding Remarks -- References -- Glossary -- Chapter 5: Mechanical Volume Reduction -- 5.1 Introduction -- 5.1.1 General Description -- 5.1.2 Mechanical Volume Reduction -- 5.2 Size Reduction by Shredding Process -- 5.2.1 Dry Processes -- 5.2.1.1 Hammer Mills -- 5.2.1.2 Chipper -- 5.2.1.3 Von Roll Bulky Waste Shear -- 5.2.1.4 Ball Mill Machine -- 5.2.2 Wet Processes -- 5.2.2.1 Hydrapulper -- 5.2.2.2 Rasp mills -- 5.3 Size Reduction by Compaction Process -- 5.3.1 Compaction Technology -- 5.4 Size Reduction by Baling Process -- 5.4.1 Baling Process -- 5.4.2 Baling Technology -- 5.5 Application On-Site -- 5.5.1 Collection and Transfer Station -- 5.5.2 Waste Processing and Treatment -- 5.5.3 Disposal -- 5.5.4 Renewable Energy Program -- 5.6 Operation and Maintenance -- 5.7 Concluding Remark -- References -- Glossary -- Chapter 6: Combustion and Incineration -- 6.1 Introduction -- 6.2 Municipal Solid Waste Incinerator Plant -- 6.2.1 Background -- 6.2.2 Waste Delivery, Bunker, and Feeding System -- 6.2.3 Furnace System

- 6.2.3.1 Travelling Grate -- 6.2.3.2 Double Motion Overthrust Grate
  - 6.2.3.3 Reciprocating Grate -- 6.2.3.4 Reverse Acting Reciprocating Grate.
  - 6.2.3.5 Rocking Grate.
-