

GROUNDWATER MANAGEMENT FOR VIKSIT BHARAT @ 2047

Sustaining Life, Livelihoods, and Legacy

Groundwater is the invisible lifeline of India's development — silently sustaining agriculture, industry, and domestic needs. Yet today, it stands at the center of a mounting crisis. Over-extraction, contamination, and climate change have pushed this vital resource to the brink in many parts of the country. As India envisions becoming a developed nation by 2047 (Viksit Bharat 2047), sustainable groundwater management will define the nation's water security, food production, and environmental resilience.

This book, 'Groundwater Management for Viksit Bharat @ 2047: Sustaining Life, Livelihoods, and Legacy', offers a comprehensive and practical overview of India's groundwater scenario — from current status and depletion trends to innovative demand and supply management strategies. Drawing upon scientific evidence, national assessments, and decades of professional insight, Dr. R.C. Srivastava presents a lucid, policy-relevant, and forward-looking roadmap for achieving groundwater sustainability.

The book is organized into four key chapters that address:

The current status and overview of groundwater resources in India;

The economic, social, and ecological impacts of depletion;

Demand-side management through efficiency, conservation, and policy reform; and Supply-side strategies for recharge, and aquifer restoration.

Beyond data and analysis, the book advocates a paradigm shift — from exploitation to stewardship, from sectoral interventions to integrated management, and from centralized governance to community participation.

Written in an accessible yet authoritative style, this work will serve as an essential reference for policy-makers, planners, researchers, educators, and citizens committed to building a 'Jai Surakshit and Samridh Bharat'. It is not just a book on water — it is a call to secure the very foundation of India's future.

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Executive Summary

Groundwater is India's most critical yet most threatened natural resource. It sustains more than 65% of irrigation, 85% of rural drinking water, and a significant share of industrial demand. However, decades of unregulated extraction, inefficient usage, and declining recharge have led to a deepening groundwater crisis that poses an existential challenge to India's water security, food production, and ecological balance.

As India strives toward the goal of becoming a developed nation by 2047 (Viksit Bharat 2047), sustainable groundwater management will determine the nation's ability to secure livelihoods, ensure climate resilience, and maintain environmental sustainability. This book provides a comprehensive and practical framework to understand the current state of India's groundwater resources, assess the impacts of depletion, and identify both demand-side and supply-side management strategies.

The book is organized into four key chapters:

1. Status and overview of groundwater in India

Examines the current condition of aquifers, patterns of extraction, and regional disparities in availability and recharge. It also explores contamination, the effects of climate change, and governance challenges.

2. Impact of groundwater depletion

Analyzes how falling water tables affect agriculture, food security, energy use, public health, and the environment, with particular attention to the socio-economic consequences for rural communities.

3. Demand management strategies

Proposes measures to reduce excessive groundwater use through efficiency, crop diversification, technological innovation, and policy reforms aimed at behavioral change and rational water pricing.

4. Supply management strategies

Outlines methods for enhancing groundwater recharge, rainwater harvesting, watershed management, and the integration of surface and groundwater systems. It highlights innovative approaches such as managed aquifer recharge and community-based water conservation.

Together, these chapters advocate a paradigm shift — from reactive water extraction to proactive aquifer stewardship. Groundwater governance must transition from fragmented policies to integrated, science-based, and community-driven management.

The book emphasizes that groundwater security is central to realizing the Viksit Bharat 2047 vision of a prosperous, resilient, and environmentally balanced India. It calls for a "whole-of-nation" approach, combining scientific assessment, policy coherence, local participation, and technological innovation. With concerted action, India can ensure that the invisible lifeline beneath its soil continues to sustain its visible prosperity for generations to come.