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Nota di contenuto	Section I. Hydrology of the headwater catchments in changing climatic conditions -- Chapter 1. Shift in streamflow regime in headwater catchments causes and impacts -- Chapter 2. Hydrology of the Upper Indus Basin under changing climate -- Chapter 3. The Open Global Glacier Model (OGGM) based assessment of Glacier Mass Variations in Chhota Shigri Glacier, Western Indian Himalaya -- Chapter 4. Insight into the Impact of Land Use/Land Cover Change on the runoff incorporating hydrological modelling to analyse their impact on the

water regime -- Section 2. Efficient irrigation and agricultural planning for food security -- Chapter 5. Divulging insights into irrigation scheduling of *Allium Cepa* (Onion) using *Cocos Nucifera* (Coconut) husk mulch -- Chapter 6. Impact of Climatic Extreme Indices on Crop Productivity -- Chapter 7. Pathways to accelerate agricultural production system technologies in India: A vision for new generation watersheds -- Chapter 8. Analyzing the Impact of Climate Change on Crop Yield and Its Consequences for the Water-Energy-Food Nexus in an Indian River Basin -- Section 3. Hydro-chemical environment under climate change -- Chapter 9. Impacts of modern agricultural practices on soil-water pollution: An overview -- Chapter 10. Engineered bioremediation for decontamination of aquifers -- Chapter 11. Groundwater remediation using Meshless Local Petrov Galerkin (MLPG) simulation coupled with Differential Evolution (DE) -- Chapter 12. Transport of Nitrate, Phosphate and Potassium in Vadoze zone with Varying Rainfall Scenarios for a Semi-Arid Cotton Growing Region of South India -- Chapter 13. Evaluation of potentially toxic heavy metal contamination of groundwater and associated health risk assessment of inhabitants in the industrial corridors of integrated Vellore district, Tamil Nadu, India -- Section 4. Advanced tools and techniques to provide climate solutions -- Chapter 14. Assessing the Impacts of Climate Change on Hydroclimatic Regimes in Beas River Basin -- Chapter 15. Precision Agriculture Technologies for Climate-Resiliency and Water Resource Management -- Chapter 16. Hydrometeorological Water Budget and It's Relationship with Extreme Over Alaknanda River Basin: An Application of ERA5-Land -- Chapter 17. Bayesian model averaging for multi-model ensemble streamflows of the Godavari basin -- Section 5. Socio-hydrological Impacts and Policy Implications in a Changing Climate -- Chapter 18. Application of AI/ML in Water Resource Management to Resolve Transboundary Water Conflict -- Chapter 19. Small-scale irrigation for climate adaptation: community and shared-based approaches in South Asia and sub-Saharan Africa -- Chapter 20. A hydrologic modeling assessment of future water scarcity in the Baitarani River Basin -- Chapter 21. Summary Chapter.

Sommario/riassunto

This book encompasses updated information as well as future directions for researchers working in the fields of environmental science, water resource engineering, and agricultural science. Navigating the Nexus: Hydrology, Agriculture, Pollution, and Climate Change focuses on the thematic areas of water resource, agriculture, and environmental domains. This book covers advances in modelling approaches, including Machine Learning (ML)/Artificial Intelligence (AI) applications; GIS and remote sensing; and sensors; to provide hydrological, agricultural, and environmental solutions during the ongoing climate crisis.