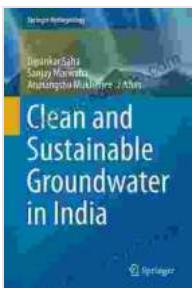


# Clean and Sustainable Groundwater in India: A Vital Resource for the Present and Future



## Clean and Sustainable Groundwater in India (Springer Hydrogeology) by Seth G. Jones

 4.7 out of 5

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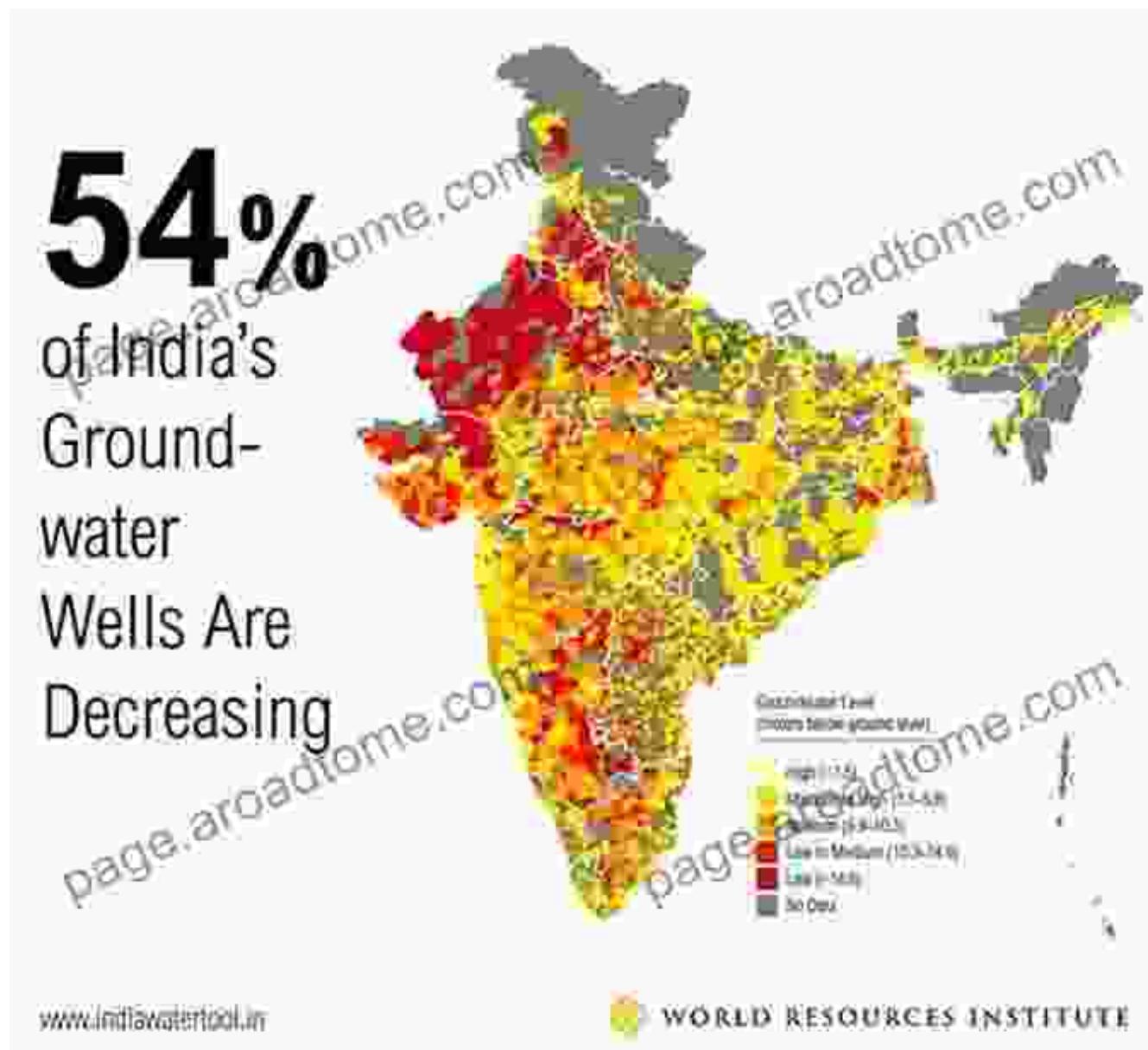
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Groundwater is a precious natural resource that plays a pivotal role in India's water security. It accounts for almost 40% of the country's total water supply and is essential for drinking, irrigation, and various industries. However, groundwater resources in India face significant challenges due to population growth, urbanization, industrialization, and climate change. This comprehensive book, "Clean and Sustainable Groundwater in India," sheds light on these challenges and provides invaluable insights into preserving and managing this vital resource.

## Groundwater Quality and Contamination

The book delves into the current state of groundwater quality in India, highlighting the prevalence of contamination from various sources. It examines the contamination caused by agricultural practices, industrial effluents, and domestic wastewater. The authors present a detailed

analysis of the health risks associated with contaminated groundwater and discuss the regulations and policies in place to address these concerns.



## Sustainable Groundwater Management

Recognizing the urgent need for sustainable groundwater management, the book offers a comprehensive overview of best practices and innovative approaches. It explores rainwater harvesting techniques, groundwater recharge strategies, and the use of smart technologies for monitoring and

managing groundwater resources. The authors emphasize the importance of community participation, stakeholder engagement, and capacity building for successful implementation of sustainable groundwater management plans.

**USGS**  
science for a changing world

## Sustainable Groundwater Management

*In 2014, the State of California adopted historic legislation to help manage its groundwater, the Sustainable Groundwater Management Act (SGMA)*

### Overview

According to the act, local agencies must develop and implement groundwater sustainability plans for managing and using groundwater without causing “unsustainable results” related to the following:

- Groundwater-level declines
- Groundwater-storage reductions
- Seawater intrusion
- Water-quality degradation
- Land subsidence
- Interconnected surface-water reductions.

### Science for Sustainable Groundwater Planning and Management

The U.S. Geological Survey (USGS) uses data collection, modeling tools, and scientific analysis to help water managers plan for, and assess, hydrologic issues that can cause “unsustainable results” associated with groundwater use. This information helps managers understand trends and investigate and predict effects of different groundwater management strategies.

The diagram shows a cross-section of the Earth's crust. A blue area at the top represents land surface features like hills and fields. Below the surface, several aquifer layers are shown as horizontal blue bands. A central aquifer layer is labeled "Area of land subsidence". On either side of this subsidence zone, there are areas where land has risen, indicated by green arrows pointing upwards. Two vertical wells are shown; one on the left side of the subsidence zone and one on the right side. Arrows from both wells point downwards into the subsidence zone, indicating that groundwater is being pumped from that area. The bottom of the diagram shows a pink layer labeled "Bedrock". A legend at the bottom left identifies the symbols: a blue square for "Groundwater body", a green triangle for "Groundwater storage reduction", and a red circle for "Land subsidence".

## Groundwater in Agriculture

Agriculture is the largest consumer of groundwater in India, and the book dedicates a significant section to addressing groundwater-related issues in this sector. It discusses the impact of intensive irrigation practices on groundwater depletion and the need for efficient water management techniques. The authors explore sustainable farming methods, such as drip irrigation and precision agriculture, which can reduce water consumption and minimize groundwater pollution.



## **Groundwater Governance and Policy**

The book emphasizes the importance of effective governance and policy frameworks for sustainable groundwater management. It examines the existing legal and institutional frameworks for groundwater regulation and highlights the need for strengthening these mechanisms. The authors advocate for collaborative approaches involving multiple stakeholders, including government agencies, water utilities, and local communities, to

ensure the equitable distribution and sustainable use of groundwater resources.



## Case Studies and Success Stories

The book incorporates real-world case studies and success stories to showcase the practical implementation of groundwater management strategies. These case studies provide valuable lessons learned and demonstrate the effectiveness of community-led initiatives, innovative

technologies, and policy interventions in addressing groundwater challenges. They inspire readers to replicate these successes and contribute to the broader goal of clean and sustainable groundwater in India.

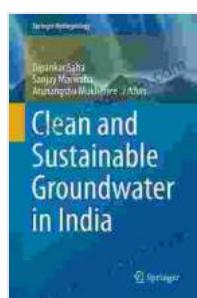
"Clean and Sustainable Groundwater in India" is a comprehensive and timely resource for anyone concerned about the future of India's water security. The book provides a thorough understanding of the challenges facing groundwater resources and offers practical solutions for sustainable management. It is a valuable tool for policymakers, water resource professionals, academics, and anyone interested in safeguarding this precious resource for present and future generations.

## About the Book

"Clean and Sustainable Groundwater in India" is published by Springer Nature and is part of the Springer Hydrogeology series. It is authored by a team of leading experts in groundwater science, water policy, and environmental management. The book is available in both print and electronic formats.

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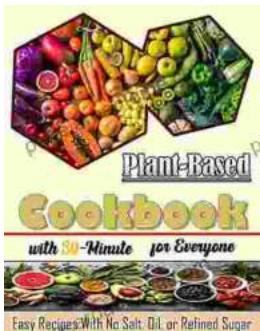
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