LEGAL CHALLENGES IN WATER SECTOR: INDIAN PERSPECTIVE

Abstract

The effects of climate change on water sector are well recognized, although less is known about the legal challenges in water sector from the perspective of equitability and sustainability. This study explores the intricate legal complexities of Indian water sector and highlights a wide array of challenges encompassing it. A meticulous scrutiny of existing legal framework, laws, regulations, and policies are undertaken to understand and identify water governance issues in Indian context. Uneven water distribution and inter-state water disputes, groundwater depletion and its regulation, water pollution control, traditional and customary water rights and access to clean water, privatization and commercialization of water services, water infrastructure development and land acquisition, ecosystem protection and biodiversity, climate change impact on water resources and regulatory framework and coordination among law enforcing agencies were all examined through a SWOT analysis and a holistic evaluation of the water sector in different regions of the country. A system of overall region-wise assessment of challenges in water sector was developed and utilized to evaluate region-wise water sector. The western region is facing maximum challenges in the water sector, whereas the eastern region is found relatively well managed. Lastly, the study advances a set of recommendations designed to enhance the governance and management of water, ultimately addressing the multifaceted issues that this critical sector faces. These recommendations were examined in the context of opportunities, threats, and overall assessment and legal challenges of Indian water sector. The findings of the study shall be vital for policymakers, stakeholders, and researchers working in the field of water sector for

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achieving water security, sustainability, and equitable access as set forth in SDGs for all citizens.

Keywords: Challenges, Law, Legal Instruments, Policy, Regulations, Sustainability, SWOT analysis, Water, Water Security.

I. INTRODUCTION

Water is a scarce and critical resource in India. The management of water is vital for India's economic development, social well-being, and environmental sustainability. In the Indian context, the water resources are of extreme importance owning to their multifaceted role not just in sustaining livelihoods and agricultural activities [1], but also for industrial development [2] and ecological systems [3]. Food production and rural employment forms the fundamental of the predominantly agrarian economy of India [4]. The significance of water in India has always remained crucial to its development ever since Indus Valley Civilization, when advanced water systems were at the forefront of achieving sustainable agriculture during those times [5]. Presently, the country is faced with the challenges of providing water to the urban population [6] which includes access to potable water [7]. Inter-state water disputes [8], adaptation to climate change impacts [9] and water pollution and its health implications [10] are the other important aspects accentuating the significance of water resources management in the country.

Water resources management calls for ensuring equitable, efficient and sustainable allocation of water for various essential uses which requires a robust legal framework which incorporates the benefits of clarity and certainty, efficiency, equity and sustainability [11, 12 & 13].

There is enough research evidence to suggest that a robust legal framework for managing water resources in India is the need of the hour. Such a framework shall prove vital in addressing the treacherous challenges of allocating water while ensuring its quality and sustainability throughout the country. The framework shall play a pivotal role in the equitable allocation of water among sectors and individuals [14], in the resolution of inter-state and transboundary water conflicts among the state governments [8], in the integration of mechanisms for environmental protection, preservation and conservation of ecosystems [15], for promotion of responsible, efficient and optimal use of water [16] and for fostering public private partnership (PPP), transparency & accountability in water governance within the country [17]. In light of the importance of water resources for India's agriculture, industry and environment the need for a legal framework accommodating the diversity and dynamism ought to be recognized.

The present chapter, with a view to carry out an in-depth analysis attempts to comprehensively explore the policies, laws, regulations and rules governing the water resources in India. The study primarily aims to offer a holistic overview of the intricate legal regime concerning water resources management in the country. By delving into various aspects of existing legal instruments the study seeks to identify prospects for efficient water management and its effective governance through SWOT analysis & overall assessment of the region-wise water sector of the country. Rather than putting forth mere analysis, the study also targets to advance pertinent recommendations that are based on both historical precedents and contemporary challenges all aimed at fostering efficiency, equitability and sustainability in water resources management throughout the country.

II. LEGAL CHALLENGES IN WATER SECTOR

1. **Uneven Water Distribution and Inter-state Water Disputes:** The per capita availability of water in India is just 1,545 cubic meters, which is quite lower than the global average of 5,060 cubic meters, making India water stressed country. This scarcity is aggravated further by the uneven distribution of this precious natural resource. In addition, the already worst condition of uneven distribution shall turn hostile in the realm of climate change which shall adversely affect the Indian economy, agriculture and the society [18].

The uneven distribution of water resources is a major challenge for all regions of India (Table 1). However, it is especially challenging for West India, which is already a water-stressed region.

Table 1: Region-Wise Distribution of Water Resources

Region	Per capita water availability (Cubic meters per year)
North India	1037
South India	1125
East India	832
West India	780

In India, a complex and multifaceted system to govern water allocation among states and user group is employed. This system has its roots in both constitutional and statutory provisions. Constitutional provisions lay down that the matters under Entry 17 of List-II (State List) be the empowering provisions for a state government to legislate water within their jurisdiction. The Entry 56 of List-I (Union List) is an enabling Constitutional provision conferring the central/federal government the jurisdiction over inter-state water disputes. Therefore, specialized tribunals like the Cauvery Water Disputes Tribunal and the Krishna Water Disputes Tribunal have been established under the Inter-State Water Disputes Act, 1956 for the adjudication of disputes. Though, these tribunals are challenged with numerous aspects that delays dispute resolutions. Furthermore, the Water (Prevention and Control of Pollution) Act, 1974 [19] and the National Water Policy, 2012 [20] are instrument that are meant to regulating water quality and equitable distribution, respectively [21]. The concept of integrated water resource management (IWRM) and decentralized governance mechanisms are also utilized by India with a view to accommodate public participation and sustainability in water management [21]. These legal frameworks are the backbone for addressing the prevalent and looming crisis of water scarcity, water pollution and equitable distribution of water resources within the country’s intricate federal structure.

2. **Groundwater Depletion and Regulation:** In India, over-exploitation of groundwater for domestic, agricultural and industrial use is leading to unprecedented depletion of groundwater [22]. Millions of citizens fully dependent on groundwater has not only ensured fall in water tables and resulting land subsidence but a looming crisis for all those in the country whose only significant source of freshwater is groundwater [23]. Table 2

shows the extent of groundwater over-exploitation in the country. Though, to tackle this situation the Government of India has enacted the Model Groundwater (Sustainable Management) Act, 2020 which is expected to ensure groundwater conservation and sustainability of groundwater resource [24]. The Central Ground Water Authority (CGWA) is the apex body responsible for implementing control and regulations of groundwater extraction. The authority is also mandated to promote groundwater recharge within the country. However, these regulations have been largely ineffective due to weak implementation and enforcement [25].

Table 2: Region-Wise Groundwater Depletion

Region	Percentage of over-exploited area
North India	78 %
South India	47 %
East India	27 %
West India	58 %

3. **Water Pollution Control:** The water pollution in India is a most important problem that has serious health and environmental penalties (Table 3). India's population explosion, rapid industrialization and urbanization pose before us the critical concern of water pollution control [26]. The cornerstone instrument regulating and preventing water pollution in the country was enacted way back in 1974 popularly known as The Water (Prevention and Control of Pollution) Act, 1974 [19]. The act enables provisions for establishment of pollution control boards at both central and state levels. During 1995, with a view to improve river water quality, the National River Conservation Plan (NRCP) was introduced to control pollution in major Indian rivers and their tributaries.

Table 3: Region-Wise Water Pollution of Surface and Groundwater

Region	Extent of surface water pollution	Extent of groundwater pollution
North India	High	High
South India	Medium	High
East India	Medium	Medium
West India	High	High

Albeit, the government has endeavoured to regulate water pollution, there are still problems, such as poor enforcement, old infrastructure, and the increasing complexity of pollutants. Finding solution to these problems, calls for a need to take a comprehensive approach that embraces strict rules, new technologies, making people aware, and getting stakeholders involved at various stages of dealing water pollution [27].

4. **Traditional Water Rights and Customary Laws & Access to Clean Water:** The rural and indigenous communities of India have been accessing clean water through traditional water rights and customary laws [28]. Traditionally, these rights and accustomed practices have overseen allocation, distribution, and management of water resources in a decentralized style, often passed down through generations [29]. Traditional rural water

management systems are being challenged by modern legal frameworks that are designed to serve the needs of urban populations. This has led to conflicts over water resources [30]. It is indispensable to distinguish and assimilate customary water rights into modern-day water management strategies, valuing the cultural and historical connotation of these practices while safeguarding access to clean water for all citizens. The United Nations Sustainable Development Goals (SDGs) No. 6 acknowledges access to clean water in India as a fundamental human right [31]. Table 4 shows some statistical data regarding region-wise access to safe drinking water in India. Still today, the rural and marginalized communities of India are facing challenges in access to safe drinking water (NRDWP) and accordingly the government has launched initiatives to ensure equity and inclusivity in household water supply [32, 33]. Yet, issues such as water quality, contamination, and the sustainability of these sources continue to be the pressing issues [34]. Dealing with these difficulties necessitates a multi-dimensional tactic that reflects traditional water rights, customary laws, and community participation in addition to modern regulatory frameworks that guarantee universal access to clean water.

Table 4: Region-Wise Access to Potable Water

Region	Percentage of households with access to safe drinking water
North India	82.50 %
South India	91.20 %
East India	80.10 %
West India	86.30 %

5. **Privatization and Commercialization of Water Services:** Over the years, privatization and commercialization of water services in Indian context have always attracted substantial argument and distress [35]. The participation of private establishments in water supply and distribution is driven by the conviction that it can set in motion increased efficiency, better infrastructure development, and enhanced service quality [36]. Nevertheless, this approach has also generated deep worries about affordability, equity, and accountability in water sector. However, some people have raised doubts that privatization can lead to higher water tariffs, leaving marginalized communities struggling to access this essential resource [37]. Policymakers are still grappling with how to achieve equity and efficiency in the Indian water sector. Table 5 shows region-wise privatization and commercialization of water services in India.

Table 5: Region-Wise Privatization in Water Sector

Region	Number of cities with privatized water supply
North India	12
South India	8
East India	6
West India	10

In India, the legal frameworks governing water privatization and commercialization establish a diverse background moulded by both national and state-level regulations. Key legislation such as the Water (Prevention and Control of Pollution) Act, 1974 [19], and the Environment (Protection) Act, 1986 [38], only institute water quality standards and environmental considerations, while state-level municipal laws and urban development regulations does make available the foundation for local privatization initiatives and public-private partnerships (PPPs) in water and sanitation services. Moreover, the National Water Policy of 2012 [20] stimulates private sector participation in water management, underlining access, sustainability, and productivity. Yet, the application of privatization policies airs challenges interconnected with accountability, transparency, and equitable access, demanding constant corrections and refinements to the legal framework to embark upon the sprouting complications of water privatization while safeguarding the public interest [19, 39, 40].

6. **Infrastructure Development and Land Acquisition:** The loss to the public due to large water resources infrastructure projects in India is significant (Table 6). Large-scale infrastructure projects in India have had a noteworthy impression on local people and their environs [40]. Land acquisition for these developments has been contentious raising a lot of legal and ethical fears. The Land Acquisition, Rehabilitation, and Resettlement Act, 2013, was passed to deal with some of these problems by enacting a legal framework for fair compensation, rehabilitation, and resettlement of affected persons [41]. However there still remain challenges such as identifying beneficiaries, timely disbursement of compensation, and effective rehabilitation, especially for the marginalized clusters [42].

Table 6: Loss to Public due to Large Water Resources Infrastructure Projects in India

Nature of loss	Gravity of loss
Loss of land and livelihood	Since independence approximately 40 million people have been displaced due to large water resources infrastructure projects.
Environmental damage	According to a study large dams have caused the displacement or extinction of over 40,000 species of fish and other aquatic organisms.
Cost overruns and delay	According to a study by the Comptroller and Auditor General of India, the cost of large water resources infrastructure projects has exceeded the original estimates by an average of 60%.
Corruption and mismanagement	A study by the World Bank found that India loses over $15 billion each year due to corruption in the water sector.

Property rights and compensation are fundamental to the debate around far-reaching infrastructure projects in India. The valuation of land and assets, time and again based on archaic approaches, may produce disputes and grievances among landowners [43]. Sengupta & Gangopadhyay (2017) [44] believes that ensuring fair compensation and addressing property rights concerns is crucial to moderating conflict and protection of social justice in the context of land acquisition for development projects. Striking a balance between economic development and protecting the rights and livelihoods of

affected people remains an intricate encounter for policymakers and the legal system in India [45].

7. **Ecosystem Protection and Biodiversity:** In the Indian context, balancing growth with environmental conservation, mostly concerning rivers and wetlands, is a multifaceted undertaking. Legal processes have been applied to guard these ecosystems. The Water (Prevention and Control of Pollution) Act, 1974 [19], and the Environment (Protection) Act, 1986 [38], form the initial legal framework for environmental conservation in water bodies. In addition, initiatives like the National Wetland Conservation Program also target to classify, conserve, and sustainably deal with ecologically significant wetlands [46]. Sustainable resource management acts time and again encompass a combination of legal regulations and community-based efforts. Integrated water resource management (IWRM) principles, as advocated by the National Water Policy, 2012, underscore all-inclusive and participatory tactics to water conservation [20]. While community-driven resourcefulness have revealed promise, safeguarding the long-term sustainability of these measures call for sustained collaboration, robust enforcement of environmental laws, and a level transition in the direction of more environmentally friendly development practices [47].

8. **Climate Change Impact on Water Resources:** Region-wise projected climate change impact on water resources in India is shown at Table 7. India's water resources and ecosystems have been facing significant challenges due to ever-changing patterns of precipitation and melting of glaciers due to climate change [48]. The Water (Prevention and Control of Pollution) Act, 1974 [19] and the National Action Plan on Climate Change (NAPCC) [49] are the two policy instruments that are aimed at curbing the negative impacts of climate change in Indian context. These plan of action, attempts to optimize and promote water resources management through sustainable practices for mitigating the adverse effects of ever-changing climatic patterns. The approaches for resilience and mitigation incorporate a spectrum of tactics that ranges right from the implementation of efficient irrigation techniques and the construction of rainwater harvesting systems to afforestation in addition to watershed management. All these measures are aimed at enhancing water security and ecosystem resilience [49]. India's commitment towards combatting climate change reflects in these legal adaptations and proactive strategies in safeguarding the nation's water resources and ecosystems.

Table 7: Region-Wise Projected Climate Change Impact on Water Resources

Region	Likely climate change impact on water resources
North India	Increased frequency and intensity of droughts, decreased snowpack in the Himalayas, increased glacial melt, increased risk of flooding
South India	Increased frequency and intensity of droughts, decreased rainfall variability, increased risk of sea level rise and coastal erosion
East India	Increased frequency and intensity of cyclones, increased rainfall variability, increased risk of flooding
West India	Increased frequency and intensity of droughts, increased rainfall variability, increased risk of sea level rise and coastal erosion

9. **Regulatory Frameworks and Coordination:** The complexity of legal and regulatory frameworks relating to numerous aspects of natural resource management and its conservation is quite evident in India [50]. There exist several laws and regulations laid down by state and central government departments and ministries which all lead to countless challenges regarding its coordination and its harmonization [51]. Various government agencies, such as the Ministry of Environment, Forest and Climate Change (MoEFCC), the Central Pollution Control Board (CPCB), and state-level pollution control boards, play pivotal roles in implementing and enforcing environmental laws [52]. Nonetheless, the need for restructuring and co-ordinating these frameworks have become gradually evident to ensure effective governance and compliance [53]. With a view to enhance efficiency in resource management, and meet the nation's sustainability goals it becomes imperative to achieve a coherent legal and regulatory landscape to address pressing water governance issues in India [51].

III. SWOT OF INDIAN WATER SECTOR

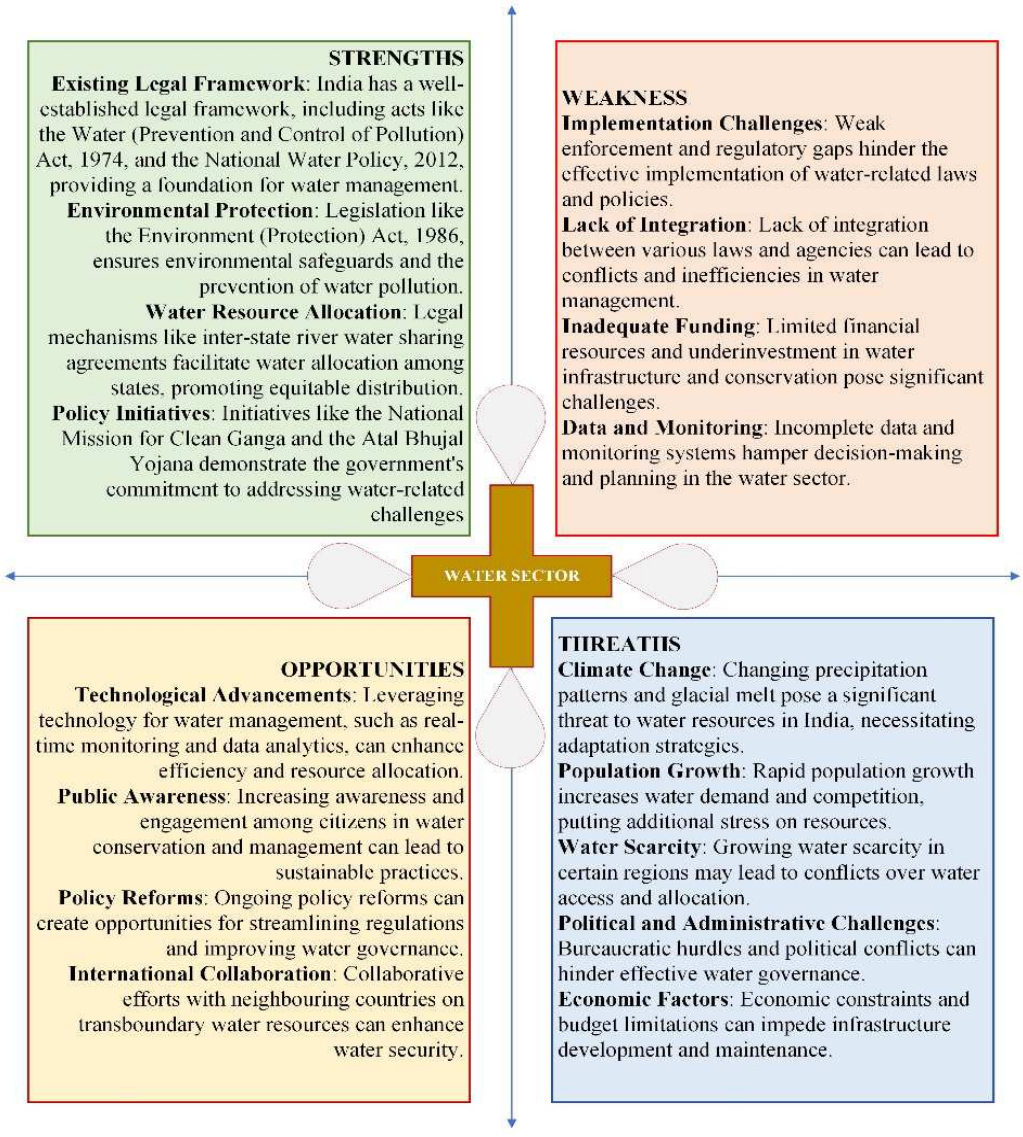

Figure 1: SWOT analysis of water sector

A SWOT analysis (Figure 1) of various laws, regulations, policies, acts, and procedures concerning the water sector is a simple and effective way to identify and understand the strengths, weaknesses, opportunities, and threats to develop a better understanding of the current situation, make informed decisions about the future, and identify areas for improvement.

While India's water sector exhibits benefits of having a legal framework and policy initiatives, several weaknesses also encompasses this sector which includes issues regarding implementations of legal instruments and environmental threats. Leveraging opportunities like technological advancements, policy reforms, and public engagement can help address these challenges and ensure sustainable water management in India.

IV. THE ROLE OF RESEARCH AND POLICY IN SHAPING THE FUTURE OF WATER GOVERNANCE IN INDIA

Both research and policy formulation holds a key position in prompting the course of water governance in India [54]. Through rigorous scientific investigations research helps the resolve of recognising prevailing challenges within the water sector, innovating novel solutions, and assessing the efficiency of existing policies [55]. Consequently, these policies would play a pivotal role in fostering sustainable water management practices and in translating research findings into actionable measures. Effective policy implementation promotes an enabling environment for stakeholders to participate actively in water governance [56]. Besides, research can influence the development of evidence-based policies that are adaptable to India's diverse water challenges, including those posed by population explosion and rapid urbanization [57]. The dynamics of water governance can well be tackled by continuously assessing the effectiveness of existing policies and suggesting improvements. The Government of India is committed to supporting research and development in water sector, and the budget has been increasing in recent years. Table 8 shows some of the research and development initiatives for the water sector by the Government of India, along with the budget allocated for each initiative in Indian National Rupees (INR). The research contributes to the iterative process of policy evolution [58]. In reality, the synergy between research and policy remains crucial in shaping India's future water governance landscape, ensuring the nation's water resources are managed sustainably and equitably.

Table 8: Government of India Initiatives for Water Sector

Initiative	Budget in INR
National Water Mission	10,000 crores
National Institute of Hydrology	500 crores
Central Water Commission	200 crores
Indian Council of Agricultural Research	1,000 crores

V. REGION-WISE OVERALL ASSESSMENT OF WATER SECTOR

Drawing recommendations for tackling various prevalent legal challenges in the water sector requires an overall assessment of each region of the country along with the strength, weaknesses, opportunity and threat of the existing legal instruments employed in India.

Accordingly, a ranking system is developed and utilized for water sector. For assessment of different factors that are relevant to the assessment of water sector a simple weighted scoring approach is employed (Table 9). Based on the deviation of the respective factor from the national average the respective weights are assigned for the regional parameters. The Rating is calculated using the following equation:

$$Ws = (Rp_1 * Wc_1) + (Rp_2 * Wc_2) + (Rp_3 * Wc_3) + (Rp_4 * Wc_4) + (Rp_5 * Wc_5) \text{ ..... (1)}$$

Where,

Ws = Weighted Score of a region

Rp_{1-5} = Rating for Parameter 1-5 of a region

Wc_{1-5} = Weight for Parameter 1-5 of a region

Table 9: Rational and Assigned Weights

Parameter	Assigned Weight	Rational
Region-Wise Distribution of Water Resources	4	This factor assesses the overall availability of water resources in different regions, which is crucial for sustainable water management.
Region-Wise Groundwater Depletion	5	Groundwater depletion is a critical issue with long-term consequences. It is often given the highest weight due to its significant impact on water resources.
Region-Wise Water Pollution of Surface and Groundwater	3	Water pollution is a pressing concern, but its impact may vary from region to region. It's important but may not always be as critical as depletion.
Region-Wise Access to Potable Water	4	Access to safe drinking water is a fundamental human right and an essential aspect of water management.
Region-Wise Privatization in Water Sector	2	Privatization can affect water accessibility and pricing but may not always be the most critical factor in all regions.

For assigning weights to the five parameters the gravity of the challenges viz., the relative water scarcity, severity of over-exploitation of water, severity of pollution, percentage of households with access to safe drinking water, and number of cities with privatized water supply, is considered. Table 10 shows the region-wise assigned weight to each parameter.

Table 10: Region-wise Assignment of Weights

Region	Per capita water availability (Cubic meters per year)	Percentage of over exploited area	Extent of water pollution	Percentage of households with access to safe drinking water	Number of cities with privatized water supply
North India	3	5	5	3	5
South India	2	3	5	5	4
East India	4	2	3	2	3
West India	5	4	5	4	4

The results shows that each region in India faces distinctive challenges in the water sector, with varying degrees of severity (Table 11). Western and Northern India appears to have the most significant challenges, particularly in terms of groundwater pollution and over-exploitation of water resources. Southern India can substantially improve access to safe drinking water. Eastern India also faces challenges but demonstrates better performance as compared to other regions. Effective water management strategies should consider these regional variations to address specific issues and prioritize resource allocation accordingly.

Table 11: Overall Assessment of Water Sector

Region	Weighted Score	Overall Ranking of the Region
North India	74	3
South India	66	2
East India	49	1
West India	79	4

VI. SOLUTIONS FOR WATER SECTOR

The present chapter demonstrates numerous legal challenges that impede the effectiveness and sustainability of water resources management in India. A holistic approach involving legal reforms, enhanced enforcement mechanism and active participation of stakeholders at all level of governance is required to deal the challenges prevalent in Indian water sector. The following specific reforms to alleviate legal issues in the Indian water sector is recommended.

1. **Cohesive Water Legislation:** There is an urgent need to establish a comprehensive and latest single cohesive legislation that consolidates and clarifies numerous existing laws, regulations and policies relating to water sector in India. This Cohesive legal framework shall incorporate the following reforms:

    - **Water Rights and Prioritization:** The law ought to clearly define and allocate water rights, ensuring equitable and sustainable access to water resources to all citizens. The

social and environmental considerations shall form the fulcrum to assign priority to water rights.

- **Interstate Water Dispute Resolution Authority:** Creation of a sole agency/ authority fully functioning only for resolution of interstate water disputes swiftly and impartially. The agency/ authority shall ensure cooperative agreements among states and governs adherence to established norms. Virtual water concepts may be adopted.

2. **Community-Centric Governance:** The decision-making processes shall be decentralized duly accommodating active participation of local communities for water management. Reforms in existing instruments to empower water users at local level through community-led associations shall be initiated.

    - **Community-Based Water Rights:** Mechanism duly recognizing the role of local citizens in water management shall encourage local involvement for effective water allocation decisions.

3. **Water Quality and Pollution Control:** To combat water pollution effectively following reforms shall be implemented.

    - **Stringent Water Quality Standards:** Stringent standards accounting and duly considering the dynamics of pollution shall be enforced for industrial effluents, sewage treatment, and disposal to address groundwater and surface water pollution. Penalties as proposed by Bhatt & Bhatt, 2020 which takes into considerations the dynamics of prevalent Inflation, Human Development Index (HDI) and Gross State Domestic Product (GSDP) to adhere to the economic growth and environmental protection policies of India [59]. The water law shall be made more effective by way of eliminating deficiencies in it and imposing worthwhile criminal penalties above and over the civil penalties by way of constitutional provisions for the perpetrator of environmental crime [60].

4. **Enhanced Monitoring and Compliance:** Infrastructure for real-time tacking of quantity, quality and usage of water and its monitoring shall be arranged. Imposing strict penalties for non-compliance with water regulations shall serve as a deterrence to unauthorized and illegal water related activities.

5. **Climate-Resilient Practices:** The water laws and policies shall duly accommodate and integrate climate change considerations. In the face of changing climate patterns, legal instruments to foster adaptive and sustainable water management practices shall be enacted. Flood forecasting mechanisms should be more location wise research centric.

6. **Transparency and Accountability:** Incorporate provisions in legal instruments to promote transparency in water governance by making data regarding allocation and use of water resources easily accessible to all citizens.

7. **Alternative Dispute Resolution (ADR):** To reduce burden on courts/ legal system, the water-related conflicts can alternately be resolved through mediation and arbitration. The water laws shall essentially have this mechanism for prompt redressal of grievances of citizens.

8. **Capacity Building and Innovation:** The water sector professional, policymakers and stakeholders shall be trained and educated to enhance their knowledge and skills. The water laws shall foster innovation and research in water management technologies and practices for optimal utilization of available water resources.

A strong commitment intensified by consistent efforts from policymakers and collaboration among stakeholders shall help implementing and addressing the legal challenges in the Indian water sector. Enacting enabling legal provisions at swiftness is pivotal for achieving water security, sustainability, and equitable access for all citizens.

VII. SUMMARY

The Chapter delved into a comprehensive analysis through data and perspectives that contributed in understanding of the Indian water sector and the legal challenges encircling this important sector. The study has provided a valuable contribution through SWOT analysis and has shed light on some of the most crucial legal impediments that circumvent the equality, equity and sustainability of water resources in India. Uneven distribution of water, pollution and legal complexities are the most prevalent challenges facing the Indian water sector, though the Indian water sector also demonstrates strengths in its vast water resources and potential for innovation.

The Indian water sector is confronted with legal challenges that impede effective water resource management, necessitating a holistic approach with legal reforms and stakeholders' engagement. Some of the key recommendations consist of establishing Cohesive water legislation, community-based governance, stringent water quality standards, enhanced monitoring, climate-resilient practices, transparency, and capacity building, all aimed at fostering equitable, optimal and sustainable water management.

The study also proposes a quick approach for assessment of water sector challenges for a region. The western and northern regions of India are facing a high degree of challenges pertaining to water sector. The eastern region has relatively less issues in water sector. The study also offers recommendations and reforms for legal framework for regulating water sector in the country. It is imperative that policymakers, practitioners, and researchers utilize these findings for their actions and decisions and strive for progress and positive change in water sector.

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