Water Management In India What Works What Doesnt

#water management India #India water crisis #sustainable water practices India #water conservation India #water resource management India

Explore the complexities of water management in India, delving into the strategies and initiatives that have proven successful, alongside critical analysis of areas where efforts fall short. Understand the nuances of the India water crisis by examining sustainable water practices India has adopted and the persistent water conservation India challenges. This comprehensive overview of water resource management India offers insights into both triumphs and failures, shaping the future of the nation's vital water supply.

Water Management in India

This book, the second volume in the series, continues to raise contextual issues and presents perspectives regarding multifaceted challenges in management and governance of water in India. This volume attempts to broad base and expand the dialogue started in the first volume and would touch upon issues that need immediate discussion but have been left unattended like politics and management of groundwater, efficient utilization of water in agriculture (irrigation) and improving water use efficiency and building resilience. As in the first volume, this book presents a set of suggestions and recommendations in each chapter that can help frame policy guidelines in the country.

Water Management in India

This book highlights the need for effective water governance in India given the fact that the country has been facing serious water stress in recent years. The water management in the country needs a serious scientific understanding coupled with the cooperative approach rather than a competitive one. It looks at current water regulations and underlines the need for overhaul of some laws to ensure that high water usage efficiency is attained, groundwater depletion is arrested and management of available resources is carried out in a disciplined manner. It also looks at the role of stakeholder engagement and pricing as a mechanism to manage demand in the wake of rapid population growth and industrialization.

Water Governance and Management in India

With a rapidly expanding economy many changes are taking place in India today. The business-as-usual (BAU) scenario, which assumes the continuation of current trends of key water demand drivers, will meet the future food demand. However, it leads to a severe regional water crisis by 2050, where many river basins will reach closure, will be physically water-scarce and will have regions with severely overexploited groundwater resources. While the alternative scenarios of water demand show both

optimistic and pessimistic water futures, the scenario with additional productivity growth is the most optimistic, with significant scope for reducing future water demand.

Water Governance and Management in India

Papers presented at the fifth BAG conference held at Bhagalpur during 18-19 October 2003.

India's water future to 2025-2050: business-as-usual scenario and deviations

With reference to India; contributed articles presented at a seminar.

Water Resource Management

India is endowed with varied topographical features, such as high mountains, extensive plateaus, and wide plains traversed by mighty rivers. Divided into four sections this book provides a comprehensive overview of water resources of India. A detailed treatment of all major river basins is provided. This is followed by a discussion on major uses of water in India. Finally, the closing chapters discuss views on water management policy for India.

Water Resource Management

Natural Water Treatment Systems for Safe and Sustainable Water Supply in the Indian Context is based on the work from the Saph Pani project (Hindi word meaning potable water). The book aims to study and improve natural water treatment systems, such as River Bank Filtration (RBF), Managed Aquifer Recharge (MAR), and wetlands in India, building local and European expertise in this field. The project aims to enhance water resources and water supply, particularly in water stressed urban and peri urban areas in different parts of the Indian sub-continent. This project is co-funded by the European Union under the Seventh Framework (FP7) scheme of small or medium scale focused research projects for specific cooperation actions (SICA) dedicated to international cooperation partner countries. Natural Water Treatment Systems for Safe and Sustainable Water Supply in the Indian Context provides: an introduction to the concepts of natural water treatment systems (MAR, RBF, wetlands) at national and international level knowledge of the basics of MAR, RBF and wetlands, methods and hydrogeological characterisation an insight into case studies in India and abroad. This book is a useful resource for teaching at Post Graduate level, for research and professional reference.

Hydrology and Water Resources of India

Contributed articles.

Natural Water Treatment Systems for Safe and Sustainable Water Supply in the Indian Context: Saph Pani

Proceedings of the 'The Festival of Water', held at New Delhi during 16-22 February 2004.

Strategic Analyses of the National River Linking Project (NRLP) of India

This book highlights the need for effective water governance in India given the fact that the country has been facing serious water stress in recent years. The water management in the country needs a serious scientific understanding coupled with the cooperative approach rather than a competitive one. It looks at current water regulations and underlines the need for overhaul of some laws to ensure that high water usage efficiency is attained, groundwater depletion is arrested and management of available resources is carried out in a disciplined manner. It also looks at the role of stakeholder engagement and pricing as a mechanism to manage demand in the wake of rapid population growth and industrialization.

Water

Waste Water Treatment and Water Management is an extension of the efforts to compile the treatment and management process of water along with its existing policies into one book. The author believes that the policymakers must rethink on ‘Polluter pays principle’ and if possible, need to redesign this concept as it somewhere gives freedom to damage the environment if one has enough money to pay.

Water Governance and Management in India

The paper reviews the existing methods used in India for estimation of flow characteristics at ungauged sites. It focuses on low and high flows, long-term mean flow and flow duration curves. Since it lists the actual formulae, it can be used as a quick reference guide for selecting a suitable technique for various geographical regional and/or river basins in India.

Water Management in India

India is a fast developing economy whose natural resource base, comprising land and water supporting agricultural production, are not only under enormous stress, but also complex and not amenable to a uniform strategy. This book addresses strategies for food security and sustainable agriculture in India, including lessons to be learned in other developing economies across the world.

Waste Water Treatment and Water Management

Contributed articles.

Food security and sustainable agriculture in India: The water management challenge

The supply of reliable and safe water is a key challenge for developing countries, particularly India. Community management has long been the declared model for rural water supply and is recognised to be critical for its implementation and success. Based on 20 detailed successful case studies from across India, this book outlines future rural water supply approaches for all lower-income countries as they start to follow India on the economic growth (and subsequent service levels) transition. The case studies cover state-level wealth varying from US$2,600 to US$10,000 GDP per person and a mix of gravity flow, single village and multi-village groundwater and surface water schemes. The research reported covers 17 states and surveys of 2,400 households. Together, they provide a spread of cases directly relevant to policy-makers in lower-income economies planning to upgrade the quality and sustainability of rural water supply to meet the Sustainable Development Goals, particularly in the context of economic growth.

Water Management, Food Security and Sustainable Agriculture in Developing Economies

Water is a prime natural resource and a basic necessity for sustaining life on earth. Supplying adequate amount of potable water to the global population is a gigantic task in the wake of growing industrial and domestic needs. The threat of climate change and global warming which has aggravated the problem of water shortage is of particular concern to India as we are largely dependent on glaciers and rainfall for water supply. The United Nations World Water Development Report, Water: A Shared Responsibility emphasizes the need for good governance to meet the ever-increasing demand for water. The report asserts that mismanagement, corruption, lack of appropriate institutions, bureaucratic inertia and paucity of investment in human and physical sources mar water management today. The situation calls for right policy decisions and adoption of sustainable practices. The problem is acute in India because of its high population density, space and time variability of rainfall and increasing depletion and contamination of its surface and groundwater resources. Most water resources in India are contaminated by sewage and agricultural run-off. Besides, overuse of pesticides and chemicals in agriculture is the primary cause of groundwater pollution in India. Further, uneven water distribution across the country is another aspect of water problem. A large area of the country is water deficit whereas a small part is bestowed with abundance of water. This has led to inter-state conflicts. The present anthology contains well researched articles by eminent scholars who have deeply analysed the problem and its various implications. Major factors responsible for the problem have been studied in detail and some measures have been suggested to retrieve the situation. The book will serve as a reference source for students, researchers and policymakers and all those concerned with an ensured supply of water across the country.

Strategic Analyses of the National River Linking Project (NRLP) of India: Promoting irrigation demand management in India : potentials, problems, and prospects

The AgWater Solutions Project, carried out between 2009 and 2012, focused on resolving water issues faced by smallholder farmers. The project examined existing Agricultural Water Management (AWM) solutions, together with factors that influence their adoption and scaling up. The project aimed to identify investment opportunities in AWM that have high potential to improve the incomes and food security of poor farmers. The work was undertaken in the African countries of Burkina Faso, Ethiopia, Ghana,

Tanzania and Zambia, and in the Indian States of Madhya Pradesh and West Bengal. This Working Paper series summarizes results and recommendations from the research carried out in each of these countries and states.

Community Management of Rural Water Supply

Did you know? • In 1999, a fight between two villages over water from a spring, located near Ta'iz in Yemen, resulted in six deaths and left another sixty injured. • In January 2018, the mayor of Cape Town declared 22nd April 2018 as 'Day Zero', since there was no water supply in the city. • A newly constructed dam in Ethiopia could jeopardize the lives of millions of people in Egypt in future. Read on to know who intervened in the Yemenis village water crisis to avert a civil war? How the city of Cape Town could avoid the doomsday of zero water? Or why Egypt and the countries in the Middle East are importing maize and other cereals, and resorting to a Virtual Water Trade? Also read about water harvesting, ground water recharge, water demand management practices followed across the world. This book is strongly recommended for all wise scholars and professionals who value water.

Water Crisis in India

This book analyses the underlying communication strategies and approaches of grassroots water management practices in India through a case study-based ethnographic approach. Drawing from fieldwork experiences, this volume provides a detailed overview of Parmarth, a not-for-profit NGO, which is the case study for this research. It presents an in-depth theoretically informed analysis of data collected through multiple methods, which includes key informant interviews, focus group discussions, participant observation, and document reviews, among other approaches. The book examines Parmarth's strategies and processes to mobilise women as important stakeholders in the region's water conservation initiatives. It discusses communicative actions, tactics and campaigns in water interventions and the role of various stakeholders ranging from local community members to civil society. Accessibly written, this volume is a must-read for scholars and researchers of media and communication studies, environmental communication, ecology studies, development studies, public policy, sustainable development, water management, sociology, and political science.

Investing in Agricultural Water Management to Benefit Smallholder Farmers in West Bengal, India

Sustainable Development Goal 6 (SDG 6) of the UN General Assembly states that 'Governments to ensure availability and sustainable management of water and sanitation for all'. It concentrates on all aspects of the water cycle: water; water resources management; water-use efficiency; water quality; waste water management; sanitation and health; and protecting freshwater ecosystems'. Contrarily, we daily witness the most perplexing paradox of merciless waste and pollution of water despite being aware that water is inadequate and is not going to last for long. Water inadequacy, be it physical, economical or quality related, is spreading fast to cover every continent. Although allocation of water to domestic sector in terms of total water use is quite less yet as per United Nations statistics water is impacting over 2 billion people who live in countries experiencing high water stress and about twice this number experience water scarcity at least for a month every year. The current book dwells upon the water quality issues and its impact on water supply scenario in general and domestic sector in particular. The book has been divided into seven chapters namely: Water Resources: Supply and Demand; Water Pollution; Water Quality Parameters and Standards; Laboratory Analysis of Water Samples; Raw Water Treatment; Treatment of Polluted Water; and Tips for Water Conservation. The topics covered in this book are quite relevant to civil engineers in general and public health engineers in particular, environmental specialists, agricultural engineers and all those concerned with water in any manner. It should prove to be a valuable reference for field practitioners, researchers, and policy makers. The topics/chapters included in the book have direct relevance to several Government sponsored programs such as National Rural Drinking Water Programme (NRDWP) and Namami Gange Programme of the Ministry of Jal Shakti, Development and Promotion of Clean Technologies of MoEF, and Many schemes of CGWB and CPCB. It can prove to be a valuable academic asset for libraries of colleges and universities worldwide.

Water Sustainability

This report explores the theory and practice of Adaptive Water Management (AWM) based on a detailed field study in the Lower Bhavani Project (LBP) in the South Indian state of Tamil Nadu. A five-step framework is used to analyze the extent to which AWM is practiced and how it could be improved. The

analysis shows that the LBP system has increasingly fulfilled the criteria of a complex adaptive system over the years. The main uncertainty factor, rainfall variability, has been considered in a stepwise way during the system change cycles and has been included in the LBP system design. The study shows that in spite of contending with an imperfect irrigation system design and intense competition for water resources, water resource managers and farmers are able to adapt and continue to reap benefits from a productive agricultural system.

Environmental Communication and Water Management in India

This collection of essays seeks to provide a comprehensive, holistic view of the problem of water resource management, highlighting its technical complexity and the importance of devising appropriate institutional arrangements in combination with more imaginative technology for providing irrigation facilities.

Recycling and reuse of treated wastewater in urban India

This handbook focuses on major water policy issues in India, the challenges and the critical measures that need to be addressed. It traces the development of policies in water and their management and has contributions by India's leading water specialists.

Drinking Water Quality Assessment and Management

This exhaustive account of water in India documents the natural beauty of the country's bodies of water, the ways in which communities live and interact with water (particularly in turbulent ecosystems), the resilience of people living in water-stressed regions, and common sense solutions to local water problems. Detailing the past, present, and future of India's water resources, this unique book combines thorough research with a coffee-table style presentation with photographs that document the authors' extensive travels across the country.

Adaptive water resource management in the South Indian Lower Bhavani Project Command Area

Water Policy Science and Politics: An Indian Perspective presents the importance of politics and science working together in policymaking in the water sector. Many countries around the developed and developing world, including India, are experiencing major water scarcity problems that will undoubtedly increase with the impacts of climate change. This book discusses specific topics in India’s water, agriculture and energy sectors, focusing on scientific aspects, academic and political discourse, and policy issues. The author presents cases from the interrelated sectors of water resources, supplies, sanitation, and energy and climate, including controversial topics that illustrate how science and politics can work together. Challenges the linear and conventional approaches to water management and water policymaking in India that are also applicable in developing countries across South Asia and Sub-Saharan Africa Presents best practice ideas and methods that help science and politics work together Highlights a key gap of communication between science and policy in water research, with solutions on how this can be addressed

Water Resource Management

Study with special reference to Kanyakumari District of Tamil Nadu, India.

Handbook of Water Resources in India

This comprehensive volume explores the interface between politics and policy making in the water management sector of India. The authors discuss the nature of the political discourse on water management in India, and what characterizes this discourse. They also explore how this discourse has influenced the process of framing water related policies in India, particularly through the ‘academics-bureaucrat-politician’ nexus and the growing influence of the civil society groups on policy makers, which are the defining feature of this process, and which have produced certain policy outcomes that are not supported by sufficient scientific evidence. The book reveals that the social and management sciences, despite being increasingly relevant in contemporary water management, are unable to impress upon traditional, engineer-dominated water administration to seek solutions to complex water problems owing to a lack of interdisciplinary perspective in their research. The authors also examine the current deadlock in undertaking sectoral reforms due to existing water policies not being honoured. This collection includes several research studies which suggest legal, institutional policy alternatives

for addressing the problems in areas such as irrigation, rural and urban water supply, flood control and adaptation to climate variability and change. It was originally published as a special issue of the International Journal of Water Resources Development.

Springs of Life

Travelling the length and breadth of the country to examine traditional structures and systems of water use, the author looks at water harvesting structures of southern India-the eris and ooranis-and the gharaats, the river-run flour mills of Uttaranchal. Each system, Jacob finds, takes into account the lay of the land, available raw material, as well as the social structure and make-up of the area it serves. Thus the springs of Uttaranchal, important for water supply and social interaction, are also accurate indexes of the caste lines along which the society using them is divided. The upper castes use the water nearest the source. The author also notes that in most places, modernization of water supply and management systems, which may range from plastic pipes that have replaced the more malleable bamboo for the shyngiar to inefficient dams, has not succeeded. Insightful, extensively researched and well argued, Jalyatra: Exploring India's Traditional Water Management Systems is important for a more comprehensive understanding of traditional practices in the management of our resources. It also makes the important point that new, improved ways of doing things may not always be the best.

Water Policy Science and Politics

Contributed articles.

Drinking Water Management

As a society, we are undergoing a number of interconnected changes, from burgeoning populations and rising standards of living, to widespread urbanisation and rapid environmental degradation, all under a changing climate. Together, these changes are having significant impacts on our freshwater systems. Rapid innovation is needed to adapt our water management practices and technologies in order to meet water requirements while maintaining and, where needed, restoring, the ecosystems that provide us with life sustaining services, so that the resource is also protected for the future. This book shows why and how emerging scientific knowledge and new technologies can support sustainable management and use of freshwater resources. It provides an introduction to what new science is out there, where it can contribute to sustainable water resources management, and what the next critical science gaps are that need to be filled. Designed to be accessible, yet comprehensive, the book is targeted at people interested in water resource management, but who may not be scientific experts in the various areas. The book takes an integrated, whole-system view, highlighting the importance of interdisciplinary and cross-sectoral working and the need for practitioners and researchers to work together to co-design and co-development future projects. It combines current scientific understanding with cases studies of application in the real world and includes chapters covering topics including: · The management of agricultural water demand using soil moisture measurements; · Enhancement of flood risk management and drought decision-making; · Monitoring river water quality and restoring urban lakes; and · Improved river basin planning. While the research presented was conducted in an Indian context, the scientific developments and potential solutions outlined are applicable to other parts of the world facing similar water challenges. Emerging Science for Sustainable Water Resources Management is edited by Dr Sunita Sarkar and Prof. Harry Dixon of the UK Centre for Ecology & Hydrology. It is an output from the 'Sustainable Use of Natural Resources to Improve Human Health and Support Economic Development' (SUNRISE) programme funded by the Natural Environment Research Council [award number NE/R000131/1]. The support and the contributions of Indian partner organisations to enable the active input of their staff towards this publication is acknowledged. Suggested citation: Sarkar S & Dixon H (Eds) 2021 Emerging Science for Sustainable Water Resources Management: A guide for water professionals and practitioners in India. UK Centre for Ecology & Hydrology 94pp.

Politics and Policies for Water Resources Management in India

Contributed articles.

Jalyatra

Papers In The Volume Address Issues Relating To Water Resources Sustainable Livelihoods And Eco-System Sciences In India-Emerging Problems Of Urban And Industrial Pollution, Analyse Institu-

tion Of Water Management And Aquatic Eco-System. Also Point Out Future Challenges And Directions For Policy Makers.

Strategic Analyses of the National River Linking Project (NRLP) of India: Water productivity improvements in Indian agriculture : poentials, constraints, and prospects

This book reviews and analyzes emerging challenges in water policy, governance and institutions in India. Recent times have seen the contours of water policy shaped by new discourses and narratives; there has been a pluralization of the state and a changing balance of power among the actors who influence the formulation of water policy. Discourses on gender mainstreaming and Integrated Water Resource Management (IWRM) are influential, though they have often remained rhetorical and difficult to put into practice. Debate over property rights reform and inter-linking of rivers has been polarized. At the same time, there has been a rising disenchantment with policy initiatives in participatory irrigation management, cleaning up of water bodies and pollution control. Fast depletion of groundwater resources and the importance of adopting new irrigation methods are getting increased focus in the recent policy dialogue. The contributors review current debate on these and other subjects shaping the governance of water resources, and take stock of new policy developments. The book examines the experience of policy implementation, and shows where important weaknesses still lie. The authors present a roadmap for the future, and discuss the potential of alternative approaches for tackling emerging challenges. A case is made for greater emphasis on a discursive analysis of water policy, to examine underlying policy processes. The contributors observe that the ongoing democratization of water governance, coupled with the multiplication of stresses on water, will create a more visible demand for platforms for negotiation, conflict resolution and dialogue across different categories of users and uses. Finally, the authors propose that future research should challenge implicit biases in water resources planning and address imbalances in the allocation of water from the perspectives of both equity and sustainability.

Emerging Science for Sustainable Water Resources Management

This book evaluates the history, the present and the future of water markets on 5 continents, beginning with the institutional underpinnings of water markets and factors influencing transaction costs. The book examines markets in seven countries and three different U.S. states, ranging from village-level water markets in Oman to basin wide formal water markets in Australia's Murray-Darling River basin. Introductory chapters on the background of water markets and on transaction costs and policy design are followed by chapter length discussion of water markets as an adaptive response to climate change and of supply reliability in a changing climate. Case studies describe a variety of facets of the design and function of markets around the world: California, Chile, Spain, Oman, Australia, Canada, India and China. In analyzing these real-world examples of markets, the contributors explore water rights and trading of rights between agricultural and urban sectors and the principles and function of option markets. They discuss different sized approaches, from large scale, ministry-level administration of markets to informal arrangements among farmers in the same village, or groups of villages which allocate water without large investment in management and infrastructure. Discussion includes questions of why water market practices have not expanded more rapidly in arid places. The book discusses mechanisms for resolving conflicts between water rights holders as well as between water right holders and third parties impacted by water trades and whether or not public ownership of water rights or use rights should trump private ownership and under what condition. Also covered are new and expanding categories of water use, beyond human consumption, agriculture and industry to new technologies ranging from extracting natural gas from shale to producing biofuels. The book concludes with suggestions for future water markets and offers a realistic picture of how they might change water use and distribution practices going forward.

Strategic Analyses of the National River Linking Project (NRLP) of India Series 5. Proceedings of the Second National Workshop on Strategic Issues in Indian Irrigation, New Delhi, India, 8-9 April 2009

It is becoming increasingly recognized that for the optimal sustainable development and use of natural resources, an integrated approach to water management, agriculture, food security and energy is required. This "nexus" is now the focus of major attention by researchers, policy-makers and practitioners. In this book, the authors show how these issues are being addressed in India as part of its economic development, and how these can provide lessons for other developing nations. They address the conflicting claims of water resources for irrigation and hydropower, where both are

scarce at the national level for fostering water and energy security. They also consider the relationship between water for irrigated agriculture and household use and its impact on rural poverty. They identify weaknesses in the current hydropower development programme in India that are preventing it from being an ecologically sustainable, socially just and economically viable solution to meeting growing energy demand. The empirical analyses presented show the enormous scope for co-management of water, energy, agricultural growth and food security through appropriate technological interventions and market instruments.

Water Resources, Sustainable Livelihoods, and Eco-system Services

This book highlights various challenges and opportunities for water management and cooperation in South Asia. In light of increasing urbanization and development in the region and related pressure on water resources, the contributions investigate water conflictual and cooperative attitudes and gestures between countries and regions; analyse management trade-offs between nature, agriculture and urban uses; and examine water sustainable management and related policies. By studying major river basins in the region, such as Indus, Ganges, Brahmaputra, Narmada, Godavari and Krishna, the chapters highlight socio-economic, infrastructural, environmental and institutional aspects of water scarcity in South Asia and present best practices for improved sustainable water management and security in the region.

Indian Water Policy at the Crossroads: Resources, Technology and Reforms

Water Markets for the 21st Century