

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)

Author: PROF. DR. MAHENDRA PAL

Format: Paperback

ISBN: 9788195676910

Code: NI349

Pages: 584

Price: Rs. 2,095.00 **US\$** 53.00

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.

Contents

- 1. INTRODUCTION
- 2. TYPES OF WASTES
 - A. Livestock Farm Wastes
 - Current Methods for Disposal of Livestock Mortalities
 - Burial
 - Burning
 - Incineration
 - Rendering
 - Composting
 - Future of Livestock Mortality Disposal
 - Novel Disposal Methods
 - Carcass Storage and Bio-reduction Methods
 - Reasons for Concern
 - Pollution Potential of Farm Animal Wastes
 - Magnitude of the Problem
 - Properties of Animal Wastes
 - Physical Properties
 - Chemical and Biological Properties
 - Fertilizer Value
 - Handling of Farm Animal Wastes
 - Storage of Farm Animal Wastes
 - Treatment of Farm Animal Wastes
 - Physical Treatment
 - Chemical Treatment
 - Biological Treatment
 - Composting
 - Anaerobic Digestion
 - Lagoon Treatment
 - Aerobic Treatment
 - Economics of Farm Animal Waste Treatment
 - B. Biomedical Wastes
 - Classification of Biomedical Waste
 - Handling, Storage, and Transportation of Healthcare Waste
 - On-site Collection, Transport, and Storage of Waste
 - Collection
 - Storage
 - On-site Transport
 - Off-site Transportation of Waste
 - Special Packaging Requirements for Off-site Transport
 - Handling, Storage, and Transportation of Healthcare Waste
 - Routing
 - Biomedical Waste Treatment
 - Incineration Technology
 - Non-Incineration Technology
 - Autoclaving
 - Microwave Irradiation
 - Chemical Methods
 - Selection of Suitable Treatment Technology
 - Common Treatment Facility
 - Mobile Treatment/Disposal System
 - C. Industrial Wastes
 - 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
Industrial Nonhazardous Wastes
Radioactive Wastes
D. Abattoir Wastes
Sources of Waste in Red Meat Abattoirs
Best Management Practices
Existing Methods for Disposal of Meat Production Waste
Burial
Composting
Incineration
Rendering
Rendering Industry
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
Disposal of Household Hazardous Waste
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
Types of AD Systems
Single Stage Process
Single Stage Low Solids (SSLS) Process
Single Stage High Solids (SSHS) Process
Multi-stage Process
Multi-stage Low Solids Process
Multi-stage High Solids Process
Batch Reactors
G. Dairy Industries Wastes:
Sources of Wastes
Waste Characteristics
Treatment of Dairy Wastes
Checking of Dairy Effluent
Preventive Attitudes
Waste Management Issues for Dairy Processors
Cheese Making
Whey Condensing
Shell and Tube Condensers
Mechanical Vapor Recompression (MVR)
Ultra Filtration
Reverse Osmosis
Waste Water Treatment Options
Aerated Lagoons
Activated Sludge
Sequencing Batch Reactors
Biological Tower
Spray Irrigation
Ridge and Furrow Systems
Absorption Ponds
Hauling and Land Application
WPDES Permit Issuance
Surface Water Effluent Limits
Land Application of Waste Water
Phosphorus Limitations
Chloride Limitations
Aerated Lagoon Treatment Systems
Winter Spreading of Waste
H. Fish and Seafood Processing Unit's Wastes
Liquid Effluent
Solid Waste
Other Waste Components
Waste Management
Typical Waste Treatment Scenario
Data on Receiving Environment
Biologically Activated Rock Phosphate Fertilizer

Fish Processing Waste Disposal Practices and Options
 Waste Water Characteristics
 I. Poultry Farm Waste
 Options and Considerations for Poultry Waste Management
 Animal Refeeding
 Bioenergy Production
 Dead Birds Disposal:
 Composting
 Incineration
 J. Electronic Wastes
 E-waste in India
 Impacts of E-wastes
 Impacts of Informal Recycling
 Status of E-waste Management in India
 E-waste Management Strategies
 Electronic Waste Items List
 Electronic Wastes: A Rising Global Phenomenon
 Electronic Wastes: The Environmental and Human Rights Dimensions
 Regulatory Responses to the Electronic Waste Phenomenon
 K. Other Wastes
 Construction Waste Management
 Eliminating Waste
 Minimizing Waste
 Reusing Materials
 Federal Regulations
 Management
 Project Level-enhancing Project Value and Performance
 Organization Level-stewardship of Corporate Values and Priorities
 Disposition Level-management of Diversion and Disposal
 Construction and Demolition Wastes
 Best Management Practices
 Process
 Collection and Hauling
 Containerization and Transport
 Prevalence of Common Materials
 1. Waste Management Planning
 2. Facility Design
 3. Construction Contract Requirements
 4. Jobsite Waste Reduction
 Emerging Issues
 Plastic Waste and Its Disposal
 Radioactive Waste and Their Environmentally Sound Management
 Manual Loading of Waste
 Loading of Waste Through Front End Loader and Trucks
 Garbage Loaded in Open Trucks Causing Nuisance
 Measures to be Taken to Improve the System
 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
 Air Quality Issues: NMVOCs and Combustion Emissions
 Reducing Landfill CH₄ Emissions
 Incineration and Other Thermal Processes for Waste-to-energy
 Waste Minimization, Re-use and Recycling
 Policies and Measures on Fluorinated Gases
 Municipal Solid Waste Management
 Wastewater Management
 Disposal of Fallen Animals in the Field/Forest
 Rendering Industry
 Recent Events Affecting the Rendering Industry
 Deadstock Collection, Transportation and Receiving
 3. HUMAN PATHOGENS IN ANIMAL AGRICULTURE
 PRODUCTION SYSTEMS
 Viruses
 Chlamydia
 Coxiella Burnetii
 Bacteria
 Aeromonas Hydrophila
 Arcobacter
 Bacillus Anthracis
 Brucella
 Campylobacter
 Clostridium Perfringens
 Escherichia Coli
 Erysipelothrix Rhusiopathiae
 Francisella Tularensis
 Leptospira Species
 Listeria Monocytogenes
 Salmonella
 Yersinia
 Mycotic Agents
 Parasites (Protozoans and Helminths)
 Ascaris
 Balantidium Coli
 Cryptosporidium Parvum
 Giardia
 Toxoplasma
 Other Organism
 Microsporidia

Faecal Indicator Organisms

4. PATHOGEN REDUCTIONS DURING WASTE TREATMENT

Manure Solids Waste

Dry Techniques: Composting

Manure Slurry Treatment Techniques

Physical Treatment Techniques

Biological Treatment Techniques

Anaerobic Lagoon Treatment

Multiple Lagoon Systems

Aerated Lagoons and Oxidation Ponds

Anaerobic Digestion

Mesophilic Anaerobic Digestion

Thermophilic Anaerobic Digestion

Aerobic Digestion

Mesophilic Aerobic Digestion

Thermophilic Aerobic Digestion

Activated Sludge

Biofiltration

Constructed Wetlands

Overland Flow

Disinfection and Chemical Treatments

Chlorine

Ozone

Chlorine Dioxide

Ultraviolet Light (UV) Irradiation

Lime Stabilization

Pasteurization

Animal Waste Disposal or Recycling Options

Land Application

Spray Fields

5. AEROSOLIZATION OF PATHOGENS

Microbial Detection Analysis Techniques

On-farm Verification of Microbial Reduction by Corrective Measures

Real-time Measurement Techniques

Public Health Hazards due to Wastes

Hazardous Substances Associated with Waste Management

Impact of Waste Management Practices on Health

Individual Pollutants

Health Effects in Communities

Control of Hazards

Safe Work Practices

PPE Hazard Assessment and Training

Systems to Track Hazard Correction

Emergency Preparation

Emergency Preparedness

Current Scenario and Future Challenges of Municipal Solid Waste Management in India

Conclusions

Recommendations

6. PHOTOGRAPHS OF PLANT & MACHINERY

WITH SUPPLIER'S CONTACT DETAILS

Biomining Machines

Waste Recycling Plant

Animal Waste Recycling Plant
Biomedical Waste Machines
Dairy Waste Recovery Machine
Agro Waste Biomass Briquetting Plant
Food Waste Composting Machine

7. APPENDICES

Appendix–I
Appendix–II
Appendix–III
Appendix–IV
Appendix–V
Appendix–VI
Appendix–VII
Appendix–VIII
Appendix–IX
Appendix–X
Appendix–XI
Appendix–XII
Appendix–XIII
Annexure–XIV
Annexure–XV
Annexure–XVI
Annexure–XVII
Annexure–XVIII
Annexure–XIX
Annexure–XX
Annexure–XXI
Annexure–XXII
Annexure–XXIII
Annexure–XXIV
Annexure–XXV
Appendix–XXVI
Appendix–XXVII
Appendix–XXVIII
Appendix–XXIX
Annexure–XXX
Appendix–XXXI
Appendix–XXXII
Appendix–XXXIII

8. GLOSSARY

9. REFERENCES

About NIIR

NIIR PROJECT CONSULTANCY SERVICES (NPCS) is a reliable name in the industrial world for offering integrated technical consultancy services. NPCS is manned by engineers, planners, specialists, financial experts, economic analysts and design specialists with extensive experience in the related industries.

Our various services are: Detailed Project Report, Business Plan for Manufacturing Plant, Start-up Ideas, Business Ideas for Entrepreneurs, Start up Business Opportunities, entrepreneurship projects, Successful Business Plan, Industry Trends, Market Research, Manufacturing Process, Machinery, Raw Materials, project report, Cost and Revenue, Pre-feasibility study for Profitable Manufacturing Business, Project Identification, Project Feasibility and Market Study, Identification of Profitable Industrial Project Opportunities, Business Opportunities, Investment Opportunities for Most Profitable Business in India, Manufacturing Business Ideas, Preparation of Project Profile, Pre-Investment and Pre-Feasibility Study, Market Research Study, Preparation of Techno-Economic Feasibility Report, Identification and Section of Plant, Process, Equipment, General Guidance, Startup Help, Technical and Commercial Counseling for setting up new industrial project and Most Profitable Small Scale Business.

NPCS also publishes various process technology, technical, reference, self employment and startup books, directory, business and industry database, bankable detailed project report, market research report on various industries, small scale industry and profit making business. Besides being used by manufacturers, industrialists and entrepreneurs, our publications are also used by professionals including project engineers, information services bureau, consultants and project consultancy firms as one of the input in their research.

Our Detailed Project report aims at providing all the critical data required by any entrepreneur vying to venture into Project. While expanding a current business or while venturing into new business, entrepreneurs are often faced with the dilemma of zeroing in on a suitable product/line.

NIIR PROJECT CONSULTANCY SERVICES , 106-E, Kamla Nagar, New Delhi-110007, India. **Email:** npcs.india@gmail.com **Website:** NIIR.org

Sat, 27 Apr 2024 15:34:14 +0530