

SUSTAINABLE E-WASTE MANAGEMENT

PRINCIPLES AND PRACTICES



Editors

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Sustainable E-Waste Management: Principles and Practices

Editors

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TABLE OF CONTENT

<i>Preface</i>	<i>iii</i>
CHAPTER 1	1
Successful E-Waste Management Projects in India: Case Studies <i>Dr. S. Fatima Zahara Jafri & Dr. Syed Irfan Haider Jafri</i>	
CHAPTER 2	27
Best Practices for Sustainable E-waste Management in a Globalized World <i>Dr. Syed Mohsin Raza</i>	
CHAPTER 3	36
E-waste Recycling Processes; Impact on Human Health and the Environment: Challenges and Solutions <i>Dr. Syed Nuzhat Husain & Dr Waheed Alam</i>	
CHAPTER 4	49
An Overview of E-Waste Recycling Technologies: Difficulties and Prospects <i>Dr. Prabodh Kumar Garg</i>	
CHAPTER 5	59
Can AI and IoT Rescue India from its Own E-Waste Crisis or Will We Just Have Smarter Trash? <i>Dr. Tulika Singh</i>	
CHAPTER 6	75
Socio - Economic Impact of the E-Waste In Third World Countries <i>Dr. Chhatra Pal & Dr. Pulkit</i>	
CHAPTER 7	86
Indian Laws and Judicial Perspectives on the Management of E-Waste <i>Mr. Kamaljeet Mani Mishra & Dr. Vinay Kumar Tiwari</i>	
CHAPTER 8	98
E-Waste Management Strategies: Mitigating Health Hazards Posed by E-Waste Chemicals <i>Mr. Abdussalam & Dr. Nazia Iqbal</i>	

CHAPTER 9	113
Empowerment: The Bright Outlook on E-Waste Management	
	<i>Dr. Nooreen Zaidi</i>
CHAPTER 10	123
Management of E-Waste In Developed And Developing Countries	
	<i>Dr. Dharmendra Kumar</i>
CHAPTER 11	132
The Hidden Danger and e-waste impact of health and environment	
	<i>Dr. Manzoor Khan & Ms. Huma Ausaf</i>
CHAPTER 12	145
Environmental Impact Analysis and Ecological Benefits of Sustainable E waste Management	
	<i>Dr. Ajai Veer</i>
CHAPTER 13	157
Towards a Circular Economy: Regulatory Challenges in E-Waste Governance in India	
	<i>Dr. Wasim Ahmad, Dr. Gaurav Gupta & Mr. Mohd. Tahir Husain</i>
CHAPTER 14	178
The Indian Judiciary as a Catalyst for Sustainable E-Waste Solutions	
	<i>Mr. Ashraf Azmi & Dr. Yashfeen Ali</i>
CHAPTER 15	189
Role of Indian Judiciary and Pollution Control Boards in Waste Management	
	<i>Mr. Qaseem Haider Naqvi</i>
CHAPTER 16	200
Insights of Green Electronics and Sustainable Design – Legal Framework to promote Green Electronics	
	<i>Mr. Mohd Ubais Ansari</i>
CHAPTER 17	214
Right to Repair and E-Waste: A Legal Analysis	
	<i>Mr. Faiz Osmani</i>
CHAPTER 18	229
E-Waste Management System: An Approach and Assessment	
	<i>Mr. Aqeel Ahmad Khan & Dr. Uzma</i>

CHAPTER 18

E-Waste Management System: An Approach and Assessment

Mr.Aqeel Ahmad Khan* & Dr. Uzma*

ABSTRACT

Electronic waste (e-waste) has emerged as one of the fastest-growing waste streams worldwide, primarily driven by rapid technological advancements, shortened product lifecycles, and consumer demand for modern electronics. This study aims to explore the current approaches and assess the effectiveness of e-waste management systems, with a focus on sustainable handling, disposal, and recycling practices. The research delves into the classification of e-waste, its environmental and health impacts, and the legal frameworks governing its management in both global and Indian contexts. Emphasis is placed on the roles of stakeholders, including producers, consumers, recyclers, and regulatory authorities, in the e-waste value chain. Through analysis of existing collection mechanisms, extended producer responsibility (EPR), and informal sector dynamics, the study identifies gaps in implementation and suggests strategic interventions to improve efficiency. The paper also highlights successful models from developed countries that can be adapted in developing nations to mitigate the growing crisis. Ultimately, this assessment seeks to promote an integrated, circular economy-based e-waste management approach that prioritizes environmental safety, resource recovery, and public health.

Keywords: E-waste, management system, recycling, environmental impact, extended producer responsibility (EPR), sustainability, circular economy.

INTRODUCTION

The digital revolution has brought significant transformations to human life, enhancing connectivity and convenience. However, it

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