The Complete Book on Waste Treatment Technologies (Industrial, Biomedical, Water, Electronic, Municipal, Household/ Kitchen, Farm Animal, Dairy, Poultry, Meat, Fish & Sea Food Industry Waste and Machinery Equipment Details)

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Format: paperback
Code: NI349
Pages: 584
Price: Rs.2095**US$** 200
Publisher: NIIR PROJECT CONSULTANCY SERVICES
Usually ships within **5** days

Waste management is a global problem that continues to increase with rapid industrialization, population growth, and economic development. As the world hurtles towards the urban future, the amount of Municipal Solid Waste (MSW) is growing very fast. Waste includes any solid material or material that is suspended dissolved or transported in water or deposited on land. Wastes are generally classified into solid, liquid, & gaseous and are broadly classified as household waste; municipal waste; commercial and non-hazardous industrial wastes; e- waste, hazardous (toxic) industrial wastes; construction and demolition waste; health care wastes – waste generated in health care facilities (e.g. hospitals, medical research facilities); human and animal wastes; and incinerator wastes.

In the recent years, modern society has become more responsible when it comes to waste management. The fast industrialization, urbanization, modern technology, and rapidly growing population in India have posed a serious challenge to the waste management. In India, per capita generation rate of municipal solid waste ranges from 0.2 to 0.5 kg/day. At present, the daily generation rate in South Asia, East Asia and the Pacific combined is approximately 1.0 million tons per day.

The current scenario reveals that there is a tremendous scope for the development of waste treatment technologies and is expected to offer significant opportunities in the near future. Sustainability of waste management is the key for providing an effective service that can satisfy the need of end users. Solid Waste Management sector in India has become a very lucrative sector for investors. With a growing urgency for efficient waste management in many cities, there will be more and more employment opportunities in the sector. The participation of different sectors, roll of Government and private organization is important for better management of waste.

This book describes the various waste treatment technologies like; Physical treatment techniques, biological treatment techniques, anaerobic lagoon techniques etc. It will be a standard reference book for professionals, entrepreneurs, students, teachers, researchers, administrators, and planners of various disciplines who are directly or indirectly involved in the waste management.

Description of Important Industrial Solid Waste
Coal Ash
Integrated Iron and Steel Plant Slag
Phosphogypsum
Red Mud
Lime Mud
Waste Sludge and Residues
Potential Reuse of Solid Wastes
Prevention-A Waste Minimization Approach
Inventory Management and Improved Operations
Modification of Equipment
Production Process Changes
Recycling and Reuse
Waste Management at Source
Collection and Transport of Industrial Wastes
Storage and Transportation
Disposal of Industrial Solid Waste
Health Consequences of Poor Industrial Waste Disposal
Waste Segregation
Combined Treatment Facilities
Landfill
Waste Reduction Techniques
Benefits of Cleaner Production
Industrial Hazardous Wastes
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D. Abattoir Wastes
Sources of Waste in Red Meat Abattoirs
Best Management Practices
Existing Methods for Disposal of Meat Production Waste
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Composting
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Rendering
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Recent Events Affecting the Rendering Industry
Dead Stock Collection, Transportation and Receiving
Dead Stock Collectors and Receivers
Anaerobic Digestion of Protein Rich Substrate
Co-digestion Plant Design and Operation
E. Household/Kitchen Wastes
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Disposal Problems
Disposal Problems in the Trash
Disposal Problems on the Ground
Disposal Problems in Storm Sewers
Worm Composting
F. Municipal Wastes
Anaerobic Digestion Process
Various AD Systems
Important Operating Parameters in AD Process
Waste Composition/Volatile Solids (VS)
pH Level

Temperature
Carbon to Nitrogen Ratio (C/N)
Total Solids Content (TS) / Organic Loading Rate (OLR)
Retention (or Residence) Time
Mixing
Compost
Biogas Composition
Development and Present Status of AD Technology
Historical Background
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Multi-stage Low Solids Process
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Batch Reactors
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Checking of Dairy Effluent
Preventive Attitudes
Waste Management Issues for Dairy Processors
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Whey Condensing
Shell and Tube Condensers
Mechanical Vapor Recompression (MVR)
Ultra Filtration
Reverse Osmosis
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Aerated Lagoons
Activated Sludge
Sequencing Batch Reactors
Biological Tower
Spray Irrigation
Ridge and Furrow Systems
Absorption Ponds
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Phosphorus Limitations
Chloride Limitations
Aerated Lagoon Treatment Systems
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Incineration
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Impacts of Informal Recycling
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Minimizing Waste
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Organization Level-stewardship of Corporate Values and Priorities
Disposition Level-management of Diversion and Disposal
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3. Construction Contract Requirements
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Radioactive Waste and Their Environmentally Sound Management
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Steps to be Taken to Meet the Above Objectives
Transportation of Construction Waste and Debris
Waste Disposal Management
Waste Types that Should not to be Incinerated
Pharmaceutical Disposal
Management of Municipal Solid Waste in India

Waste Management: Global Perspective
Waste Generation
Development Trends for Waste and Wastewater
Global Overview of Waste Management
Landfill CH4: Regional Trends
Wastewater and Human Sewage CH4 and N2O: Regional Trends
CO2 From Waste Incineration
Waste Management and GHG-Mitigation Technologies
CH4 Management at Landfills
Incineration and Other Thermal Processes for Waste-to-energy
Biological Treatment Including Composting, Anaerobic Digestion, and Mechanical
Waste Reduction, Re-use and Recycling
Wastewater and Sludge Treatment
Waste Management and Mitigation Costs and Potentials
Fluorinated Gases: End-of-life Issues, Data and Trends in the Waste Sector
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Reducing Landfill CH4 Emissions
Incineration and Other Thermal Processes for Waste-to-energy
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Campylobacter
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Escherichia Coli
Erysipelothrix Rhusiopathiae
Francisella Tularensis
Leptospira Species
Listeria Monocytogenes
Salmonella
Yersinia
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Toxoplasma
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Thermophilic Anaerobic Digestion
Aerobic Digestion
Mesophilic Aerobic Digestion
Thermophilic Aerobic Digestion
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Systems to Track Hazard Correction
Emergency Preparation
Emergency Preparedness
Current Scenario and Future Challenges of Municipal Solid Waste Management in India
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Recommendations
6. PHOTOGRAPHS OF PLANT & MACHINERY WITH SUPPLIER’S CONTACT DETAILS
Biomining Machines

About NIIR

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Wed, 13 Aug 2025 05:53:56 +0000