1. Record Nr. UNINA9911035158203321

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Titolo	E-Waste: From Generation to Management–Practices, Challenges, and Solutions / / edited by Prashant Shukla, Sachi Choudhary, P. S. Ranjit, Akarsh Verma
Pubbl/distr/stampa	Singapore : , : Springer Nature Singapore : , : Imprint : Springer, , 2025
ISBN	9789819503292
Edizione	[1st ed. 2025.]
Descrizione fisica	1 online resource (477 pages)
Collana	Engineering Series
Altri autori (Persone)	ChoudharySachi RanjitP. S VermaAkarsh
Disciplina	333.7
Soggetti	Environmental management Chemical engineering Environmental engineering Electrical engineering Environmental Management Environmental Process Engineering Electrical and Electronic Engineering
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Chapter 1:Introduction to E-Waste: Definitions, Scope, and SignificanceThis chapter provides an introduction to electrical and electronic waste (E-waste), defining what it is, its scope, and its significance in today's world. It explores the various types of E-waste and their sources, setting the stage for understanding the challenges and opportunities in e-waste management -- Chapter 2:Global Trends in E-Waste Generation and ManagementThis chapter examines the trends in e-waste generation and management on a global scale. It analyzes data on the quantities and types of e-waste generated worldwide, as well as the methods and practices used for its management and disposal. The chapter highlights key patterns and shifts in e-waste management over time -- Chapter3:Environmental and Health Impacts of E-Waste Focusing on the environmental and health impacts of e-waste, this chapter explores the consequences of

improper disposal and recycling of electrical components and electronic devices. It discusses the pollutants released from e-waste and their effects on ecosystems, human health, and the broader environment -- Chapter 4:Legal and Regulatory Frameworks for E-Waste Management This chapter examines the legal and regulatory frameworks governing e-waste management at national and international levels. It discusses the laws, regulations, and policies aimed at addressing e-waste issues, as well as the challenges and opportunities associated with their implementation and enforcement -- Chapter 5:E-Waste Collection, Sorting, and Handling Practices Exploring the practical aspects of e-waste management, this chapter focuses on collection, sorting, and handling practices. It discusses the methods and technologies used for collecting and processing e-waste, including segregation, dismantling, and transportation, highlighting best practices and challenges in these areas -- Chapter 6:Sustainable Design and Product Lifecycle Management This chapter examines the role of sustainable design and product lifecycle management in reducing e-waste generation. It discusses strategies for designing electronics with longevity, reparability, and recyclability in mind, as well as approaches for extending product lifecycles through repair, refurbishment, and remanufacturing -- Chapter 7:Social and Economic Aspects of E-Waste Management Focusing on the social and economic dimensions of e-waste management, this chapter explores the impacts on communities, livelihoods, and economies. It discusses the role of informal e-waste sectors, the socio-economic implications of e-waste recycling, and the importance of inclusive and equitable approaches to management -- Chapter 8:Circular Economy Approaches to E-Waste Management This chapter examines circular economy approaches to e-waste management, emphasizing strategies for resource recovery, reuse, and recycling. It discusses circular business models, such as product-as-a-service and take-back schemes, as well as the potential for creating closed-loop systems in the electronics industry -- Chapter 9:Case Studies in Successful E-Waste Management Practices Sub topics :a. E-Waste Management Initiatives in Developing Countries b. Best Practices in E-Waste Recycling Facilities c. Community-Based E-Waste Management Programs This chapter is featuring case studies from around the world, this chapter highlights successful e-waste management initiatives and practices. It showcases examples of innovative programs, projects, and partnerships that have effectively addressed e-waste challenges, providing insights and lessons learned for practitioners and policymakers -- Chapter 10:Case Studies for Management of Major Components in E-Waste (e.g., Household appliances, EV batteries and PV panels, Electronic gadgets and IT industry components etc.)8This chapter will delve into case studies focusing on a range of major e-waste components, including household appliances, EV batteries and PV panels, electronic gadgets, and components from the IT industry. Through detailed analysis and exploration of these case studies, readers will gain insights into innovative approaches and successful initiatives in e-waste management -- Chapter 11:Impact of E-Waste on Important Geographical Regions Sub Topics: a. E-Waste Management Challenges in Asia b. E-Waste Recycling Innovations in Europe c. E-Waste Policies and Practices in North America This chapter is focusing on specific geographical regions, this chapter examines the impact of e-waste on ecosystems, communities, and economies. It explores the unique challenges and opportunities faced by different regions in managing e-waste, providing insights into regional variations in policies, practices, and outcomes -- Chapter 12:Emerging Technologies for E-Waste

Recycling and Resource Recovery This chapter explores emerging technologies for e-waste recycling and resource recovery, highlighting innovative approaches for recovering valuable materials from electronic devices. It discusses advancements in recycling processes, including mechanical, chemical, and biotechnological methods, as well as their potential environmental and economic benefits -- Chapter 13:Future Trends and Directions in E-Waste Management Research and Practice Focusing on future trends and directions, this chapter explores emerging issues, challenges, and opportunities in e-waste management. It discusses areas for future research, technological innovation, policy development, and international collaboration, offering insights into the evolving landscape of e-waste management.

Sommario/riassunto

This book aims to create a comprehensive guide that explores the lifecycle of electronic waste, from its creation to its disposal. The main themes and objectives of this book revolve around understanding the various dimensions of e-waste management, including its environmental, social, economic, and regulatory aspects. Through a series of meticulously curated chapters, the book navigates through the lifecycle of electronic products, from production to disposal, and examines the environmental and health impacts associated with improper e-waste handling. It delves into the legal and regulatory frameworks governing e-waste management, explores sustainable design principles and circular economy approaches, and showcases best practices and case studies from around the globe. A key distinguishing feature of this work lies in its comprehensive coverage of e-waste management, encompassing diverse perspectives and experiences from both developed and developing regions. By presenting a rich tapestry of methodologies, case studies, and practical insights, the manuscript offers a nuanced understanding of the challenges and opportunities in e-waste management, tailored to the needs of researchers, practitioners, policymakers, and stakeholders alike. Furthermore, it adopts an interdisciplinary approach, drawing upon insights from environmental science, engineering, policy studies, economics, and sociology to provide a holistic understanding of e-waste management. It embraces innovation and sustainability as guiding principles, encouraging readers to explore novel solutions and collaborative approaches in tackling the global e-waste crisis.