



National water policies of India: A critical analysis with special reference to national water data policy 2026

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Abstract

This article examines the evolution of water policy in India and focusing on National Water Data Policy 2026. The increasing contention on water policy changes has garnered considerable academic focus in recent years, including topics such as water rights, groundwater management, access to clean water and sanitation, and gender parity. Climate change has intensified water shortages, requiring effective planning for enhanced governance and resource management in India.

Keywords: Water water policy, Indian constitution human right national water data policy

Introduction

Water, like to oxygen, is an essential need for life. If a national law is deemed essential for matters such as the environment, forests, animals, and biological variety, then a national law concerning water is even more imperative. According to the Indian Constitution, water is mostly a State topic; yet, it has become an increasingly significant national issue in relation to the right to water as an integral component of the basic right to life. The inter-use and inter-State conflicts resulting from this need a national agreement on water-sharing principles and measures to minimise and swiftly resolve disputes without resorting to adjudication wherever feasible. The enduring environmental, ecological, and social consequences of initiatives aimed at increasing water supply for human use. Water is an essential natural resource that necessitates collaborative efforts from the government, communities, and water consumers for its protection, preservation, and conservation for future generations. Designated as ecological systems, rivers, water bodies, aquifers, and wetlands need protection from overexploitation, contamination, and deterioration. Interference with natural river flows and ecosystems must be minimised, and building or sand mining in floodplains and riverbeds is forbidden. Moreover, initiatives must concentrate on rectifying previous harm to these aquatic systems. Water being part of the ecological system and dependent for its existence on the healthy functioning of that system, the protection and preservation of the integrity of that system, its regenerative and assimilative capacity and its ability to provide water, shall have overriding primacy in all policy and action relating to water. Water, given its fundamental role as a life sustainer, should be prioritised above all other functions. Alternative applications of water, including agricultural, industrial, and commercial purposes, although significant, must not compromise or decrease its essential function as a life sustainer, which is defined by the national water framework act (DRAFT)

NITI Aayog discusses the shift in India from a centralised to an integrated, participatory and technology-driven water governance paradigm in its 2023 publication, Compendium of Best Practices in Water Management 3.0. It does not create new legal rules, but records successful interventions of different States and nations, and provides practical recommendations for water security, climate resilience and

sustainable governance. These examples are important to assess the execution of India's National Water Policies and the National Water Data Policy, 2026. The Compendium exposes India's worsening water problem driven by fast urbanisation, population expansion, groundwater depletion, ineffective irrigation, climate change, floods, droughts, falling water quality and inadequate institutional coordination. Water shortages might shave as much as 6% off India's GDP by 2050, according to projections from the World Bank, but improved water management could raise the country's GDP and make it more resilient. This underscores the need for consecutive National Water Policies in order to encourage integrated water resource management and effective use. The Compendium emphasises the need to move from infrastructure-based methods to integrated water governance for water security. Main components include watershed development, groundwater recharge, rainfall harvesting, recycling of wastewater, digital monitoring, community engagement, legislative changes, ecological restoration and climate resilience. This mindset is in keeping with the National Water Policy 2012 which supports integrated management above the conventional supply side technical solutions. Examples include Tank User Groups in Karnataka, Village Water Committees and Farmers' groups. Successful water conservation projects depend upon local engagement. Decentralised institutions, as shown by Jala Samvardhane Yojana and Neeru-Chettu are more accountable, sustainable and maintainable of water infrastructure, according with the goals of the National Water Policy. Although the Compendium predates the National Water Data Policy, 2026, it emphasizes that effective water management relies on reliable data. It presents case studies using technologies such as GIS, remote sensing, satellite monitoring, smart metering, IoT devices, AI, and digital irrigation management to provide continuous information on groundwater levels, rainfall, canal flow, reservoir storage, crop water demand, and flood forecasting. Consequently, the Compendium aligns with the goals of the National Water Data Policy, 2026, to create a standardized and accessible national water information system. Key contributions of the Compendium include its emphasis on smart water infrastructure. Technologies such as smart metering, satellite-assisted irrigation, AI-based stormwater

management, and digital flood forecasting and automated canal control. These innovations improve efficiency, transparency, fair distribution and operational planning, in line with the National Water Data Policy's digital transformation objectives.

The Compendium also includes initiatives to recharge groundwater, favouring the restoration of existing water bodies over the building of new reservoirs, in keeping with the conservation focus of the National Water Policy. And it recognises the historic water systems of India, and seeks their restoration as ecological assets that enrich biodiversity and rural lives. With regard to wastewater reuse, the paper suggests the integration of treated wastewater into agricultural, industrial operations and urban supplies for reducing the dependency on freshwater resources. It also tackles climate resilience with flood forecasts and certain management activities. It points out the necessity for governance methods that deal with droughts and floods. Finally, the research identifies successful state-level policy-led initiatives that show how personalised implementation supported by national policies is more effective than a one-size-fits-all strategy.

How did the water policy evolve

India was one of the first nations to adopt the National Water Policy (NWP) in 1987. In 1985, the Ministry of Water Resources created the water policy, which eventually became the Ministry of Water Resources, River Development and Ganga Rejuvenation in 2014. Now, it has been renamed as 'Ministry of Jal Shakti'¹ (Jal Shakti Mantralaya) w.e.f. 14th June, 2019. The Ministry of Jal Shakti is currently working with two separate departments namely Department of Water Resources, River Development and Ganga Rejuvenation also known as 'Jal Sansadhan, Nadi Vikas Aur Ganga Sanrakshan Vibhag' and another as Department of Drinking Water and Sanitation also known as 'Peya Jal Aur Swachhata Vibhag' (formerly called as Ministry of Drinking Water and Sanitation formed in 2011).

The creation of NWP's in India is done via federal government structure by pooling the involvement of bureaucrats of many divisions and public figures. The first National Water Policy (NWP) was established in 1987, which was revisited in 2002 and changed in 2012.

The pre-colonial history of water law in India from 2500 BC to the 16th-17th century AD may be split into two parts, ancient India and mediaeval India, the time of the advent of the Muslims and the Mughals. Water law in ancient India developed slowly on the basis of customary practices, religious beliefs and written rules, thereby giving an initial historical backdrop to the formation of water law. The Indus Valley Civilisation flourished approximately 2500 BCE and depended extensively on water for human usage and irrigation, as shown in the Great Bath of Mohenjodaro. As civilisation moved from food gathering to agriculture, the veneration for natural resources declined, resulting in deforestation and land-use changes, with Varuna and Indra as important deities. Between 500 BCE and 300 CE, agricultural surpluses fuelled commerce and the development of Jainism and Buddhism, which promoted conservation. With the evolution of agricultural systems, lower castes were brought into established agriculture, inspired by Buddhist teachings. But around 400 CE, the demise of these faiths coincided with a drop in agricultural

production, caused by limitations of resources. The Gupta period followed, with a move to conservation and then later innovations in irrigation technologies which allowed for large-scale agriculture, replacing pastoralism. The Great Bath at Mohenjodaro is an example of how the Indus Valley Civilisation, which flourished around 2500 BCE, depended significantly on water for agriculture and personal usage. With Varuna and Indra as important deities, the respect for natural resources declined as civilisation shifted from collecting food to farming, resulting in deforestation and changes in land usage. Agricultural surpluses fuelled commerce and the rise of Buddhism and Jainism, which promoted conservation, between 500 BCE and 300 CE. Buddhist ideas impacted the integration of lower castes into established agriculture as agricultural methods changed. But by 400 CE, a decrease in these faiths was linked to lower agricultural productivity because of a lack of resources. Pastoralism was replaced by large-scale agriculture during the Gupta era, which was characterised by a move toward conservation and subsequent developments in irrigation technology. Hinduism is defined as a living tradition that upholds universal truth and holds that harmony results from human behaviour that is consistent with dharma, which is represented in the Vedas. The Laws of Manu set out rules for the management of water, stressing its indivisibility and the need to build waterworks for the benefit of the community. Kings are responsible for safeguarding public waterways, enforcing fines for pollution or obstruction, and prioritising fair access. A political book that describes government from around 350 BCE to 150 CE, the Arthashastra asserts royal ownership of water and specifies use levies. It forbids violating the water rights of others and requires payment for damages. The book permits treaties on cooperative water management while outlining the sources of law and emphasising the significance of upholding dharma for social order. Beginning in the eleventh century, Islamic kings administered Northern India, followed by Mughal dominion in the sixteenth century until the advent of European colonisation. The precepts of Islamic law, including the notion that water is a divine gift available to all, were probably adopted during this period. These principles confer onto both people and animals the entitlement to extract water from any source. The precise influence of Muslim governance on water management remains ambiguous, since Islamic authorities often allowed pre-existing institutions to persist, enforcing Islamic law mostly among Muslims. The abundant supply of water in India during this era may have reduced disputes related to Islamic rules, thereby explaining the less emphasis on institutional water control. European colonization in India began in the fifteenth century and intensified during the Industrial Revolution. It transitioned the economy from resource-based to commodity-driven, disrupted social cohesion, and emphasized personal wealth over community. Although less intense than in Africa, British practices led to extensive deforestation and weakened local irrigation systems, contributing to small farmers' poverty. Initially, local regulations were untouched unless conflicting with British interests, later leading to a pluralistic legal system. Key legislative efforts, including the Bengal Regulation VI of 1819 and the Charter Act of 1833, aimed to codify laws, while the Northern India Canal and Drainage Act (1873) established governmental authority over surface waters without claiming outright ownership. The Government of

India Act (1935) further delineated responsibilities for water management between authorities, reinforcing state power over water rights and management. Throughout, common law principles largely shaped water governance, with lasting impacts on local customs and rights. Post-colonial water law embodies the impact of colonial legacies in conjunction with advancements in constitutional and federal legislation. Since gaining independence in 1947, states have addressed several water-related challenges, including irrigation, conservation, and pollution. Despite the introduction of new legislation, some colonial statutes persist, hindering a thorough reform of water rights associated with property ownership. A transition towards more substantial alterations has been seen since the 1970s, propelled by diminishing water supplies, heightened pollution, and competing utilisation requirements. Moreover, official legislation has progressively supplanted customary practices, affecting local governance and institutional structures pertaining to water management. The Constitution of India (1947) continues the previous legislation and declares water to be a state subject, which provides states exclusive jurisdiction to regulate different water-related activities (art. 372, Schedule 7, List 2). Interstate rivers are subject to limits on their use, under the legislative competence of the Union which may act on navigation and decide on interstate water disputes (Schedule 7, List 1, art. 262). The Inter-State Water Disputes Act (1956) set up a system of tribunals to solve disputes such as those over the Cauvery, Krishna-Godavari and Narmada rivers. The River Boards Act (1956) also gives the Central Government the power to set up river boards to assist states on the management of interstate rivers, although this has not been put into practical use.

National Water Policy, 1987

The National Water Policy of 1987 was directed at improving irrigation, increasing food output from 150 million tonnes to 240 million tonnes by 2000 and providing drinking water for all and sanitation for 80% of the urban and 20% of the rural population. It emphasised the need for the use of ground water, flood management, drought mitigation, pollution control, creation of a National Information System and Farmer Managed Irrigation Systems. However, owing to lack of reaction from the state governments, important components could not be implemented and so the program could not achieve its goals.

National Water Policy, 2002

The Second National Water Policy of 2002 has stressed on concepts of Integrated Water Resources Management, environmental concerns and new science and technology. But it did not make the changes needed to minimise flooding, increase irrigation, reduce pollution and provide sanitation. These suggestions could not be translated into practice even though they proposed a 'Dam Safety Legislation', modifications to the Inter-State Water Disputes Act and safeguards for the existing water bodies.

The National Water Policy, 2012

The National Water Policy, 2012, included guidelines for management of water resources but had various flaws. Some of these were delay in setting up of River Basin Agencies, poor implementation, inter-state conflicts and overestimation of water availability. Important factors such as historical water cultures, irrigation energy nexus, present

patterns of water uses, IWRM principles and privatisation challenges were neglected. Moreover, the strategy lacked the 'subsidiarity principle' for decentralised decision-making and did not emphasise the need for various water users or the geographical and socio-economic differences throughout the nation.

The Ministry of Jal Shakti has released the National Water Data Policy, 2026 to improve India's water governance with an integrated, open and technology-driven strategy for water data management. The policy abolishes the Hydro-Meteorological Data Dissemination Policy, 2018 and aims at making water data the foundation for evidence-based policy making, Integrated Water Resources Management (IWRM), climate resilience, disaster management and sustainable development.

Background and Need for the National Water Data Policy 2026

Scientific water management is essential for India's prosperity and to preserve the ecology. To better administer water-related duties, the government has created the Ministry of Jal Shakti. NITI Aayog developed the Composite Water Management Index in 2018, the first instrument of its kind to promote cooperative and competitive federalism among states. This index offered a strong assessment of effectiveness in water management and was commended for providing States with practical insights into their performance and areas for development to ensure water security in the future. The CWMI is a crucial instrument for assessing and enhancing the performance of States/ Union Territories in the effective management of water resources. This has been done via a first of its kind water data gathering operation in conjunction with Ministry of Jal Shakti, Ministry of Rural Development and all the States/ Union Territories. The index would assist the States and the relevant Central Ministries/Departments in developing and putting into effect appropriate plans for improved management of water resources. CWMI 2.0 ranks states for 2017-18, maintaining Gujarat in first place, followed by Andhra Pradesh, Madhya Pradesh, Goa, Karnataka, and Tamil Nadu. In the North Eastern and Himalayan region, Himachal Pradesh ranks first, with Uttarakhand, Tripura, and Assam following. Puducherry leads among Union Territories. Haryana shows the most significant improvement among general states, while Uttarakhand tops the North Eastern and Himalayan states. Overall, 80% of assessed states have improved their water management scores, with an average increase of +5.2 points. India has roughly 17% of the world's population but only about 4% of the world's renewable freshwater resources, therefore water management is crucial. The plan acknowledges a number of significant issues in the water industry. Water stress is increasing due to rapid population rise and urbanisation. Increasing demand for water for agricultural, industrial and domestic purposes. Depletion of groundwater. "Water is contaminated with untreated sewage and industrial waste. Floods. Droughts. Climate Change. Regulations poorly coordinated. Governance fragmentation.

It 2026 (NWDP) recognizes that poor access and management of water data is a major cause of poor water governance. Current data is scattered between agencies, collected in different formats and lacks standards or interoperability.

The Vision of the National Water Data Policy 2026

To encourage open, integrated and shared water data for sustainable water resources management and water security. Its objective is to provide a national institutional framework with digital infrastructure that supports open, standard and interoperable water databases including government, academic institutions, corporate organisations and civil society.

The policy is designed to accomplish five primary goals: Promote integrated management of water resources. Enhance flood and drought and climate disaster preparation. Open access to water information will increase openness and public involvement. Support research, innovation and science-based decision making. Use water as an economic resource. Unlike earlier policies that mostly focused on infrastructure, this strategy recognises water information itself as key national infrastructure.

Key Features of the National Water Data Policy 2026

The policy sets up a complete water data management governance framework with a National Steering Committee, National Technical Committee, National Implementation Committee and National Water Data Users Committee. State levels are proposed to have similar organisational set ups. Key Institutions for Implementation are recognised as: National Water Informatics Centre (NWIC) and State Water Informatics Centres (SWICs). The strategy addresses the development of a National Water Data Portal and Federated Water Data Hubs, emphasising the use of common metadata standards, API-based data interchange, GIS-enabled data sets, and automatic update mechanisms. This program brings together siloed departmental data repositories into a single national ecosystem. It brings together data on different elements like water quantity and quality, groundwater, reservoirs, water consumption, climate, irrigation, infrastructure, floods, droughts, ecosystems and energy-water nexus, with the purpose to better data quality and comparability. The strategy fosters the use of satellite and digital technologies such remote sensing, GIS, satellite images, artificial intelligence, decision support systems, hydrological modelling and real time monitoring. Potential satellite uses include mapping of groundwater, monitoring of irrigation, evaluation of water quality, forecasting of floods, prediction of drought, calculation of water availability and monitoring of crops. Secondly, the policy is in line with the FAIR principles (Findable, Accessible, Interoperable and Reusable) while preserving the categorisation of sensitive data on hydrology of border river basins for national security. The National Water Data Policy is a digital basis for the past National Water Policies. It helps in evidence based policy making, basin level planning, groundwater management, climate adaptation, catastrophe risk reduction, inter state cooperation and public accountability. The policy does not replace current water policy but provides an enabling framework.

Critical Analysis of this present National Water Data Policy 2026

Strengths of the water governance strategy include a move towards data-driven governance, improved institutional coordination across all levels of government, and more openness via open data, which encourages public involvement and innovation. It recognises climate resilience by using predictive analytics and it supports innovation in

areas like AI and smart irrigation. However, there are important drawbacks such as the idea that greater data alone improves governance without addressing concerns like as political meddling and insufficient enforcement. There is no strong legal basis for the policy and the execution may not be consistent. Federal hurdles come from state sensitivity to data sharing, and privacy issues connected to growing digital databases. Moreover, there are capacity restrictions in training, infrastructure, and resources for implementation while community engagement is low and so is the attention to groundwater governance.

The National Water Data Policy, 2026 is an important step forward in India's water governance by recognising that the successful management of water resources is dependent on accurate, interoperable and accessible data. It proposes a contemporary architecture of digital governance which may promote transparency, scientific planning, catastrophe preparation and public engagement. But its success will rely on strong execution, better legislative backing, efficient Centre-State collaboration, institutional capability and persistent political commitment. This policy should be considered as a crucial enabling framework for modernizing water governance for a critical analysis of India's National Water Policy, but it needs complementing legislative and institutional changes to transform data-driven insights into equitable and sustainable water management.

Human Rights and the Social and Environmental Aspects of Water

The United Nations acknowledges that water and sanitation are human rights that are crucial for everyone's health, dignity and prosperity. But billions lack access to safely managed water and sanitation. In 2010, the UN General Assembly and the Human Rights Council for the first time recognised the human right to clean drinking water within the framework of binding international law. Everyone has the right to adequate water for personal and domestic use that is safe, acceptable, physically accessible and inexpensive.

The Supreme Court of India has recognised the Right to Water as a basic human right under Article 21 of the Indian Constitution and related it to the Right to Life. This increases the right to health, clean environment and to access to potable water. The Supreme Court in *Subhash Kumar vs State Of Bihar And Ors* on January 9, 1991 said that Article 32 is an unusual remedy for protection of basic rights and provides for the enforcement of fundamental rights. Article 21 provides for the right to life and it includes the right to pollution-free water and air and in case there is any pollution which endangers the quality of life in violation of the law, a person may have recourse to Article 32.

Article 39(b) speaks about state policy for the ownership of communal resources for the benefit of the community. Article 47 directs to promote the diet and public health. Article 51 (A) (g) directs residents to conserve the environment. Article 262 provides for the settlement of disputes relating to inter-state water disputes. Says water rights are riparian rights and not basic rights protected by the Constitution.

The Court in *Vellore Citizens Welfare Forum v Union Of India* (1996) established that individuals or entities engaged in hazardous activities are liable for any resulting damage, regardless of the precautions taken. This is rooted in the 'Polluter Pays' principle, which mandates compensation for

both victims of pollution and restoration of the environment. Additionally, the court recognized the 'precautionary principle' and affirmed that Article 21 of the Indian Constitution protects life and personal liberty, emphasizing the obligation of polluters to address environmental damage.

Conclusion

India's legal framework addresses water issues through various indirect means, such as riparian rights and pollution control, but lacks comprehensive legislation recognizing the right to water. A rights-based approach is essential, advocating for a law that guarantees access to safe, affordable water. Implementation faces challenges due to inconsistent policies across various levels of government, compounded by socio-economic sensitivities and resource allocation issues. Coordination among different authorities is problematic, with inadequate data hindering effective planning and management. Though advancements in data-driven governance and innovation exist, there remain critical drawbacks, including political interference and lack of community engagement, which impede water governance efficacy.

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