

1. Record Nr.	UNINA9910879596803321
Titolo	Recent Advancements in Sustainable Agricultural Practices : Harnessing Technology for Water Resources, Irrigation and Environmental Management // edited by Yasheshwar, Anil Kumar Mishra, Mukesh Kumar
Pubbl/distr/stampa	Singapore : , : Springer Nature Singapore : , : Imprint : Springer, , 2024
ISBN	981-9721-55-5
Edizione	[1st ed. 2024.]
Descrizione fisica	1 online resource (380 pages)
Disciplina	338.1
Soggetti	Agriculture Agronomy Subsistence farming Subsistence Agriculture
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Chapter 1. Sustainable Developmental Goal 17 and Agriculture From an Indian Perspective -- Chapter 2. Influence of Climate Change Scenario on the Existing Water Resources and its Mitigation Strategies -- Chapter 3. Traditional Agronomic Practices: Understanding and Mitigating the Risks of Climate Change -- Chapter 4. Internet of Things (IOT): A Technology for Smart Irrigation and Monitoring -- Chapter 5. Drip Irrigation: Concept, Design and IOT Based Automation -- Chapter 6. Moisture Sensor Based Irrigation Scheduling to Improve Water Productivity in Agriculture -- Chapter 7. Smart Green Housing: Vertical Farming -- Chapter 8. Nano-Technology Mediated Agriculture Water Management -- Chapter 9. Estimation of Seasonal Crop Water Demands for the Command Area of Eastern Sone High Level Canal (ESHLC) Irrigation Project, Bihar using Mapping Evapotranspiration at High Resolution with Internalized Calibration (METRIC) Model -- Chapter 10. Estimating Chlorophyll-a Concentration in Water Bodies of Coimbatore, Tamil Nadu using Geospatial Techniques -- Chapter 11. Impact of Land Use Land Cover Changes on the Environment and Society -- Chapter 12. Assessment and Development of Water Resources with Modern

Technologies -- Chapter 13. Large Dams and Developmental Dilemma: Watershed Management and Sustainable Livelihood Practices in Rim Areas of Tehri dam, Uttarakhand, India -- Chapter 14. Canal Automation and Management System to Improve Water Use Efficiency -- Chapter 15. Phytochemicals as Potent Therapeutic Molecules in Cancer Treatment in Relation to Sustainable Agriculture System -- Chapter 16. Plant Physiological Responses to Climatic and Environmental Change: Especially to Rise in CO<sub>2</sub>, Temperature and UV-B Radiation -- Chapter 17. Biochar: A Sustainable Way to Enhance Soil Fertility, Crop Yield and to Mitigate Global Warming -- Chapter 18. Nanobiosensors for Soil Remediation.

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### Sommario/riassunto

This book is a guide to achieving optimal crop yield while ensuring the sustainable and efficient use of water resources. It delves into critical topics such as irrigation water management, global and regional climate variability and change, food security, water pollution, soil erosion, and fertility loss. With the growing stress on water resources, the emphasis needs to be on environmentally friendly alternatives, including cutting-edge solutions like AI-based approaches, sensor-driven automation systems, and the integration of IoT in irrigation automation. This book collates information and analyzes current challenges in agriculture but also proposes innovative solutions, particularly in the context of the interconnected factors of water, crops, and climate change. By offering insights and strategies, it aims to guide the development of a water-wise, sustainable agriculture system that ensures the safety and well-being of future generations. This book is a valuable resource for anyone involved in agriculture and related fields, providing knowledge and tools to create a resilient and efficient food system. The target audience is diverse, ranging from farmers and students to researchers, scientists, irrigation practitioners, decision-makers, professors, and policymakers.

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