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Nota di contenuto	AI in Pollution Management -- 1. Internet of Things (IoT) and Environmental Monitoring: A Systematic Literature Review -- 2. Industrial Pollution Management in West Africa: NEEDS assessment for AI-enhanced monitoring and response systems -- 3. Enhancing Coastal Resilience: Current Innovations in AI-Driven Pollution Detection Systems and Feasibility for West African Marine Environments -- 4. An Assessment of the Applications and Prospects of AI Tools in Solid Waste Management -- 5. Green Intelligence for Sustainable Plastic Waste Management in Africa: A Comprehensive Framework for Policy Innovation, ICT Solutions, and PublicPrivate Partnerships -- AI in Water and Wastewater Treatment -- 6. Application Bootstrap Machine Learnings for Modeling of Sonocatalytic Degradation of Caffeine in

Wastewater Treatment -- 7. Structural Equation Modelling for identifying the determinants for adoption of household water treatment -- 8. Integrating Artificial Intelligence with Electrocoagulation for Sustainable Leachate Treatment: A Comparative Study of RSM and ANN for Pollutant Reduction -- AI in Sustainable Energy Solutions -- 9. Integrating Artificial Intelligence in CO2 Capture and Conversion Processes for Sustainable Energy Solutions -- 10. Integrating Hybrid AI Models for Improved PV Power Forecasting: A Path Towards Sustainable Energy -- 11. Role of artificial intelligence (AI) in sustainable biofuel production from lignocellulosic biomas -- 12. Leveraging Artificial Intelligence for Enhanced Efficiency and Sustainability in Geothermal Energy Systems -- AI in Environmental Monitoring and Prediction -- 13. Artificial Intelligence-Based Flood Mapping: A Case Study of El Tarf Governorate, Algeria -- 14. Predicting Soil Hydraulic Conductivity: A Review of Artificial Neural Networks Applications -- 15. Statistical AI Models for Environmental Sustainability: ARIMA, LSTM, and CNN-LSTM in Climate Prediction -- AI in Social and Environmental Sustainability -- 16. Artificial Intelligence in Social Work to Ensure Environmental Sustainability -- 17. Recommendations and concluding remarks for marinating circular and green economy by artificial intelligence.

Sommario/riassunto

This book explores the applications of artificial intelligence (AI) in environmental protection, with a focus on pollution monitoring and mitigation. Offering an authoritative perspective on circular and green economies through strategic AI deployment, it covers topics like risk management for human health impacts, optimization of water engineering processes, and real-time monitoring for contamination detection. Particular attention is given to water-quality-related concerns and optimizing operational parameters critical for wastewater treatment. In this book, readers will discover how AI is applied for early warning systems, detecting potential contamination in aquatic, terrestrial, and atmospheric environments. Expert contributors discuss the integration of AI with environmental sustainability, the Internet of Things (IoT), machine learning, and automated monitoring techniques. The book also highlights the role of AI-supported low-cost smart sensors in environmental monitoring and climate change mitigation. Other key topics include intelligent control systems for wireless monitoring of waste management in green cities and AI's potential in diagnosing, managing, and forecasting air-pollution-related diseases for atmospheric sustainability. The book concludes with recommendations for maintaining a circular and green economy. Given its breadth, this book is an indispensable resource for researchers, scholars, and practitioners interested in understanding the transformative role of AI in environmental engineering and its contribution to sustainable development.