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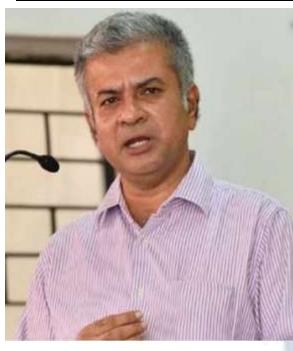
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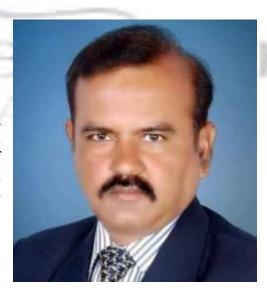


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ABOUT US

WHITE BLACK LEGAL is an open access, peer-reviewed and refereed journal providededicated to express views on topical legal issues, thereby generating a cross current of ideas on emerging matters. This platform shall also ignite the initiative and desire of young law students to contribute in the field of law. The erudite response of legal luminaries shall be solicited to enable readers to explore challenges that lie before law makers, lawyers and the society at large, in the event of the ever changing social, economic and technological scenario.

With this thought, we hereby present to you

LEGAL

WATER JUSTICE: ANALYSING LEGAL MECHANISMS FOR ENSURING EQUITABLE ACCESS TO SAFE DRINKING WATER

AUTHORED BY - NIBRAS FAYAZ

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Abstract

This dissertation explores the concept of water justice and analyzes legal mechanisms for ensuring equitable access to safe drinking water, with a focus on the Indian context. Through an interdisciplinary approach drawing on legal, socio-economic, and environmental perspectives, the study examines the background, significance, challenges, and opportunities related to water governance in India. It evaluates the role of stakeholders, including civil society organizations, grassroots movements, government agencies, policymakers, and industry stakeholders, in promoting water justice and public participation in water management. The dissertation also includes case studies, comparative analysis, and recommendations for policy and practice aimed at strengthening water rights, enhancing regulatory frameworks, and advancing sustainable water management practices. By addressing socio-economic disparities, environmental challenges, and institutional constraints, the dissertation contributes to the discourse on water justice and provides insights for policymakers, practitioners, and scholars working in the field of water governance and human rights.

Keywords: Water Justice, Legislation, Recommendations, etc.

Chapter 1- Introduction

1.1 Background and significance of the issue

Water, as a fundamental resource for sustaining life, plays a crucial role in the socio-economic development and well-being of individuals and communities. In India, a country marked by its cultural diversity, rich heritage, and varied geographical landscapes, access to safe drinking water has emerged as a pressing issue affecting millions of people across the nation. Despite India's abundant water resources, the challenge lies in ensuring equitable distribution and availability of clean and potable water, particularly for marginalized and vulnerable populations. This dissertation seeks to delve into the intricate web of issues surrounding water justice in India, focusing on the analysis of legal mechanisms aimed at guaranteeing equitable access to safe drinking water.

A. Background of the Issue

The issue of water scarcity and access to safe drinking water in India is deeply entrenched in historical, socio-economic, and environmental contexts. India's civilization has historically flourished along the banks of rivers such as the Ganges, Yamuna, and Indus, which have provided water for drinking, agriculture, and other domestic needs. However, rapid urbanization, population growth, industrialization, and unsustainable water management practices have placed immense pressure on India's water resources, leading to water scarcity and contamination in many parts of the country.

1. Historical Context:

India has a rich tradition of water management dating back to ancient times, with sophisticated systems of water harvesting, storage, and distribution evident in archaeological sites such as the Indus Valley Civilization. Traditional water management practices, including rainwater harvesting, community ponds, and watershed management, were integral to rural livelihoods and sustainability. However, with the advent of modernization and urbanization, traditional water systems have been disrupted, leading to environmental degradation and water scarcity.

2. Socio-economic Factors:

The issue of water scarcity disproportionately affects marginalized and vulnerable populations, including rural communities, indigenous peoples, and urban slum dwellers. In rural areas, inadequate infrastructure, poor sanitation, and limited access to safe drinking water contribute to waterborne diseases and health disparities. Similarly, in urban areas, rapid urbanization, unplanned development, and water pollution exacerbate challenges related to water access and sanitation.

3. Environmental Concerns:

India's water resources face multiple environmental challenges, including pollution, depletion, and climate change impacts. Industrial effluents, agricultural runoff, and untreated sewage discharge have contaminated rivers, lakes, and groundwater sources, posing serious health risks to communities reliant on these water bodies for drinking and domestic purposes. Additionally, climate change-induced phenomena such as erratic rainfall patterns, droughts, and floods further strain water resources, exacerbating water scarcity and vulnerability.

B. Significance of the Study

The significance of addressing the issue of water justice in India cannot be overstated, given its profound implications for public health, socio-economic development, environmental sustainability, and human rights. Access to safe drinking water is not only a basic human necessity but also a fundamental human right enshrined in various international and national legal instruments. The United Nations General Assembly, through the adoption of the Sustainable Development Goals (SDGs), has emphasized the importance of ensuring universal access to safe and affordable drinking water for all by 2030 (SDG 6). Similarly, the Constitution of India recognizes the right to water as a fundamental right implicit in the right to life under Article 21, affirming the state's obligation to provide clean and potable water to its citizens.

1. Public Health:

Access to safe drinking water is essential for safeguarding public health and preventing waterborne diseases such as cholera, typhoid, and diarrheal illnesses. Inadequate access to clean water and sanitation facilities contributes to the spread of waterborne diseases, particularly among vulnerable populations such as children, pregnant women, and the elderly. By ensuring equitable access to safe drinking water, India can significantly reduce the burden of water-related diseases and improve overall public health outcomes.

2. Socio-economic Development:

Access to safe drinking water is intricately linked to socio-economic development, poverty alleviation, and livelihood opportunities. Communities with reliable access to clean water are better equipped to pursue economic activities such as agriculture, livestock rearing, and small-scale enterprises. Moreover, improved water access enhances school attendance, particularly among girls, by reducing the time spent fetching water and the risk of waterborne illnesses. By prioritizing water justice and investing in water infrastructure and management, India can unlock the potential for socio-economic development and poverty reduction.

3. Environmental Sustainability:

Sustainable management of water resources is critical for safeguarding the environment and ensuring the long-term viability of ecosystems. India's water bodies, including rivers, lakes, and aquifers, are under immense pressure from pollution, over-extraction, and climate change impacts. By promoting sustainable water management practices, including watershed protection, pollution control, and groundwater recharge, India can mitigate the adverse effects of water scarcity and environmental degradation, ensuring the sustainability of its natural resources for future generations.

4. Human Rights and Social Justice:

Access to safe drinking water is not only a matter of public health and socio-economic development but also a fundamental human right. The right to water is recognized under international human rights law as an essential component of the right to an adequate standard of living and the right to health. In India, the Constitution guarantees the right to water as part of the right to life under Article 21, imposing an obligation on the state to ensure access to clean and potable water for all its citizens. By upholding the principles of human rights and social justice, India can advance the cause of water justice and promote inclusive development and equitable access to safe drinking water.

In summary, the issue of water justice in India is of paramount importance, with far-reaching implications for public health, socio-economic development, environmental sustainability, and human rights. By addressing the complex challenges of water scarcity, pollution, and access, India can pave the way for a more equitable and sustainable future. This dissertation seeks to contribute to ongoing efforts towards achieving water justice in India by examining the legal mechanisms and policy interventions aimed at ensuring equitable access to safe drinking water

for all. Through a comprehensive analysis of existing laws, policies, and practices, this study aims to identify opportunities for policy reform and institutional strengthening, thereby advancing the cause of water justice and sustainable development in India and beyond.

1.2 Statement of the problem

Access to safe drinking water is a fundamental human right essential for sustaining life, promoting public health, and supporting socio-economic development. In India, despite abundant water resources, millions of people continue to face challenges in accessing clean and potable water. This section will delve into the statement of the problem, examining the key challenges and barriers hindering equitable access to safe drinking water in India.

A. Overview of the Problem

The problem of water scarcity and access to safe drinking water in India is multifaceted, encompassing various socio-economic, environmental, and institutional factors. While India is home to numerous rivers, lakes, and groundwater reserves, the distribution and availability of water are highly uneven, leading to disparities in access across different regions and communities. The following are the key dimensions of the problem:

1. Unequal Distribution:

One of the primary challenges is the unequal distribution of water resources across regions and states in India. While some regions are water-rich and have ample access to clean water, others face chronic water scarcity, particularly in arid and semi-arid regions. This imbalance in water distribution exacerbates socio-economic disparities and perpetuates inequities in access to safe drinking water.

2. Pollution and Contamination:

Pollution and contamination of water sources pose significant challenges to ensuring access to safe drinking water in India. Industrial effluents, agricultural runoff, untreated sewage, and solid waste disposal contaminate rivers, lakes, and groundwater reserves, rendering them unfit for human consumption. Waterborne diseases such as cholera, typhoid, and diarrheal illnesses are widespread in communities lacking access to clean water and sanitation facilities, leading to adverse health outcomes and economic burdens.

3. Inadequate Infrastructure:

Inadequate infrastructure and poor water management exacerbate the challenges of access to safe drinking water in India. Many rural areas lack piped water supply systems, forcing residents to rely on unprotected sources such as wells, ponds, or rivers, which may be contaminated or unreliable. Similarly, urban areas face challenges of aging infrastructure, leakages, and inadequate coverage, leading to disparities in access between affluent neighborhoods and urban slums.

4. Climate Change Impacts:

Climate change poses additional challenges to water security and access in India. Erratic rainfall patterns, prolonged droughts, and extreme weather events such as floods disrupt water availability and exacerbate water scarcity in vulnerable regions. Moreover, rising temperatures and changing precipitation patterns impact the quality and quantity of water resources, further straining existing water infrastructure and management systems.

B. Impact on Public Health and Well-being

The inadequate access to safe drinking water has profound implications for public health and well-being in India. Waterborne diseases such as diarrhea, cholera, and typhoid are major causes of morbidity and mortality, particularly among children under five years of age. Lack of access to clean water and sanitation facilities perpetuates a cycle of poverty and ill-health, hindering socio-economic development and perpetuating social inequalities. Moreover, women and girls often bear the burden of water collection, spending significant time and effort fetching water from distant sources, which detracts from educational opportunities and productive activities.

C. Legal and Institutional Challenges

Addressing the problem of equitable access to safe drinking water in India requires overcoming various legal and institutional challenges. While the Indian Constitution recognizes the right to water as a fundamental right implicit in the right to life under Article 21, the translation of this right into actionable policies and programs remains a challenge. Moreover, fragmented governance structures, overlapping jurisdictions, and lack of coordination among different agencies impede effective water management and governance at the national, state, and local levels. Additionally, regulatory gaps, weak enforcement mechanisms, and inadequate funding further undermine efforts to ensure water security and access for all.

D. Vulnerability of Marginalized Communities

Marginalized and vulnerable communities, including rural populations, indigenous peoples, and urban slum dwellers, bear the brunt of water insecurity and unequal access to safe drinking water in India. These communities often lack political voice, economic resources, and social capital to advocate for their rights and interests in water governance processes. Moreover, social hierarchies, caste-based discrimination, and gender disparities intersect with water access, exacerbating inequalities and marginalization. As a result, these communities are disproportionately affected by waterborne diseases, environmental degradation, and socioeconomic vulnerabilities, perpetuating cycles of poverty and deprivation.

In conclusion, the problem of equitable access to safe drinking water in India is complex and multifaceted, encompassing issues of unequal distribution, pollution and contamination, inadequate infrastructure, climate change impacts, legal and institutional challenges, and the vulnerability of marginalized communities. Addressing this problem requires concerted efforts from government agencies, policymakers, civil society organizations, and the private sector to adopt a rights-based approach, strengthen regulatory frameworks, invest in infrastructure and technology, promote community participation and empowerment, and ensure the inclusion and participation of marginalized groups in decision-making processes. By addressing these challenges and barriers, India can move towards achieving water justice and ensuring universal access to safe drinking water for all its citizens.

1.3 Objectives of the study

The primary objectives of this dissertation are as follows:

- 1. To examine the existing legal mechanisms for ensuring equitable access to safe drinking water in India.
- 2. To analyze the effectiveness of these legal mechanisms in addressing the challenges of water justice.
- 3. To identify key gaps and shortcomings in the legal framework for water management in India.
- 4. To propose recommendations for policy reform and legal interventions to enhance water justice and promote sustainable water management practices.

1.4 Overview of the research methodology

This dissertation employs a multi-disciplinary approach, drawing on legal analysis, socioeconomic research, and environmental studies to explore the issue of water justice in India. The research methodology involves:

- 1. Literature Review: A comprehensive review of existing literature on water law, policy, and governance in India, as well as relevant international frameworks and case studies.
- 2. Legal Analysis: Examination of constitutional provisions, statutory laws, judicial decisions, and administrative mechanisms related to water management in India.
- 3. Case Studies: Analysis of case studies and empirical data to illustrate the practical implications of legal mechanisms for water justice in different regions of India.
- 4. Stakeholder Consultation: Engagement with key stakeholders, including government officials, legal experts, academics, civil society organizations, and community representatives, through interviews, surveys, and focus group discussions.
- 5. Comparative Analysis: Comparative analysis of legal frameworks and best practices from other jurisdictions to draw lessons and insights for enhancing water justice in India.



Chapter 2- Conceptual Framework

2.1 Definition of water justice

Water justice is a concept that encompasses the fair and equitable distribution of water resources, ensuring access to safe and clean water for all individuals and communities. In legal terms, water justice refers to the application of principles of fairness, equality, and human rights in the allocation, management, and governance of water resources. This section will explore the definition of water justice and its core meaning within the framework of international law, constitutional provisions, and legal principles.

A. Definition of Water Justice

Water justice can be defined as the principle of ensuring equitable access to safe and clean water for all individuals and communities, regardless of socio-economic status, geographical location, or other factors. It encompasses the recognition of water as a fundamental human right and the obligation of states to provide adequate and affordable water services to their citizens. Moreover, water justice entails the fair and sustainable management of water resources, balancing the needs of present and future generations while respecting environmental integrity and social equity.

In legal terms, water justice encompasses various legal principles, including the right to water, non-discrimination, participation, accountability, and sustainability. These principles guide the development and implementation of laws, policies, and practices aimed at achieving equitable access to water and promoting social justice in water governance.

B. Core Meaning of Water Justice

1. Right to Water:

At the core of water justice lies the recognition of the right to water as a fundamental human right. The right to water, enshrined in various international and regional human rights instruments, including the Universal Declaration of Human Rights, the International Covenant on Economic, Social and Cultural Rights, and the Convention on the Rights of the Child, recognizes the essential role of water in ensuring human dignity, health, and well-being. It imposes an obligation on states to ensure access to safe and clean water for drinking, cooking, sanitation, and other domestic purposes, without discrimination or undue hardship.

2. Non-discrimination:

Water justice requires that access to water be provided on a non-discriminatory basis, without regard to race, ethnicity, religion, gender, age, disability, or other grounds. Discrimination in water allocation and distribution can exacerbate existing inequalities and marginalize vulnerable and disadvantaged groups, perpetuating cycles of poverty and deprivation. Therefore, ensuring non-discrimination in water governance is essential for promoting social justice and human rights.

3. Participation:

Water justice entails meaningful participation of all stakeholders, including communities, civil society organizations, and marginalized groups, in decision-making processes related to water management and governance. Participatory approaches empower individuals and communities to voice their concerns, priorities, and preferences, ensuring that water policies and programs are responsive to local needs and realities. Moreover, participation fosters transparency, accountability, and legitimacy in water governance, enhancing trust and cooperation among stakeholders.

4. Accountability:

Accountability is another key principle of water justice, requiring governments, public authorities, and other actors to be accountable for their actions and decisions regarding water resources. Accountability mechanisms, such as transparency, oversight, and grievance redressal, ensure that water management practices are conducted in accordance with legal norms, ethical standards, and public interests. Moreover, accountability fosters trust, confidence, and credibility in water governance institutions, promoting good governance and rule of law.

5. Sustainability:

Water justice necessitates the sustainable management of water resources, balancing the needs of present and future generations while safeguarding environmental integrity and ecological balance. Sustainable water management practices, such as water conservation, watershed protection, and integrated water resources management, ensure the long-term availability and quality of water for human consumption, agriculture, industry, and ecosystem services. Moreover, sustainable water management contributes to climate resilience,

biodiversity conservation, and ecosystem restoration, addressing the interconnected challenges of water security, climate change, and environmental sustainability.

In summary, water justice in legal terms encompasses the principles of the right to water, non-discrimination, participation, accountability, and sustainability. These core principles guide the development and implementation of laws, policies, and practices aimed at ensuring equitable access to safe and clean water for all individuals and communities. By upholding these principles, governments, policymakers, and other stakeholders can advance the cause of water justice and promote social equity, human rights, and sustainable development.

2.2 Legal frameworks and principles governing access to safe drinking water

Legal frameworks and principles governing access to safe drinking water in India are essential components of ensuring water justice and upholding the fundamental right to water for all citizens. This section will explore the legal landscape surrounding water governance in India, including constitutional provisions, national and state-level laws, judicial pronouncements, and international obligations.

I. Constitutional Provisions

The Constitution of India provides the foundational framework for governing access to safe drinking water and environmental protection. Several provisions within the Constitution directly or implicitly recognize the right to water and impose obligations on the state to ensure its availability and accessibility to all citizens.

Article 21: Right to Life and Personal Liberty

One of the most crucial constitutional provisions relevant to access to safe drinking water is Article 21, which guarantees the right to life and personal liberty. The Supreme Court of India has interpreted this provision expansively to include the right to a clean environment and safe drinking water as essential components of the right to life. In the case of Subhash Kumar v. State of Bihar, the Supreme Court held that the right to life under Article 21 includes the right to live in a healthy environment with access to clean water.

Article 48A: Protection and Improvement of Environment and Wildlife

Article 48A of the Constitution directs the state to protect and improve the environment and safeguard forests and wildlife. This provision underscores the constitutional mandate for environmental conservation and sustainable water management practices to ensure the availability of safe drinking water for present and future generations.

II. National Legislation

The legal framework governing access to safe drinking water in India comprises various national laws, policies, and regulatory mechanisms aimed at promoting water security, public health, and environmental sustainability.

The Water (Prevention and Control of Pollution) Act, 1974

The Water Act, 1974, is a key legislative instrument aimed at preventing and controlling water pollution in India. It provides for the prevention and control of water pollution and the maintaining or restoring of the wholesomeness of water. The Act empowers the Central Pollution Control Board (CPCB) and State Pollution Control Boards (SPCBs) to enforce water quality standards and regulate industrial discharges to protect water sources from contamination.

The Environment (Protection) Act, 1986

The Environment Protection Act, 1986, is a comprehensive legislation aimed at protecting and improving the environment. It empowers the central government to take measures to protect and improve environmental quality, including water quality. The Act provides for the regulation of industrial, developmental, and other activities to prevent environmental pollution and promote sustainable development.

The National Water Policy, 2012

The National Water Policy, 2012, is a policy document that provides guidelines and principles for water resources management in India. It emphasizes the need for equitable distribution, sustainable use, and conservation of water resources to ensure water security for all citizens. The policy promotes integrated water resources management, demand-side management, and decentralized governance mechanisms to address water challenges effectively.

III. State Legislation

In addition to national laws and policies, several states in India have enacted legislation to regulate water resources management and ensure access to safe drinking water at the state level.

The Maharashtra Groundwater (Development and Management) Act, 2009

The Maharashtra Groundwater Act, 2009, is a state legislation aimed at regulating groundwater extraction and promoting sustainable groundwater management practices. The Act provides for the registration of groundwater extraction structures, the imposition of groundwater abstraction charges, and the establishment of groundwater regulatory authorities to oversee groundwater management activities.

The Rajasthan Water (Prevention and Control of Pollution) Act, 1974

The Rajasthan Water Act, 1974, is a state legislation enacted to prevent and control water pollution in the state of Rajasthan. It empowers the Rajasthan State Pollution Control Board to regulate industrial discharges, monitor water quality, and enforce water pollution control measures to safeguard water sources and public health.

IV. Judicial Pronouncements

The judiciary plays a crucial role in interpreting and enforcing legal principles related to access to safe drinking water and environmental protection in India. Judicial pronouncements by the Supreme Court and high courts have contributed significantly to the development of water law jurisprudence in the country.

Public Interest Litigation (PIL) Cases

The Supreme Court of India has heard numerous public interest litigation (PIL) cases related to water pollution, water scarcity, and access to safe drinking water. In cases such as Narmada Bachao Andolan v. Union of India and Subhash Kumar v. State of Bihar, the Supreme Court has emphasized the importance of protecting water sources, preventing pollution, and ensuring access to clean water as essential aspects of the right to life guaranteed under Article 21 of the Constitution.

Polluter Pays Principle

The principle of "polluter pays" has been recognized and applied by Indian courts to hold polluting industries accountable for environmental damage and remediation costs. In cases such as M.C. Mehta v. Union of India, the Supreme Court has held polluting industries liable for compensation and cleanup costs for contaminating water sources and violating environmental laws.

V. International Obligations

India is a signatory to various international conventions, treaties, and agreements that impose obligations related to water governance, environmental protection, and human rights.

United Nations Sustainable Development Goals (SDGs)

India has committed to achieving the Sustainable Development Goals (SDGs), including Goal 6, which aims to ensure availability and sustainable management of water and sanitation for all. Goal 6 targets access to safe and affordable drinking water and sanitation for all by 2030, aligning with India's national efforts to improve water security and public health outcomes.

Convention on Biological Diversity (CBD)

India is a party to the Convention on Biological Diversity (CBD), which recognizes the importance of water resources for sustaining biodiversity and ecosystem services. The CBD promotes integrated water resources management and conservation measures to protect freshwater ecosystems and ensure the sustainable use of water resources for human well-being and environmental sustainability.

VII. Implementation Challenges and Issues

Despite the existence of legal frameworks and principles governing access to safe drinking water in India, several challenges hinder effective implementation and enforcement of these laws. These challenges stem from various factors, including institutional capacity, resource constraints, competing interests, and socio-economic disparities.

1. Institutional Capacity:

One of the key challenges is the inadequate institutional capacity and technical expertise at the national, state, and local levels to implement and enforce water laws effectively. Many regulatory agencies, such as the Central Pollution Control Board (CPCB) and State Pollution Control Boards (SPCBs), face resource constraints, staffing shortages, and technical limitations in monitoring water quality, enforcing regulations, and conducting pollution control measures.

2. Resource Constraints:

Limited financial resources and budgetary allocations pose significant challenges to implementing water laws and infrastructure development projects. Inadequate funding for water supply, sanitation, and pollution control programs hinders the implementation of legal mandates and the provision of essential services to underserved communities, particularly in rural and remote areas.

3. Competing Interests:

Conflicting interests and priorities among different stakeholders, including industries, agriculture, urban development, and environmental conservation, pose challenges to water governance and resource management. Balancing the competing demands for water allocation, industrial growth, and environmental protection requires effective coordination, negotiation, and conflict resolution mechanisms to ensure equitable access and sustainable use of water resources.

4. Socio-economic Disparities:

Socio-economic disparities and inequalities exacerbate challenges related to access to safe drinking water, particularly for marginalized and vulnerable communities. Rural populations, indigenous peoples, and urban slum dwellers often face greater barriers to accessing clean water and sanitation facilities due to poverty, lack of infrastructure, and social exclusion. Addressing these disparities requires targeted interventions, investment in infrastructure, and community empowerment strategies to ensure that no one is left behind in the quest for water justice.

VIII. Future Directions and Recommendations

Addressing the challenges of access to safe drinking water in India requires concerted efforts from government agencies, policymakers, civil society organizations, and the private sector. The following recommendations are proposed to enhance the effectiveness of legal frameworks and principles governing water governance and promote water justice in India:

1. Strengthening Institutional Capacities:

Invest in building the institutional capacity of regulatory agencies, including the CPCB and SPCBs, to effectively monitor water quality, enforce regulations, and implement pollution control measures. Provide training, technical assistance, and resources to enhance their capabilities in water management and governance.

2. Enhancing Financial Resources:

Increase public funding and budgetary allocations for water supply, sanitation, and pollution control programs to address infrastructure gaps and improve service delivery, particularly in underserved and marginalized communities. Explore innovative financing mechanisms,

public-private partnerships, and community-based funding models to mobilize additional resources for water projects.

3. Promoting Integrated Water Resources Management:

Adopt an integrated approach to water resources management that considers the interconnections between water, land, ecosystems, and human activities. Develop comprehensive water management plans, watershed management strategies, and river basin management frameworks to promote sustainable use, conservation, and allocation of water resources.

4. Empowering Communities and Stakeholders:

Foster meaningful participation and engagement of communities, civil society organizations, and marginalized groups in water governance processes. Promote awareness, education, and capacity-building initiatives to empower individuals and communities to advocate for their rights, participate in decision-making, and hold authorities accountable for water service delivery and environmental protection.

5. Strengthening Legal and Regulatory Frameworks:

Review and update existing water laws, policies, and regulations to address emerging challenges, incorporate new technologies, and align with international best practices and standards. Enhance enforcement mechanisms, penalties, and accountability mechanisms to deter water pollution, ensure compliance with legal requirements, and protect water sources from degradation.

IX. Conclusion

In conclusion, legal frameworks and principles governing access to safe drinking water in India play a critical role in promoting water justice, protecting public health, and safeguarding environmental sustainability. However, significant challenges remain in translating legal mandates into effective policies, programs, and practices to ensure universal access to clean water for all citizens. Addressing these challenges requires concerted efforts from government agencies, policymakers, civil society organizations, and the private sector to strengthen institutional capacities, mobilize resources, promote integrated water resources management, empower communities, and enhance legal and regulatory frameworks. By adopting a holistic and rights-based approach to water governance, India can advance the cause of water justice

and achieve the Sustainable Development Goal of ensuring access to safe and affordable drinking water for all by 2030.

2.3 The intersection of human rights and water justice

The intersection of human rights and water justice represents a critical area of inquiry within the field of law. It involves examining the legal frameworks, principles, and mechanisms aimed at safeguarding the right to water as a fundamental human right and promoting equitable access to safe drinking water for all individuals and communities. This section will delve into the legal dimensions of the intersection between human rights and water justice, exploring key principles, international instruments, and judicial pronouncements that shape this discourse.

A. Definition of Human Rights and Water Justice

Human rights encompass the basic rights and freedoms inherent to all human beings, regardless of nationality, ethnicity, religion, or other status. These rights are enshrined in international legal instruments, including treaties, conventions, and declarations, and are protected under national constitutions and laws. The right to water is recognized as an essential component of the right to an adequate standard of living and is essential for achieving other human rights, including the rights to health, food, and sanitation.

Water justice, on the other hand, refers to the fair and equitable distribution of water resources, ensuring access to safe and clean water for all individuals and communities. It encompasses legal principles such as non-discrimination, participation, accountability, and sustainability, aimed at promoting social equity, environmental protection, and human well-being.

B. International Legal Framework

The intersection of human rights and water justice is grounded in various international legal instruments that recognize the right to water and articulate obligations for states to ensure its realization. Key among these instruments is the International Covenant on Economic, Social and Cultural Rights (ICESCR), which explicitly recognizes the right to an adequate standard of living, including the right to water, as part of the right to health (Article 11).

The Committee on Economic, Social and Cultural Rights (CESCR), the monitoring body for the ICESCR, has provided authoritative guidance on the interpretation and implementation of the right to water. In its General Comment No. 15 (2002), the Committee clarified that the right

to water entitles everyone to sufficient, safe, acceptable, physically accessible, and affordable water for personal and domestic uses.

Additionally, other international instruments, such as the Convention on the Rights of the Child (CRC), the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW), and the Convention on the Rights of Persons with Disabilities (CRPD), recognize the right to water and sanitation as integral to the realization of specific rights for vulnerable groups, including children, women, and persons with disabilities.

C. National Legal Frameworks

At the national level, many countries have incorporated the right to water into their constitutions, laws, and policies, reflecting their commitment to ensuring access to safe drinking water for all citizens. For example, South Africa's Constitution explicitly recognizes the right to water as a fundamental human right, and the country has enacted legislation, such as the National Water Act, to regulate water resources management and promote equitable access.

In India, the Constitution implicitly recognizes the right to water as part of the right to life under Article 21, and the judiciary has interpreted this right expansively to include the right to clean water and sanitation. In cases such as Subhash Kumar v. State of Bihar, the Supreme Court affirmed that the right to life under Article 21 encompasses the right to live in a healthy environment with access to clean water.

Furthermore, India's National Water Policy, 2012, articulates principles and guidelines for water resources management, emphasizing the importance of equitable distribution, sustainable use, and conservation of water resources. The policy underscores the government's commitment to ensuring access to safe drinking water for all citizens, particularly marginalized and vulnerable groups.

D. Judicial Pronouncements

Judicial pronouncements play a crucial role in shaping the intersection of human rights and water justice by interpreting constitutional provisions, legal frameworks, and international obligations. In many countries, courts have heard cases related to access to safe drinking water, water pollution, and environmental degradation, applying principles of human rights and environmental law to protect water resources and uphold the rights of affected communities.

For example, in the case of A.P. Pollution Control Board v. M.V. Nayudu, the Supreme Court of India held that industries discharging pollutants into water bodies are liable for compensation and remediation costs for environmental damage caused. The Court emphasized the polluter pays principle and upheld the rights of affected communities to a clean environment and safe drinking water under Article 21 of the Constitution.

Similarly, in the case of Taleti Vasanthakumar v. State of Kerala, the Kerala High Court recognized the right to water as an integral part of the right to life and directed the state government to ensure access to safe drinking water for residents of a village affected by water contamination. The Court underscored the government's obligation to protect public health and environmental integrity by providing clean water to affected communities.

E. Emerging Issues and Challenges

Despite significant progress in recognizing the right to water and promoting water justice, several challenges and emerging issues persist in the intersection of human rights and water governance. These include:

- 1. Climate Change: The impacts of climate change, including changes in precipitation patterns, rising temperatures, and extreme weather events, pose significant challenges to water resources management and access to safe drinking water. Climate-resilient water management strategies and adaptation measures are needed to address these challenges effectively.
- 2. Privatization: The privatization of water services and resources raises concerns about equity, affordability, and accountability in water governance. Privatization may exacerbate inequalities in access to water, particularly for marginalized and vulnerable communities, and undermine the realization of the right to water as a public good.
- 3. Pollution and Contamination: Water pollution and contamination remain persistent challenges, threatening public health, environmental sustainability, and human rights. Efforts to address pollution and ensure water quality require robust regulatory frameworks, enforcement mechanisms, and investment in pollution control measures and wastewater treatment facilities.
- 4. Displacement and Dispossession: Large-scale development projects, such as dams, irrigation schemes, and urbanization, often result in the displacement and dispossession of indigenous peoples, rural communities, and marginalized groups from their land and water resources.

These projects raise concerns about the violation of human rights, including the right to water, and the loss of livelihoods and cultural heritage.

The intersection of human rights and water justice represents a vital area of legal inquiry aimed at promoting equitable access to safe drinking water and protecting the rights of vulnerable and marginalized communities. Legal frameworks, international instruments, judicial pronouncements, and emerging issues shape this discourse and inform efforts to address water-related challenges and advance the realization of human rights.

To strengthen the intersection of human rights and water justice, the following recommendations are proposed:

- 1. Strengthen Legal Protections: Enhance legal frameworks and constitutional provisions to explicitly recognize the right to water as a fundamental human right and ensure its enforceability through effective mechanisms, including judicial remedies and accountability mechanisms.
- 2. Promote Participation and Empowerment: Foster meaningful participation and engagement of communities, civil society organizations, and marginalized groups in water governance processes, decision-making, and policy formulation to ensure their voices are heard and their rights are respected.
- 3. Enhance Monitoring and Accountability: Strengthen monitoring mechanisms, transparency, and accountability in water governance to track progress, identify gaps, and hold governments and other stakeholders accountable for their actions and commitments related to water justice and human rights.
- 4. Address Emerging Issues: Develop strategies and policies to address emerging challenges, such as climate change, privatization, pollution, and displacement, within the framework of human rights and water justice, ensuring that responses are equitable, inclusive, and rights-based.

By advancing the intersection of human rights and water justice, governments, policymakers, civil society organizations, and other stakeholders can work together to ensure universal access to safe drinking water, protect the environment, and uphold the dignity and well-being of all individuals and communities.

2.4 Historical context of water access in India

Understanding the historical context of water access in India is crucial for analyzing the contemporary legal frameworks and challenges surrounding water governance and justice. This section will explore the historical evolution of water management practices, policies, and legal regimes in India, tracing the ancient traditions, colonial legacies, and post-independence developments that have shaped the current landscape of water access and distribution in the country.

A. Ancient Water Management Practices

India has a rich heritage of water management dating back thousands of years, with ancient civilizations such as the Indus Valley Civilization, Harappa, and Mohenjo-Daro developing sophisticated systems of water harvesting, irrigation, and storage. The construction of stepwells, tanks, and reservoirs, such as the Great Bath in Mohenjo-Daro and the Rani ki Vav in Gujarat, exemplifies the ingenuity and engineering prowess of ancient Indian societies in harnessing water resources for agricultural, domestic, and religious purposes.

The Arthashastra, written by the ancient Indian scholar Kautilya (Chanakya), provides insights into the governance and regulation of water resources during the Mauryan period. The treatise discusses the establishment of water departments, regulation of water use, and imposition of penalties for water-related offenses, reflecting the importance of water management in ancient Indian polities.

B. Colonial Legacy

The colonial period had a profound impact on water access and management in India, as British colonial rulers implemented policies and infrastructure projects that prioritized the extraction of water for colonial exploitation and industrial development at the expense of local communities and ecosystems.

The British introduced colonial laws such as the Bengal Irrigation Act of 1876, the Indian Easements Act of 1882, and the Indian Fisheries Act of 1897, which aimed to regulate water rights, irrigation systems, and fishing activities to serve colonial economic interests. These laws often favored large landowners, colonial administrators, and commercial enterprises, leading to inequities in water access and distribution among different social groups.

The construction of large-scale irrigation projects, such as canals, dams, and barrages, under British rule transformed the hydrological landscape of India but also led to social and environmental disruptions. The British colonial government prioritized irrigation for cash crops, such as cotton, jute, and sugarcane, over food crops, exacerbating food insecurity and rural poverty among Indian peasants.

C. Post-Independence Developments

Following independence in 1947, India embarked on a path of nation-building and development, seeking to address the socio-economic disparities inherited from colonial rule and promote social justice, economic growth, and environmental sustainability. Water management emerged as a critical priority for the newly independent nation, leading to the formulation of national policies, legislation, and institutions aimed at regulating water resources, promoting irrigation, and ensuring access to safe drinking water for all citizens.

The Constitution of India, adopted in 1950, laid the foundation for water governance by enshrining principles of federalism, democratic governance, and environmental protection. Article 21 of the Constitution, which guarantees the right to life and personal liberty, has been interpreted expansively by the judiciary to include the right to clean water and sanitation as essential components of the right to life.

The Water (Prevention and Control of Pollution) Act, 1974, was enacted to address water pollution and protect water quality in India. The Act empowers central and state pollution control boards to regulate industrial discharges, monitor water quality, and enforce pollution control measures to safeguard water sources and public health.

The National Water Policy, first formulated in 1987 and subsequently revised in 2002 and 2012, provides guidelines and principles for water resources management in India. The policy emphasizes the need for equitable distribution, sustainable use, and conservation of water resources to ensure water security for all citizens. It promotes integrated water resources management, demand-side management, and decentralized governance mechanisms to address water challenges effectively.

D. Legal Challenges and Contemporary Issues

Despite significant progress in water governance and management, India continues to face numerous legal challenges and contemporary issues related to water access, distribution, and sustainability. These include:

- 1. Interstate Water Disputes: India's federal structure and complex river basins give rise to interstate water disputes, with competing claims over water resources leading to conflicts and tensions between states. The adjudication of interstate water disputes often involves lengthy legal battles and political negotiations, delaying resolution and exacerbating water insecurity in affected regions.
- 2. Urban Water Management: Rapid urbanization and population growth pose challenges for urban water management, with many cities facing issues of water scarcity, inadequate infrastructure, and pollution. The provision of safe drinking water and sanitation services in urban areas remains a significant challenge, particularly for marginalized communities living in informal settlements and slums.
- 3. Climate Change Impacts: The impacts of climate change, including changes in precipitation patterns, rising temperatures, and extreme weather events, pose significant challenges to water resources management and access to safe drinking water in India. Climate-resilient water management strategies and adaptation measures are needed to address these challenges effectively and ensure water security for vulnerable communities.
- 4. Groundwater Depletion: The overexploitation of groundwater resources for irrigation, industrial, and domestic purposes has led to groundwater depletion and contamination in many parts of India. Groundwater management and regulation are essential to sustainably manage aquifers and ensure access to safe drinking water for future generations.

The historical context of water access in India provides valuable insights into the evolution of water management practices, policies, and legal frameworks over time. From ancient water harvesting techniques to colonial legacies and post-independence developments, India's journey towards water security and justice has been shaped by a complex interplay of social, political, economic, and environmental factors.

By understanding the historical roots of water governance in India and the legal challenges and contemporary issues facing the country, policymakers, legislators, and stakeholders can develop informed strategies and interventions to promote equitable access to safe drinking water, protect water resources, and uphold the rights of all citizens.

Chapter 3- Legal Mechanisms for Ensuring Equitable Access to Safe Drinking Water

3.1 Constitutional provisions and rights related to water

Constitutional provisions form the bedrock of legal mechanisms governing access to safe drinking water in India. These provisions establish the framework for water governance and articulate the fundamental rights and duties of citizens and the state concerning water resources management. This section examines the constitutional provisions and rights related to water in India, highlighting their significance in ensuring equitable access to safe drinking water for all citizens.

A. Right to Life and Personal Liberty (Article 21)

Article 21 of the Constitution of India guarantees the right to life and personal liberty, which has been interpreted expansively by the judiciary to include the right to a clean and healthy environment, including access to safe drinking water. The Supreme Court, in various landmark judgments, has affirmed that the right to life encompasses the right to clean water and sanitation as essential components of human dignity and well-being.

In the case of Subhash Kumar v. State of Bihar (1991), the Supreme Court held that the right to life under Article 21 includes the right to live in a healthy environment with access to clean water. The Court emphasized that pollution-free water is essential for sustaining life and maintaining human dignity, and it is the duty of the state to ensure the availability of clean water to all citizens.

Similarly, in Narmada Bachao Andolan v. Union of India (2000), the Supreme Court reiterated that the right to water is implicit in the right to life under Article 21 and directed the government to ensure access to safe drinking water for residents affected by the construction of large dams and reservoirs.

B. Directive Principles of State Policy

The Directive Principles of State Policy (DPSP) enshrined in Part IV of the Constitution provide guidelines for the state to formulate policies and laws for the welfare of the people. While not enforceable by courts, these principles serve as moral and political imperatives for the

government to strive towards achieving social, economic, and environmental justice.



Article 48A of the Constitution mandates the protection and improvement of the environment and wildlife, emphasizing the state's duty to safeguard natural resources, including water, for present and future generations. This provision underscores the constitutional mandate for environmental conservation and sustainable water management practices to ensure the availability of safe drinking water and protect ecosystems.

C. Federal Structure and State Powers

India's federal structure divides powers between the central government and state governments, with each having legislative authority over certain aspects of water resources management. While water is a state subject under the Seventh Schedule of the Constitution, the central government also has jurisdiction over inter-state rivers and disputes concerning water resources.

The constitutional distribution of powers between the center and states requires collaboration and cooperation in water governance to address interstate water disputes, coordinate water allocation, and implement national water policies effectively. The Interstate River Water Disputes Act, 1956, provides a legal framework for the adjudication of disputes between states over the sharing of river waters and the establishment of river basin authorities to oversee interstate water management.

D. Fundamental Duties (Article 51A)

Article 51A of the Constitution lays down the fundamental duties of citizens towards the nation, including the duty to protect and improve the natural environment, including water resources. While not justiciable, these duties serve as ethical obligations for citizens to contribute to environmental conservation and sustainable development efforts.

The duty to protect and improve the environment includes conserving water resources, preventing water pollution, and promoting water conservation practices at the individual and community levels. Citizens are encouraged to participate in initiatives aimed at protecting water sources, reducing water wastage, and promoting rainwater harvesting and groundwater recharge to ensure the availability of safe drinking water for future generations.

E. Judicial Interpretations and Precedents

Judicial interpretations of constitutional provisions related to water rights have played a significant role in shaping water governance and policy in India. The judiciary has upheld the

right to water as an essential component of the right to life and personal liberty under Article 21 and has intervened in cases concerning water pollution, water scarcity, and access to safe drinking water.

In addition to Subhash Kumar v. State of Bihar and Narmada Bachao Andolan v. Union of India, several other landmark judgments have reaffirmed the constitutional mandate for ensuring equitable access to safe drinking water. In Rural Litigation and Entitlement Kendra

v. State of Uttar Pradesh (1985), the Supreme Court emphasized the need for environmental protection and sustainable development, including the preservation of water resources and ecosystems.

Furthermore, in Centre for Environment Law, WWF-India v. Union of India (2011), the Supreme Court directed the central and state governments to ensure access to safe drinking water for all citizens and take measures to prevent water pollution and contamination. The Court underscored the government's obligation to protect public health and environmental integrity by providing clean water to affected communities.

Constitutional provisions and rights related to water form the cornerstone of legal mechanisms for ensuring equitable access to safe drinking water in India. Article 21 guarantees the right to life and personal liberty, including the right to a clean and healthy environment, while the Directive Principles of State Policy mandate environmental protection and sustainable development.

India's federal structure and distribution of powers between the center and states require collaborative efforts to address interstate water disputes, coordinate water management, and implement national water policies effectively. Judicial interpretations and precedents have reinforced the constitutional mandate for ensuring access to safe drinking water and protecting water resources for present and future generations.

3.2 National and state-level water policies and laws

Water policies and laws at the national and state levels play a crucial role in governing water resources management, promoting equitable access to safe drinking water, and addressing water-related challenges in India. This section will examine the key national and state-level water policies and laws that govern water governance, allocation, and distribution, with a focus on their relevance to ensuring equitable access to safe drinking water for all citizens.

I. National Water Policies

The Government of India has formulated several national water policies over the years to provide guidance and direction for water resources management and development. These policies articulate principles, objectives, and strategies for sustainable water use, conservation, and allocation, with a view to promoting water security and equitable access to safe drinking water. Some of the key national water policies in India include:

1. National Water Policy, 1987:

The National Water Policy, 1987, was the first comprehensive policy document on water resources management in India. It recognized water as a finite and vulnerable resource and emphasized the need for integrated water resources planning, development, and management. The policy underscored the importance of equitable distribution, efficient utilization, and conservation of water resources to meet the diverse needs of different sectors and regions.

2. National Water Policy, 2002:

The National Water Policy, 2002, built upon the principles and objectives of the 1987 policy and introduced new elements to address emerging water challenges and priorities. It emphasized the principles of sustainability, participatory management, and demand-side management in water resources planning and development. The policy also highlighted the need for basin-level planning, inter-state cooperation, and conflict resolution mechanisms to manage shared water resources effectively.

3. National Water Policy, 2012:

The National Water Policy, 2012, represented a significant update and revision of the previous policies, reflecting changing water dynamics, environmental concerns, and development priorities. The policy reaffirmed the principles of equity, sustainability, and integrated water resources management while emphasizing the importance of water as a human right and a public good. It called for greater emphasis on water conservation, rainwater harvesting, and decentralized governance mechanisms to ensure water security for all citizens.

II. National-Level Water Laws

In addition to water policies, India has enacted several national-level laws to regulate water resources management, protect water quality, and ensure access to safe drinking water. These

laws provide the legal framework for addressing water-related challenges and implementing water policies effectively. Some of the key national-level water laws in India include:

1. The Water (Prevention and Control of Pollution) Act, 1974:

The Water Act, 1974, is a comprehensive legislation aimed at preventing and controlling water pollution in India. It provides for the prevention and control of water pollution and the maintaining or restoring of the wholesomeness of water. The Act empowers the Central Pollution Control Board (CPCB) and State Pollution Control Boards (SPCBs) to enforce water quality standards and regulate industrial discharges to protect water sources from contamination.

2. The Environment (Protection) Act, 1986:

The Environment Protection Act, 1986, is a landmark legislation aimed at protecting and improving the environment in India. It empowers the central government to take measures to protect and improve environmental quality, including water quality. The Act provides for the regulation of industrial, developmental, and other activities to prevent environmental pollution and promote sustainable development.

3. The Inter-State River Water Disputes Act, 1956:

The Inter-State River Water Disputes Act, 1956, provides a legal framework for the adjudication and resolution of disputes relating to the sharing of interstate river waters. The Act establishes a mechanism for the constitution of river water disputes tribunals to adjudicate disputes between states over the allocation and utilization of river waters. It aims to facilitate negotiations, mediation, and legal remedies for resolving interstate water conflicts and promoting cooperative federalism in water governance.

III. State-Level Water Policies and Laws

In addition to national-level policies and laws, many states in India have formulated their own water policies and enacted legislation to regulate water resources management, allocation, and distribution at the state level. These state-level policies and laws complement national frameworks and address regional priorities, challenges, and contexts. Some of the key state-level water policies and laws in India include:

1. Maharashtra Groundwater (Development and Management) Act, 2009:

The Maharashtra Groundwater Act, 2009, is a state legislation aimed at regulating groundwater extraction and promoting sustainable groundwater management practices in the state of Maharashtra. The Act provides for the registration of groundwater extraction structures, the imposition of groundwater abstraction charges, and the establishment of groundwater regulatory authorities to oversee groundwater management activities.

2. Rajasthan Water (Prevention and Control of Pollution) Act, 1974:

The Rajasthan Water Act, 1974, is a state legislation enacted to prevent and control water pollution in the state of Rajasthan. It empowers the Rajasthan State Pollution Control Board to regulate industrial discharges, monitor water quality, and enforce water pollution control measures to safeguard water sources and public health.

3. Tamil Nadu Water Resources Conservation and Augmentation Act, 2003:

The Tamil Nadu Water Resources Conservation and Augmentation Act, 2003, is a state legislation aimed at promoting water conservation, rainwater harvesting, and sustainable water management practices in the state of Tamil Nadu. The Act provides for the regulation of groundwater extraction, the promotion of water harvesting structures, and the establishment of water management committees at the local level to oversee water conservation activities.

National and state-level water policies and laws in India play a critical role in governing water resources management, promoting equitable access to safe drinking water, and addressing water-related challenges at the national, state, and local levels. These legal mechanisms provide the framework for formulating water policies, regulating water use, and resolving water disputes, thereby ensuring the sustainable management and allocation of water resources for present and future generations.

3.3 Judicial interventions and landmark cases

Judicial interventions and landmark cases play a pivotal role in shaping the legal landscape concerning access to safe drinking water in India. Courts, particularly the Supreme Court of India and various High Courts, have issued significant judgments interpreting constitutional provisions, statutory laws, and international obligations to safeguard the right to water and ensure equitable access for all citizens. This section examines notable judicial interventions and landmark cases that have influenced water governance, policy formulation, and implementation in India.

1. Narmada Bachao Andolan v. Union of India (2000)

One of the most significant cases concerning water rights and environmental justice in India is Narmada Bachao Andolan v. Union of India. The case revolved around the construction of the Sardar Sarovar Dam on the Narmada River and its adverse impacts on the environment, livelihoods, and human rights of local communities, including displacement and loss of access to water resources.

The Supreme Court's judgment in this case highlighted the importance of balancing development objectives with environmental protection and social justice. The Court emphasized the need for comprehensive environmental impact assessments, rehabilitation and resettlement measures, and participatory decision-making processes in large-scale development projects affecting water resources and local communities.

The judgment in Narmada Bachao Andolan v. Union of India underscored the principles of sustainable development, intergenerational equity, and the precautionary principle in water governance, setting a precedent for future cases involving water rights and environmental concerns.

2. M.C. Mehta v. Union of India (1987)

In M.C. Mehta v. Union of India, the Supreme Court addressed the issue of water pollution in the Ganga River and other water bodies caused by industrial and municipal waste discharges. The case highlighted the urgent need for pollution control measures, regulatory enforcement, and judicial intervention to protect water quality and public health.

The Supreme Court issued several directives and orders in the M.C. Mehta case, including the closure of polluting industries, installation of pollution control equipment, and establishment of sewage treatment plants to prevent further contamination of water sources. The Court also appointed committees to monitor compliance with its orders and oversee the implementation of pollution control measures.

The judgment in M.C. Mehta v. Union of India demonstrated the judiciary's proactive role in addressing water pollution and upholding the right to a clean environment and safe drinking water under Article 21 of the Constitution. It laid down important principles of environmental jurisprudence and regulatory mechanisms for preventing and controlling water pollution in India.

3. Subhash Kumar v. State of Bihar (1991)

Subhash Kumar v. State of Bihar is a landmark case concerning the right to life and environmental protection under Article 21 of the Constitution. The case involved the pollution of water bodies and the degradation of the environment due to industrial activities, mining operations, and other anthropogenic factors.

The Supreme Court held that the right to life under Article 21 includes the right to live in a healthy environment with access to clean air and water. The Court emphasized the state's duty to protect and improve the environment and held that individuals have the right to seek judicial remedies against environmental harm and violations of their fundamental rights.

The judgment in Subhash Kumar v. State of Bihar expanded the scope of environmental jurisprudence in India and affirmed the judiciary's role in safeguarding environmental rights and public health. It laid down principles of strict liability, polluter pays, and public trust doctrine, which have since guided courts in adjudicating environmental disputes and promoting sustainable development.

4. Taleti Vasanthakumar v. State of Kerala (2015)

In Taleti Vasanthakumar v. State of Kerala, the Kerala High Court addressed the issue of water contamination and access to safe drinking water in a village affected by industrial pollution. The case highlighted the failure of the state government to provide clean water to residents despite knowledge of water pollution and health hazards.

The Kerala High Court directed the state government to take immediate measures to ensure access to safe drinking water for the affected village by installing water filtration units, conducting regular water quality tests, and providing medical assistance to affected individuals. The Court also directed the state pollution control board to monitor industrial activities and enforce pollution control measures to prevent further contamination of water sources.

The judgment in Taleti Vasanthakumar v. State of Kerala reaffirmed the state's obligation to protect public health and environmental integrity by ensuring access to clean water and addressing water pollution. It emphasized the importance of judicial intervention in cases of environmental injustice and the need for effective enforcement of environmental laws and regulations.

5. Centre for Environmental Law, WWF-India v. Union of India (2012)

In Centre for Environmental Law, WWF-India v. Union of India, the Supreme Court addressed the issue of groundwater depletion and the unsustainable extraction of groundwater for commercial purposes, particularly by bottled water companies. The case highlighted the need for regulatory mechanisms and sustainable management practices to prevent overexploitation of groundwater resources and ensure equitable access for all stakeholders.

The Supreme Court issued directives to the central and state governments to regulate groundwater extraction, impose water pricing mechanisms, and promote recharge measures to replenish depleted aquifers. The Court also directed the establishment of groundwater regulatory authorities and the implementation of groundwater management plans to address the challenges of groundwater depletion and contamination.

The judgment in Centre for Environmental Law, WWF-India v. Union of India underscored the importance of sustainable groundwater management and the regulation of water-intensive industries to protect water resources and ensure equitable access for present and future generations. It emphasized the judiciary's role in addressing emerging water challenges and promoting sustainable development.

Judicial interventions and landmark cases have played a crucial role in advancing water justice, environmental protection, and human rights in India. The cases discussed above demonstrate the judiciary's proactive role in interpreting constitutional provisions, statutory laws, and international obligations to safeguard water resources, uphold the right to water, and ensure access to safe drinking water for all citizens.

These cases have set important precedents, established legal principles, and provided remedies for environmental harm, pollution, and violations of fundamental rights. They have also underscored the need for effective regulatory mechanisms, participatory decision-making processes, and accountability mechanisms to address water-related challenges and promote sustainable water management practices in India.

3.4 Role of regulatory authorities and enforcement mechanisms

Ensuring equitable access to safe drinking water requires the establishment of robust regulatory authorities and effective enforcement mechanisms to monitor compliance with water quality standards, regulate water use, and enforce legal provisions aimed at protecting public health

and environmental sustainability. This section explores the role of regulatory authorities and enforcement mechanisms in safeguarding the right to water and promoting water justice.

I. Regulatory Authorities

Regulatory authorities play a pivotal role in overseeing water governance, enforcing regulations, and ensuring compliance with legal provisions related to water quality, supply, and distribution. These authorities may operate at the national, state, or local levels and have jurisdiction over various aspects of water management, including pollution control, sanitation, irrigation, and drinking water supply. Key functions of regulatory authorities include:

- 1. Setting Standards: Regulatory authorities are responsible for establishing water quality standards, guidelines, and permissible limits for various contaminants in drinking water, based on scientific evidence, health considerations, and environmental protection objectives. These standards serve as benchmarks for assessing water quality and ensuring that drinking water is safe for human consumption.
- 2. Monitoring and Surveillance: Regulatory authorities conduct regular monitoring and surveillance of water sources, treatment facilities, distribution networks, and public water supplies to assess compliance with water quality standards and detect any deviations or contamination incidents. Monitoring activities may involve water sampling, laboratory analysis, field inspections, and data collection to identify potential risks to public health and environmental integrity.
- 3. Licensing and Permitting: Regulatory authorities issue licenses, permits, and approvals for water abstraction, diversion, discharge, and other activities affecting water resources, ensuring that such activities comply with legal requirements, environmental safeguards, and public health standards. Licensing processes may involve conducting environmental impact assessments, public consultations, and stakeholder engagement to assess the potential risks and benefits of water-related projects and activities.
- 4. Enforcement and Compliance: Regulatory authorities enforce legal provisions, regulations, and orders related to water quality, pollution control, sanitation, and public health through inspections, audits, enforcement actions, and penalties for non-compliance. Enforcement mechanisms may include issuing notices, warnings, fines, and closure orders to violators, as well as prosecuting offenders in court for criminal or civil violations of water laws and regulations.

II. Enforcement Mechanisms

Effective enforcement mechanisms are essential for ensuring compliance with water laws, regulations, and standards, deterring violations, and holding polluters accountable for environmental damage and public health risks. Enforcement mechanisms may vary depending on the nature of the violation, the severity of the impact, and the legal framework governing water governance. Key enforcement mechanisms include:

- 1. Administrative Enforcement: Regulatory authorities have the power to enforce compliance with water laws and regulations through administrative measures, such as issuing directives, orders, and sanctions against violators. Administrative enforcement actions may include issuing compliance notices, imposing fines, revoking permits, and initiating administrative proceedings to rectify violations and prevent future non-compliance.
- 2. Civil Remedies: Civil remedies provide legal recourse for individuals, communities, and affected parties to seek redress for harm caused by water pollution, contamination, or other violations of water rights. Civil remedies may include filing lawsuits, seeking injunctions, and claiming damages or compensation for loss of livelihood, property damage, or personal injury resulting from water-related incidents.
- 3. Criminal Prosecution: In cases of serious or willful violations of water laws, regulatory authorities may initiate criminal prosecution against offenders, culminating in criminal charges, trials, and potential penalties, including fines, imprisonment, or other sanctions. Criminal prosecution acts as a deterrent against egregious violations of water rights, environmental laws, and public health regulations, sending a strong signal that illegal actions will not be tolerated and perpetrators will be held accountable under the law.
- 4. Public Participation and Citizen Enforcement: Public participation and citizen enforcement mechanisms empower individuals, communities, and civil society organizations to monitor water quality, report violations, and hold authorities accountable for enforcing water laws and regulations. Public participation may involve filing complaints, submitting petitions, and engaging in advocacy and awareness-raising activities to promote transparency, accountability, and public oversight of water governance processes.

III. Challenges and Solutions

Despite the importance of regulatory authorities and enforcement mechanisms in ensuring equitable access to safe drinking water, several challenges and gaps persist in their implementation and effectiveness. These challenges include:

- 1. Capacity Constraints: Regulatory authorities may face limitations in human, financial, and technical resources, hindering their ability to conduct adequate monitoring, enforcement, and compliance activities. Capacity-building efforts, training programs, and institutional reforms are needed to strengthen the capacity of regulatory agencies and enhance their effectiveness in regulating water resources.
- 2. Legal Loopholes: Weak or outdated water laws, regulations, and enforcement mechanisms may create legal loopholes, allowing polluters to evade accountability, exploit loopholes, or engage in regulatory arbitrage to avoid compliance with environmental standards. Legal reforms, policy updates, and legislative amendments are necessary to close loopholes, strengthen regulatory frameworks, and enhance legal certainty in water governance.
- 3. Enforcement Challenges: Enforcement of water laws and regulations may face challenges due to bureaucratic delays, resource constraints, political interference, and lack of coordination among regulatory agencies. Streamlining enforcement procedures, improving inter-agency cooperation, and enhancing public-private partnerships can help overcome enforcement challenges and improve compliance with water regulations.
- 4. Access to Justice: Access to justice for victims of water pollution, environmental degradation, and human rights violations may be limited due to barriers such as high costs, legal complexity, and inadequate legal aid services. Strengthening access to justice mechanisms, providing legal assistance to marginalized communities, and promoting alternative dispute resolution mechanisms can facilitate greater accountability and redress for water-related grievances.

In conclusion, regulatory authorities and enforcement mechanisms play a crucial role in ensuring equitable access to safe drinking water, protecting water resources, and upholding water rights. By setting standards, monitoring compliance, and enforcing legal provisions, regulatory agencies can promote water justice, environmental sustainability, and public health. However, addressing challenges such as capacity constraints, legal loopholes, enforcement gaps, and access to justice requires concerted efforts from governments, policymakers, civil society organizations, and other stakeholders to strengthen regulatory frameworks, enhance enforcement mechanisms, and promote accountability in water governance.



Chapter 4- Challenges to Water Justice in India

4.1 Urban-rural divide in access to water

The urban-rural divide in access to water represents a significant challenge to water justice in India, exacerbating inequalities in water availability, quality, and service delivery between urban and rural areas. This section explores the dynamics of the urban-rural water divide, underlying factors contributing to disparities, and implications for water governance and social equity.

I. Disparities in Water Access

1. Urban Water Challenges:

Urban areas in India face multiple water challenges, including population growth, rapid urbanization, inadequate infrastructure, and water scarcity. Many cities rely on centralized water supply systems, groundwater extraction, and surface water sources for meeting their water needs, leading to overexploitation of resources, pollution, and infrastructure deficits. Informal settlements, slums, and marginalized urban communities often lack access to piped water supply, sanitation facilities, and reliable water services, forcing residents to rely on informal sources, such as tankers, borewells, and water vendors, which may be unsafe, unregulated, and costly.

2. Rural Water Challenges:

Rural areas in India also confront water-related issues, such as groundwater depletion, water contamination, and insufficient irrigation infrastructure. Agriculture, which accounts for a significant portion of water consumption in rural areas, faces challenges of water scarcity, inefficient irrigation practices, and climate variability, affecting crop yields, agricultural productivity, and rural livelihoods. Many rural communities rely on traditional water sources, such as wells, ponds, and rainwater harvesting, for meeting their water needs, but these sources may be inadequate, unreliable, or contaminated, posing risks to public health and agricultural sustainability.

II. Factors Contributing to the Urban-Rural Water Divide

1. Economic Disparities:

Economic disparities between urban and rural areas contribute to inequalities in access to water, with urban residents generally having greater purchasing power, access to infrastructure, and service options compared to rural populations. Limited financial resources, poverty, and lack of employment opportunities in rural areas exacerbate water-related challenges, hindering investments in water infrastructure, sanitation facilities, and rural development initiatives.

2. Infrastructure Development:

Infrastructure development and investment priorities often favor urban areas over rural regions, leading to disparities in access to water supply, sanitation, and basic services. Urbancentric policies, centralized planning, and urban bias in resource allocation neglect the needs of rural communities and marginalized groups, perpetuating inequities and social exclusion in water governance and service delivery.

3. Governance and Policy:

Governance and policy frameworks governing water resources management may prioritize urban interests, industrial development, and economic growth at the expense of rural livelihoods, environmental conservation, and social equity. Decentralized governance structures, community participation mechanisms, and equitable water allocation policies are often lacking in rural areas, limiting opportunities for local empowerment, resource management, and decision-making.

4. Technological Divide:

Technological disparities between urban and rural areas affect access to water-related technologies, innovations, and solutions, with urban centers often benefiting from advanced water treatment technologies, piped water supply networks, and smart infrastructure systems. In contrast, rural communities may lack access to appropriate technologies, expertise, and resources for addressing water challenges, limiting their capacity to adopt sustainable water management practices and adapt to changing environmental conditions.

III. Implications for Water Justice and Governance

1. Social Equity:

The urban-rural water divide undermines principles of social equity, human rights, and distributive justice, perpetuating inequalities in access to essential services, livelihood opportunities, and quality of life. Marginalized populations, including women, children,

indigenous peoples, and rural communities, bear the brunt of water-related disparities, facing barriers to accessing safe drinking water, sanitation, and hygiene facilities, and suffering disproportionately from waterborne diseases, malnutrition, and poverty.

2. Environmental Sustainability:

The urban-rural water divide has implications for environmental sustainability, ecosystem health, and natural resource management, as unsustainable water use practices in urban areas contribute to groundwater depletion, river pollution, and ecological degradation, impacting rural livelihoods, agricultural productivity, and biodiversity. Addressing water-related challenges requires integrated approaches to water governance, ecosystem restoration, and sustainable development that prioritize environmental conservation, water security, and community resilience.

3. Policy Interventions:

Policy interventions and institutional reforms are needed to address the urban-rural water divide and promote water justice in India. This includes adopting decentralized water governance models, participatory decision-making processes, and inclusive policies that prioritize the needs of rural communities, smallholder farmers, and vulnerable groups. Strengthening rural water supply infrastructure, investing in rainwater harvesting, groundwater recharge, and water conservation initiatives, and promoting community-led water management approaches can enhance resilience, equity, and sustainability in water governance.

The urban-rural divide in access to water presents formidable challenges to water justice in India, underscoring the need for integrated, equitable, and sustainable approaches to water governance, resource management, and social development. Addressing disparities in water access, quality, and service delivery requires concerted efforts from governments, policymakers, civil society organizations, and local communities to prioritize the needs of marginalized populations, promote participatory decision-making, and ensure universal access to safe drinking water and sanitation for all citizens, regardless of their location or socio- economic status.

4.2 Pollution and contamination of water sources

Pollution and contamination of water sources represent significant challenges to water justice in India, threatening public health, environmental sustainability, and the realization of the right

to safe drinking water for all citizens. This section explores the various sources, causes, and impacts of water pollution and contamination in India, as well as the legal and policy responses to address these challenges.

I. Sources and Causes of Water Pollution

Water pollution in India arises from multiple sources and activities, including industrial discharge, urban sewage, agricultural runoff, solid waste disposal, and untreated effluents from domestic and commercial sources. The following are some of the key sources and causes of water pollution in India:

- 1. Industrial Pollution: Industries discharge a wide range of pollutants into water bodies, including heavy metals, chemicals, organic compounds, and toxic substances, as a result of manufacturing processes, mining activities, and industrial waste disposal. Industrial pollution poses significant risks to water quality, aquatic ecosystems, and human health, particularly in industrialized regions and urban centers.
- 2. Urban Sewage and Wastewater: Urbanization and population growth have led to increased generation of sewage and wastewater from households, commercial establishments, and municipal infrastructure. In many cities and towns, inadequate sewage treatment facilities, combined sewer overflows, and improper sanitation practices contribute to the contamination of surface water and groundwater sources, posing risks of waterborne diseases and environmental degradation.
- 3. Agricultural Runoff: Agricultural practices, such as excessive use of fertilizers, pesticides, and herbicides, contribute to nutrient runoff, soil erosion, and contamination of water bodies with agricultural chemicals and pollutants. Non-point source pollution from agricultural runoff affects surface water quality, impairs aquatic habitats, and contributes to eutrophication, algal blooms, and water quality degradation in rivers, lakes, and coastal areas.
- 4. Solid Waste Disposal: Improper disposal of solid waste, including plastics, municipal waste, and industrial debris, leads to littering, leachate contamination, and surface runoff pollution, affecting water bodies and marine ecosystems. Solid waste dumping in rivers, lakes, and coastal areas contributes to water pollution, habitat destruction, and health hazards for aquatic organisms and human populations living in the vicinity.

II. Impacts of Water Pollution

Water pollution has far-reaching impacts on public health, environmental sustainability, and socio-economic development in India, affecting millions of people, ecosystems, and livelihoods. Some of the key impacts of water pollution include:

- 1. Public Health Risks: Waterborne diseases, such as diarrheal illnesses, cholera, typhoid, and hepatitis, pose significant public health risks for communities exposed to contaminated drinking water sources. Poor sanitation, inadequate hygiene practices, and waterborne pathogens contribute to the spread of waterborne diseases, particularly among vulnerable populations, including children, women, and marginalized communities.
- 2. Environmental Degradation: Water pollution threatens the ecological integrity and biodiversity of aquatic ecosystems, leading to habitat degradation, species loss, and disruption of ecosystem services. Contaminants such as heavy metals, persistent organic pollutants, and toxic chemicals accumulate in sediments, bioaccumulate in food chains, and pose risks to aquatic organisms, including fish, amphibians, and aquatic plants.
- 3. Water Scarcity and Resource Depletion: Pollution of water sources reduces the availability and quality of freshwater resources for drinking, irrigation, industrial use, and ecological purposes, exacerbating water scarcity, competition, and conflicts over water allocation. Groundwater contamination, in particular, poses risks of resource depletion, aquifer contamination, and long-term impacts on water availability for future generations.
- 4. Socio-economic Impacts: Water pollution undermines socio-economic development, livelihoods, and food security by affecting agriculture, fisheries, tourism, and other sectors dependent on water resources. Contaminated water sources reduce agricultural productivity, impair fisheries yields, and diminish the aesthetic value and recreational appeal of water bodies, impacting local economies and livelihoods dependent on water-based activities.

III. Legal and Policy Responses

Addressing the challenges of water pollution and contamination requires comprehensive legal and policy responses aimed at preventing pollution, regulating discharges, and protecting water quality and public health. The following are some of the key legal and policy measures adopted in India to address water pollution:

1. Water Pollution Control Laws: India has enacted several laws and regulations to regulate water pollution, including the Water (Prevention and Control of Pollution) Act, 1974, and the Environment (Protection) Act, 1986, which empower regulatory authorities to regulate

industrial discharges, monitor water quality, and enforce pollution control measures to safeguard water resources and public health.

- 2. National Water Quality Monitoring Program: The Central Pollution Control Board (CPCB) and State Pollution Control Boards (SPCBs) conduct regular monitoring of water quality across India through the National Water Quality Monitoring Program, which assesses the status of water pollution, identifies pollution hotspots, and prioritizes remedial actions to improve water quality in polluted areas.
- 3. Pollution Control Measures: Regulatory authorities implement pollution control measures, such as effluent standards, emission limits, and pollution abatement technologies, to minimize pollutant discharges from industries, municipalities, and other sources. Pollution control measures include wastewater treatment, pollution prevention plans, and best management practices to reduce pollutant loads and mitigate environmental impacts.
- 4. Environmental Impact Assessment (EIA): The Environmental Impact Assessment (EIA) process requires developers of industrial projects, infrastructure projects, and other activities with potential environmental impacts to conduct environmental assessments, identify potential risks, and propose mitigation measures to minimize adverse effects on water resources, ecosystems, and public health.

Pollution and contamination of water sources pose significant challenges to water justice in India, threatening public health, environmental sustainability, and the realization of the right to safe drinking water for all citizens. Addressing these challenges requires concerted efforts from government agencies, policymakers, industries, civil society organizations, and communities to prevent pollution, regulate discharges, and protect water quality through effective legal and policy interventions.

4.3 Privatization and commodification of water

Privatization and commodification of water represent significant challenges to water justice in India, as they undermine the principles of equity, access, and affordability in water governance, and pose threats to human rights, environmental sustainability, and public health. This section explores the impacts of privatization and commodification of water on water justice and examines the underlying drivers, risks, and implications of these trends.

I. Impacts of Privatization and Commodification

Privatization of water refers to the transfer of water supply, distribution, and management responsibilities from public authorities to private companies or entities, often through outsourcing, public-private partnerships (PPPs), or full privatization of water services. Commodification of water involves treating water as a tradable commodity subject to market forces, pricing mechanisms, and profit motives, rather than as a public good or essential human right.

The impacts of privatization and commodification of water on water justice in India are multifaceted and include:

- 1. Inequitable Access: Privatization of water services may lead to inequitable access to safe drinking water, as private companies prioritize profitable areas and affluent customers over marginalized communities, rural areas, and low-income households. This exacerbates socioeconomic disparities and denies vulnerable populations their right to water, perpetuating inequalities in access and service provision.
- 2. Affordability: Privatization often results in higher water tariffs, user fees, and service charges, making water less affordable for low-income households and marginalized communities who may struggle to pay for essential services. Affordability concerns may lead to water disconnections, arrears, and water poverty, further marginalizing vulnerable groups and compromising their access to safe drinking water.
- 3. Quality and Safety: Privatization of water services may compromise water quality and safety standards, as private companies prioritize cost-cutting measures, profit maximization, and operational efficiency over public health and environmental protection. Inadequate regulation, oversight, and accountability mechanisms may result in water contamination, pollution, and health risks, endangering the well-being of consumers and communities.
- 4. Lack of Accountability: Privatization of water services often undermines democratic governance, transparency, and public accountability in water management, as private companies operate under proprietary models, commercial interests, and contractual arrangements that prioritize shareholder value over public interests. Lack of transparency, disclosure, and public participation in decision-making processes limit accountability and citizen oversight of water services, eroding trust in privatized water systems.

II. Drivers and Risks

The drivers of privatization and commodification of water in India are influenced by various factors, including:

- 1. Neoliberal Ideologies: Privatization and commodification of water are driven by neoliberal ideologies that promote market-based solutions, deregulation, and private sector participation in public service delivery. Neoliberal reforms, structural adjustment programs, and globalization have facilitated the entry of multinational corporations, financial institutions, and private investors into the water sector, seeking profit opportunities and market expansion.
- 2. Fiscal Pressures: Fiscal constraints, budget deficits, and austerity measures faced by governments may incentivize privatization of water services as a means to reduce public expenditure, attract private investment, and transfer financial risks and responsibilities to the private sector. Privatization may be perceived as a cost-saving measure to alleviate financial burdens on cash-strapped governments and improve efficiency in service delivery.
- 3. Technological Solutions: Technological advancements, innovations, and water-saving technologies promoted by private companies may drive privatization of water services by offering efficiency gains, performance improvements, and cost-effective solutions for water management. Privatization may be justified on grounds of technological superiority, expertise, and innovation capabilities of private operators in delivering water services.

However, privatization and commodification of water pose significant risks and challenges, including:

- 1. Loss of Public Control: Privatization of water services may result in the loss of public control, sovereignty, and democratic governance over water resources, as private companies operate under proprietary models, contractual arrangements, and commercial interests that prioritize profit motives over public welfare. Privatization may lead to the erosion of public oversight, accountability mechanisms, and participatory decision-making processes in water governance.
- 2. Regulatory Capture: Privatization of water services may lead to regulatory capture, whereby private companies influence or control regulatory agencies, policies, and decision-making processes to advance their commercial interests, protect their market share, and avoid accountability for environmental and social externalities. Regulatory capture may undermine the independence, impartiality, and effectiveness of regulatory authorities in safeguarding public interests and ensuring compliance with water laws and regulations.

3. Social Exclusion: Privatization and commodification of water may exacerbate social exclusion, marginalization, and discrimination, as private companies prioritize profitable markets, affluent customers, and urban areas over rural communities, low-income households, and vulnerable populations who lack access to formal water services. Social exclusion may deepen inequalities in water access, exacerbate poverty, and perpetuate socio-economic disparities, particularly among marginalized groups.

III. Policy Responses and Recommendations

Addressing the challenges of privatization and commodification of water requires policy responses and regulatory interventions aimed at safeguarding water rights, promoting public interests, and ensuring equitable access to safe drinking water for all citizens. Key recommendations include:

- 1. Public Ownership and Control: Promote public ownership, control, and management of water resources and services as a core public responsibility and essential human right, ensuring that water remains a public good and common heritage for present and future generations. Strengthen public institutions, utilities, and community-based organizations to deliver water services in an accountable, transparent, and participatory manner.
- 2. Regulation and Oversight: Strengthen regulatory frameworks, oversight mechanisms, and accountability measures to regulate private sector involvement in water services, protect public interests, and enforce compliance with water quality standards, environmental safeguards, and human rights obligations. Enhance transparency, disclosure, and public participation in decision-making processes to promote accountability and citizen oversight of privatized water systems.
- 3. Social Equity and Inclusion: Ensure social equity, inclusion, and non-discrimination in water governance by prioritizing the needs of marginalized communities, rural areas, and vulnerable populations in water service delivery, infrastructure development, and policy interventions. Adopt targeted measures, subsidies, and affirmative action programs to address affordability concerns, expand access to safe drinking water, and promote social justice in water distribution.
- 4. Alternatives to Privatization: Explore alternative models of water governance, such as community-based management, public-public partnerships (PUPs), and not-for-profit utilities, that prioritize public interests, community participation, and sustainable development goals over profit motives and market-driven approaches. Invest in decentralized, participatory, and

people-centered water management solutions that empower local communities, enhance resilience, and promote collective action for water justice.

Privatization and commodification of water present formidable challenges to water justice in India, threatening the rights of vulnerable populations, compromising environmental sustainability, and undermining public control over water resources. By adopting policy responses, regulatory interventions, and alternative models of water governance, India can address the risks and pitfalls of privatization, promote equitable access to safe drinking water, and uphold the principles of water justice, human rights, and environmental integrity.

4.4 Climate change impacts on water availability

Climate change poses significant challenges to water availability, quality, and distribution in India, exacerbating existing water stress, environmental degradation, and socio-economic disparities. This section examines the impacts of climate change on water resources in India and the implications for water justice, highlighting the need for adaptation strategies, sustainable water management practices, and equitable distribution mechanisms to address these challenges effectively.

I. Climate Change Trends

India is highly vulnerable to the impacts of climate change, with observed trends indicating rising temperatures, changing precipitation patterns, and increased frequency of extreme weather events, such as droughts, floods, and cyclones. These climate change impacts have profound implications for water resources, ecosystems, agriculture, and human well-being, exacerbating water scarcity, variability, and insecurity across the country.

- 1. Rising Temperatures: Climate change is leading to increased temperatures in India, affecting evaporation rates, snowmelt patterns, and water availability in rivers, lakes, and reservoirs. Rising temperatures accelerate glacial melting in the Himalayas, affecting river flows and water supplies downstream, particularly during the dry season when water demand is high.
- 2. Changing Precipitation Patterns: Climate change is altering precipitation patterns in India, leading to changes in the timing, intensity, and distribution of rainfall across different regions. While some areas may experience increased rainfall and flooding, others may face prolonged dry spells and drought conditions, affecting agricultural productivity, water recharge, and groundwater levels.

3. Extreme Weather Events: Climate change is contributing to the increased frequency and severity of extreme weather events, such as droughts, floods, and cyclones, which disrupt water supplies, damage infrastructure, and exacerbate water-related risks and vulnerabilities. Floods can overwhelm drainage systems, contaminate water sources, and spread waterborne diseases, while droughts can lead to crop failures, food insecurity, and rural distress.

II. Impacts on Water Resources

Climate change impacts on water resources in India have far-reaching consequences for water availability, quality, and distribution, affecting ecosystems, agriculture, industry, and human settlements. These impacts pose significant challenges to water governance, infrastructure, and management, exacerbating existing water stress and socio-economic disparities.

- 1. Water Scarcity: Climate change exacerbates water scarcity in India by reducing precipitation, increasing evaporation, and altering hydrological cycles, leading to reduced water availability for irrigation, domestic use, and industrial purposes. Water-stressed regions, such as the arid and semi-arid zones of western and central India, are particularly vulnerable to climate-induced water shortages, affecting agriculture, livelihoods, and rural communities.
- 2. Groundwater Depletion: Climate change influences groundwater recharge rates and aquifer dynamics, affecting groundwater availability and quality in India. Overexploitation of groundwater resources for irrigation, urbanization, and industrial use exacerbates groundwater depletion, leading to declining water tables, saltwater intrusion, and land subsidence in coastal areas and overexploited regions.
- 3. Water Quality Degradation: Climate change impacts water quality in India by altering precipitation patterns, increasing runoff, and intensifying pollution from agricultural runoff, industrial discharges, and urban sewage, contaminating surface water and groundwater sources. Waterborne diseases, such as cholera, typhoid, and diarrheal diseases, pose significant public health risks, particularly during extreme weather events and floods.
- 4. Ecosystem Vulnerability: Climate change affects freshwater ecosystems, wetlands, and rivers in India, disrupting ecological processes, biodiversity, and ecosystem services, such as water purification, flood regulation, and habitat provision. Changes in temperature, rainfall, and hydrology impact aquatic species, migratory patterns, and food webs, threatening the resilience and sustainability of aquatic ecosystems.

III. Adaptation and Resilience Strategies

Addressing the challenges of climate change impacts on water resources requires proactive adaptation and resilience strategies that build the capacity of communities, institutions, and ecosystems to cope with changing conditions and uncertainties. These strategies encompass a range of measures, including:

- 1. Water Conservation and Efficiency: Promoting water conservation, efficiency, and demand management practices to reduce water consumption, optimize water use, and minimize water losses in agriculture, industry, and urban areas. Implementing water-saving technologies, irrigation efficiency measures, and rainwater harvesting techniques can enhance water resilience and sustainability.
- 2. Integrated Water Resources Management: Adopting an integrated approach to water resources management that considers the interconnectedness of water systems, land use, ecosystems, and socio-economic activities. Developing comprehensive water management plans, watershed management strategies, and river basin management frameworks can enhance resilience to climate change impacts and promote sustainable water use.
- 3. Climate-Resilient Infrastructure: Investing in climate-resilient infrastructure, such as dams, reservoirs, canals, and water treatment facilities, to withstand extreme weather events, floods, and droughts. Incorporating climate risk assessments, design standards, and adaptation measures into infrastructure planning and development can enhance the resilience and reliability of water supply systems.
- 4. Ecosystem Restoration and Conservation: Protecting and restoring freshwater ecosystems, wetlands, and riparian habitats to enhance their resilience to climate change impacts and maintain ecological integrity. Implementing conservation measures, habitat restoration projects, and ecosystem-based adaptation strategies can enhance the capacity of ecosystems to provide water-related services and support biodiversity conservation.

IV. Policy and Governance Responses

Addressing climate change impacts on water resources requires coherent policy frameworks, governance mechanisms, and institutional arrangements that integrate climate considerations into water planning, management, and decision-making processes. Key policy and governance responses include:

1. Climate-Responsive Water Policies: Formulating and implementing climate-responsive water policies, laws, and regulations that incorporate climate change considerations, risk

assessments, and adaptation strategies into water governance frameworks. Integrating climate adaptation measures into national water policies, sectoral plans, and development strategies can enhance water resilience and sustainability in the face of climate uncertainties.

- 2. Institutional Coordination and Collaboration: Strengthening institutional coordination, collaboration, and capacity-building among government agencies, water utilities, civil society organizations, and stakeholders to enhance climate resilience and adaptive capacity in water management. Establishing multi-stakeholder platforms, knowledge-sharing networks, and participatory decision-making processes can foster collaboration and synergies in climate adaptation efforts.
- 3. Community Engagement and Empowerment: Promoting community engagement, participation, and empowerment in climate adaptation and water governance processes to ensure that adaptation strategies are context-specific, inclusive, and equitable. Empowering local communities, indigenous peoples, and marginalized groups to participate in decision-making, resource management, and adaptation planning can enhance the effectiveness and sustainability of adaptation initiatives.
- 4. Financing and Investment: Mobilizing financial resources, investment, and technical assistance to support climate adaptation measures, water infrastructure projects, and capacity-building efforts in vulnerable regions and sectors. Leveraging public-private partnerships, climate finance mechanisms, and international cooperation can enhance the resilience of water systems and promote sustainable development outcomes in the face of climate change.

Climate change poses formidable challenges to water availability, quality, and distribution in India, threatening water security, environmental sustainability, and human well-being. Addressing these challenges requires concerted efforts from governments, policymakers, civil society organizations, and other stakeholders to adopt adaptive strategies, strengthen resilience, and promote equitable access to water resources in the face of climate uncertainties.

4.5 Socio-economic disparities and marginalized communities

Socio-economic disparities and the marginalization of certain communities pose significant challenges to equitable access to safe drinking water, exacerbating inequalities and perpetuating injustices in water governance. This section examines the socio-economic factors

that contribute to disparities in water access and quality, as well as the specific vulnerabilities faced by marginalized communities in accessing safe drinking water.

I. Socio-Economic Factors Affecting Water Access

- 1. Income and Affordability: Income levels and economic resources influence access to safe drinking water, as households with lower incomes may struggle to afford water bills, water treatment technologies, or alternative water sources. High water tariffs, user fees, and privatization of water services can exacerbate affordability issues, particularly for low-income households in urban areas and rural communities.
- 2. Infrastructure and Services: Disparities in water infrastructure and services, such as piped water supply, sanitation facilities, and water treatment plants, contribute to unequal access to safe drinking water. Urban areas typically have better water infrastructure and service coverage than rural areas, where communities may rely on hand pumps, wells, or unprotected sources for drinking water, exposing them to contamination and health risks.
- 3. Geographic Location: The geographical location of communities, including their proximity to water sources, rivers, lakes, or reservoirs, influences access to safe drinking water. Remote, rural, and marginalized areas may face challenges in accessing clean water due to limited infrastructure, difficult terrain, and inadequate government services, leading to reliance on unsafe or distant water sources.
- 4. Water Quality and Pollution: Socio-economic disparities also intersect with water quality issues, as marginalized communities often bear the brunt of water pollution, contamination, and environmental degradation due to industrial activities, agricultural runoff, and inadequate sanitation infrastructure. Polluted water sources disproportionately affect vulnerable populations, leading to waterborne diseases, health disparities, and economic burdens.

II. Vulnerabilities of Marginalized Communities

1. Rural Communities: Rural populations, particularly those belonging to indigenous tribes, ethnic minorities, or marginalized castes, face significant challenges in accessing safe drinking water due to limited infrastructure, poor water quality, and social exclusion. Women and children in rural areas often bear the burden of water collection, spending hours each day fetching water from distant sources, which affects their health, education, and economic opportunities.

- 2. Urban Slum Dwellers: Informal settlements and urban slums are hotspots of water insecurity, as residents lack access to piped water supply, sanitation facilities, and basic services. Overcrowding, inadequate housing, and poor sanitation increase the risk of waterborne diseases, malnutrition, and child mortality among urban slum dwellers, perpetuating cycles of poverty and vulnerability.
- 3. Tribal and Indigenous Communities: Tribal and indigenous communities living in remote or forested areas often face marginalization, discrimination, and dispossession of their traditional lands and water resources. Mega-projects, such as dams, mining, and industrial development, disrupt ecosystems, displace communities, and degrade water sources, undermining indigenous rights, cultural heritage, and livelihoods dependent on natural resources.
- 4. Dalits and Other Marginalized Castes: Dalits and other marginalized castes in India experience discrimination and social exclusion in accessing water resources and sanitation facilities, as they are often relegated to segregated or lower-caste settlements with limited access to public services. Caste-based discrimination and untouchability practices further exacerbate inequalities in water access and perpetuate social injustices.

III. Addressing Socio-Economic Disparities and Marginalization

- 1. Equity-Based Policies: Implement equity-based policies and affirmative action measures to address socio-economic disparities and ensure inclusive access to safe drinking water for marginalized communities. Targeted interventions, subsidies, and community-driven development projects can improve water infrastructure, service delivery, and livelihood opportunities for vulnerable populations.
- 2. Participatory Approaches: Promote participatory approaches to water governance that empower marginalized communities, foster community ownership, and ensure their meaningful participation in decision-making processes. Community-based organizations, self-help groups, and grassroots movements can mobilize communities, build capacity, and advocate for their rights to water and sanitation.
- 3. Capacity Building: Invest in capacity building, education, and awareness-raising initiatives to empower marginalized communities with knowledge, skills, and resources to manage water resources sustainably, adopt water-saving technologies, and mitigate water-related risks. Training programs, vocational education, and skill development can enhance community resilience and adaptive capacity to climate change.

4. Legal Empowerment: Strengthen legal empowerment initiatives, legal aid services, and access to justice mechanisms to enable marginalized communities to assert their rights, claim entitlements, and seek redress for water-related grievances. Legal literacy programs, paralegal networks, and public interest litigation can empower communities to challenge injustices, hold authorities accountable, and demand accountability in water governance.

In conclusion, addressing socio-economic disparities and marginalization is essential for achieving equitable access to safe drinking water and promoting water justice in India. By addressing the underlying structural inequalities, discrimination, and exclusionary practices that perpetuate water insecurity among marginalized communities, policymakers, governments, and civil society organizations can advance the realization of the right to water and ensure that no one is left behind in the pursuit of sustainable development and human dignity.



Chapter 5- Case Studies and Comparative Analysis

5.1 Case studies of successful water justice initiatives

Case Study 1: Community-led Water Management in Rajasthan, India

In the arid region of Rajasthan, India, the Tarun Bharat Sangh (TBS), a grassroots organization founded by environmentalist Rajendra Singh, has pioneered community-led water management initiatives that have transformed the landscape and improved water security for local communities. Through traditional rainwater harvesting techniques, such as building check dams, johads (small reservoirs), and recharging groundwater aquifers, TBS has revived water sources, restored degraded ecosystems, and revitalized rural economies.

The success of TBS's water management model lies in its emphasis on community participation, indigenous knowledge, and decentralized governance structures. By empowering local communities to take ownership of water resources, manage water systems sustainably, and resolve conflicts through consensus-building and social cohesion, TBS has demonstrated the efficacy of bottom-up approaches to water governance and the importance of integrating traditional wisdom with modern technologies.

Case Study 2: Water Rights Movement in Cochabamba, Bolivia

In Cochabamba, Bolivia, the Water War of 2000, led by grassroots organizations, trade unions, and indigenous groups, successfully challenged water privatization and corporate control over water resources, asserting the right to water as a fundamental human right and a common good. The movement, sparked by protests against the privatization of the municipal water supply by a foreign multinational corporation, Bechtel, mobilized thousands of citizens in defense of public ownership, water affordability, and community control over water services.

The Water War of Cochabamba resulted in the cancellation of the privatization contract, the establishment of a public water company, and the recognition of water as a human right in Bolivia's constitution. The movement inspired similar struggles for water justice worldwide and underscored the power of collective action, social movements, and citizen activism in challenging neoliberal policies, corporate hegemony, and water commodification.

5.2 Comparative analysis with international legal frameworks

Comparative Analysis 1: Right to Water Legislation in South Africa

South Africa's Water Services Act of 1997 and the National Water Act of 1998 recognize the right to water as a constitutional right and establish principles of equity, sustainability, and public participation in water governance. These legislative frameworks prioritize access to basic water supply and sanitation services for all citizens, particularly marginalized and vulnerable groups, and promote community participation, water conservation, and integrated water resources management.

The South African experience underscores the importance of enshrining the right to water in national legislation, institutionalizing participatory decision-making processes, and adopting holistic approaches to water governance that integrate social, economic, and environmental considerations.

Comparative Analysis 2: European Union Water Framework Directive

The European Union's Water Framework Directive (WFD), adopted in 2000, provides a comprehensive legal framework for water management, protection, and restoration across member states, emphasizing the principle of integrated water resources management, stakeholder engagement, and ecosystem-based approaches. The WFD sets environmental objectives, establishes river basin management plans, and mandates public participation in water governance processes, ensuring transparency, accountability, and sustainability in water management.

The European Union's experience with the WFD demonstrates the importance of transboundary cooperation, cross-sectoral coordination, and adaptive management in addressing water challenges at the regional level, fostering collaboration among diverse stakeholders, and harmonizing water policies and practices across national borders.

5.3 Lessons learned and best practices

1. Community Empowerment: Empower local communities, indigenous peoples, and marginalized groups to actively participate in water governance, decision-making processes, and resource management initiatives, recognizing their traditional knowledge, cultural values, and rights to water.

- 2. Legal Recognition: Enshrine the right to water as a fundamental human right in national legislation, constitutions, and legal frameworks, ensuring its enforceability through effective mechanisms, judicial remedies, and accountability mechanisms.
- 3. Integrated Approaches: Adopt integrated water resources management approaches that address the interlinkages between water, environment, and development, promoting holistic solutions, multi-stakeholder partnerships, and ecosystem-based approaches to water governance.

Best Practices:

- 1. Participatory Planning: Engage stakeholders, civil society organizations, and local communities in participatory planning processes, water resource assessments, and decision-making forums to ensure inclusive, transparent, and accountable water governance.
- 2. Equity-Based Policies: Implement equity-based policies, affirmative action measures, and targeted interventions to address socio-economic disparities, promote social inclusion, and ensure equitable access to safe drinking water for marginalized communities.
- 3. Adaptive Management: Embrace adaptive management principles, learning-by-doing approaches, and adaptive governance mechanisms to respond to uncertainties, dynamic changes, and emerging water challenges, fostering resilience, innovation, and adaptive capacity in water management.

In conclusion, Case studies and comparative analysis provide valuable insights into successful water justice initiatives, legal frameworks, and best practices from diverse contexts, informing policy reforms, institutional innovations, and community-driven solutions for equitable access to safe drinking water. By drawing on lessons learned and best practices from around the world, governments, policymakers, and stakeholders can collaborate to advance water justice, protect water resources, and uphold the rights of all individuals and communities to clean and safe drinking water.

Chapter 6- Stakeholder Perspectives and Public Participation

6.1 Role of civil society organizations and grassroots movements

Civil society organizations (CSOs) and grassroots movements play a critical role in advocating for water justice, promoting community participation, and holding governments and corporations accountable for equitable access to safe drinking water and sustainable water management practices. Through grassroots mobilization, community organizing, and advocacy campaigns, CSOs and grassroots movements amplify the voices of marginalized communities, raise awareness about water-related issues, and mobilize collective action to address water challenges. This section examines the role of CSOs and grassroots movements in advancing water justice initiatives and promoting public participation in water governance.

1. The Narmada Bachao Andolan (NBA) in India

The Narmada Bachao Andolan (NBA), or Save the Narmada Movement, is one of India's most prominent grassroots movements advocating for the rights of displaced communities affected by large-scale dam projects on the Narmada River. Led by social activist Medha Patkar and supported by a coalition of farmers, indigenous peoples, and environmentalists, the NBA has campaigned against the construction of dams, displacement of communities, and environmental degradation caused by the Narmada Valley Development Project.

Through nonviolent protests, hunger strikes, and legal challenges, the NBA has raised awareness about the social, environmental, and human rights impacts of dam projects on local communities, highlighting issues such as loss of land and livelihoods, submergence of forests and agricultural lands, and violations of indigenous rights. The NBA's advocacy efforts have resulted in greater scrutiny of dam projects, court rulings mandating rehabilitation and resettlement of affected communities, and public debates about the costs and benefits of large- scale infrastructure projects.

2. WaterAid's Community-Led Water and Sanitation Programs

WaterAid, an international NGO working to improve access to safe water, sanitation, and hygiene in developing countries, employs a community-led approach to water management, empowering local communities to identify their water and sanitation needs, prioritize solutions,

and implement sustainable interventions. Through capacity-building, training, and awareness-raising activities, WaterAid collaborates with communities to construct water supply systems, latrines, and handwashing facilities, promoting hygiene practices and behavior change.

By partnering with local governments, community-based organizations, and other stakeholders, WaterAid facilitates community ownership, participation, and management of water and sanitation facilities, ensuring their sustainability and long-term impact. By investing in community-led initiatives, WaterAid empowers marginalized communities, strengthens local institutions, and fosters inclusive development that prioritizes the needs and rights of the most vulnerable populations.

6.2 Community participation in water management

Community participation is essential for promoting inclusive and sustainable water management practices, ensuring that water governance processes are transparent, accountable, and responsive to the needs and priorities of local communities. This section explores the importance of community participation in water management and highlights examples of successful community-led initiatives.

1. Participatory Water Management in Kerala, India

Kerala, a state in southern India, has implemented innovative approaches to participatory water management through its decentralized governance system and community-driven initiatives. The Kerala State Land Use Board (KSLUB) coordinates participatory planning processes at the local level, engaging stakeholders, including farmers, women's groups, and village councils, in watershed management, soil conservation, and water resource development activities.

By integrating traditional knowledge, scientific expertise, and community perspectives, Kerala's participatory water management initiatives have achieved notable successes in water conservation, soil fertility improvement, and sustainable agriculture practices. Through watershed development programs, rainwater harvesting, and community-based irrigation systems, Kerala has enhanced water availability, increased agricultural productivity, and improved livelihoods for rural communities.

2. Community Water Committees in Kenya

In Kenya, community water committees (CWCs) play a key role in managing and maintaining water supply systems, promoting community ownership, and ensuring the sustainability of water services in rural areas. CWCs, composed of elected representatives from local communities, oversee the operation, maintenance, and financial management of water projects, including boreholes, hand pumps, and gravity-fed systems.

By involving communities in decision-making, resource allocation, and project implementation, CWCs empower local residents to take ownership of water infrastructure, resolve conflicts, and mobilize resources for system repairs and upgrades. The success of CWCs in Kenya demonstrates the importance of community participation, capacity-building, and institutional support in achieving sustainable water management outcomes at the grassroots level.

6.3 Perspectives of government agencies and policymakers

Government agencies and policymakers play a crucial role in shaping water governance policies, regulations, and institutional frameworks to ensure equitable access to safe drinking water, protect water resources, and promote sustainable water management practices. This section examines the perspectives of government agencies and policymakers on water governance and public participation.

1. National Water Policy of India

The National Water Policy of India, first formulated in 1987 and subsequently revised in 2002 and 2012, provides a policy framework for water resources management, allocation, and utilization in India. The policy emphasizes the principles of equity, sustainability, and public participation in water governance, recognizing water as a finite and vulnerable resource that requires integrated management approaches.

Key provisions of the National Water Policy include promoting participatory approaches, decentralized decision-making, and community involvement in water management; recognizing the rights of local communities, especially marginalized groups, to access and use water resources; and ensuring equitable distribution of water for drinking, irrigation, industry, and ecosystems.

2. The Water Framework Directive of the European Union

The Water Framework Directive (WFD) of the European Union (EU), adopted in 2000, provides a comprehensive legal framework for water management and protection across member states, aiming to achieve good ecological status of water bodies, prevent pollution, and ensure sustainable water use. The WFD emphasizes the principles of integrated water resources management, stakeholder engagement, and public participation in water governance processes.

Under the WFD, member states are required to develop river basin management plans, establish monitoring networks, and engage stakeholders in decision-making forums to assess water quality, set environmental objectives, and prioritize measures for water protection and restoration. The WFD's participatory approach promotes transparency, accountability, and public trust in water governance, fostering collaboration among government agencies, NGOs, businesses, and civil society organizations.

6.4 Industry and corporate responsibility in water stewardship

The private sector, including industries and corporations, has a responsibility to contribute to water stewardship efforts, promote sustainable water management practices, and minimize water-related risks and impacts on local communities and ecosystems. This section explores the role of industry and corporate responsibility in water stewardship.

1. Corporate Water Stewardship Initiatives

Many multinational corporations and businesses have implemented water stewardship initiatives to reduce their water footprint, improve water efficiency, and mitigate water-related risks in their operations and supply chains. Corporate water stewardship initiatives may include water conservation measures, wastewater recycling and reuse projects, and community engagement programs to address water challenges and promote responsible water management practices.

For example, the CEO Water Mandate, a UN Global Compact initiative, encourages businesses to adopt water stewardship principles, such as water efficiency, pollution prevention, and stakeholder engagement, to address water-related challenges and contribute to sustainable development goals. By integrating water stewardship into corporate strategies, supply chain management, and corporate social responsibility (CSR) initiatives, businesses can enhance

their environmental performance, build resilience to water risks, and create shared value for communities and stakeholders.

2. Public-Private Partnerships for Water Management

Public-private partnerships (PPPs) can play a role in addressing water challenges, leveraging private sector expertise, resources, and innovation to improve water infrastructure, service delivery, and governance. PPPs involve collaboration between governments, private companies, and civil society organizations to finance, develop, and operate water projects, such as water supply systems, wastewater treatment plants, and irrigation schemes.

By harnessing the strengths of public and private sectors, PPPs can accelerate investments in water infrastructure, improve service quality, and expand access to safe drinking water and sanitation services for underserved populations. However, PPPs also raise concerns about accountability, transparency, and equity in water governance, requiring careful oversight, regulatory frameworks, and stakeholder engagement to ensure that public interests are safeguarded and community needs are met.

Stakeholder perspectives and public participation are essential elements of inclusive and participatory water governance, promoting transparency, accountability, and legitimacy in decision-making processes. By engaging civil society organizations, grassroots movements, government agencies, policymakers, industry stakeholders, and local communities in collaborative water management initiatives, we can advance water justice, protect water resources, and achieve sustainable development goals.

Chapter 7- Recommendations for Policy and Practice

7.1 Legislative reforms for strengthening water rights

Enactment of Water Rights Legislation: Introduce comprehensive legislation at the national and state levels to recognize and codify the right to water as a fundamental human right, ensuring legal protection, enforceability, and access to remedies for violations of water rights. Legislation should incorporate principles of equity, sustainability, and public trust in water governance, empowering individuals and communities to assert their rights to safe drinking water and sanitation.

Recognition of Customary Water Rights: Acknowledge and respect customary water rights of indigenous peoples, tribal communities, and marginalized groups, recognizing their traditional knowledge, cultural practices, and stewardship of water resources. Ensure that legislative reforms recognize and protect customary water rights, safeguarding indigenous territories, customary governance systems, and community-based water management practices.

Strengthening Water Institutions: Establish independent regulatory bodies, water tribunals, or ombudsmen to adjudicate water disputes, monitor compliance with water laws, and oversee implementation of water policies and programs. Strengthen institutional capacities, legal frameworks, and enforcement mechanisms to safeguard water rights, promote transparency, and hold governments and corporations accountable for equitable water allocation and distribution.

7.2 Enhancing regulatory frameworks for water governance

Integrated Water Resources Management: Adopt integrated water resources management (IWRM) approaches that address the interconnectedness of water systems, ecosystems, and socio-economic activities, fostering coordinated planning, stakeholder engagement, and multi-sectoral collaboration in water governance. Enhance regulatory frameworks, policies, and institutional mechanisms to support IWRM principles, promote water efficiency, and balance competing water demands.

Strengthening Pollution Control Measures: Enhance regulatory frameworks for pollution control, wastewater treatment, and environmental standards to prevent water pollution, mitigate water quality degradation, and protect aquatic ecosystems. Implement stringent

regulatory measures, pollution abatement programs, and monitoring systems to enforce compliance with water quality standards, address point and non-point source pollution, and promote sustainable use of water resources.

Promoting Water Efficiency and Conservation: Introduce regulations, incentives, and pricing mechanisms to promote water efficiency, encourage water conservation practices, and incentivize investments in water-saving technologies and infrastructure. Implement water pricing reforms, volumetric tariffs, and economic instruments to reflect the true cost of water, internalize externalities, and incentivize water conservation behaviors among consumers, industries, and agricultural users.

7.3 Strategies for equitable distribution and conservation of water resources

Equitable Water Allocation Policies: Develop and implement water allocation policies, water rights systems, and allocation mechanisms that prioritize equitable distribution of water resources, protect vulnerable populations, and ensure access to basic water needs for all. Adopt principles of social equity, environmental sustainability, and intergenerational equity in water allocation decision-making, considering the needs of present and future generations.

Sustainable Groundwater Management: Strengthen regulatory frameworks for groundwater management, including licensing, extraction permits, and aquifer recharge strategies, to ensure sustainable use of groundwater resources and prevent overexploitation, depletion, and contamination of aquifers. Implement groundwater regulation zones, aquifer recharge projects, and community-based management approaches to restore aquifer levels, enhance water security, and safeguard groundwater-dependent ecosystems.

Watershed Management and Ecosystem Conservation: Promote integrated watershed management approaches, biodiversity conservation strategies, and ecosystem restoration initiatives to protect water sources, enhance water quality, and sustain ecosystem services. Implement watershed planning, land use regulations, and conservation incentives to prevent soil erosion, deforestation, and land degradation, promoting watershed resilience and ecosystem health.

7.4 Capacity building and awareness campaigns

Stakeholder Engagement and Participation: Strengthen capacity building, training, and awareness-raising initiatives to empower stakeholders, including government officials, civil society organizations, community leaders, and private sector actors, to actively participate in water governance processes, decision-making forums, and collaborative initiatives. Foster inclusive, transparent, and accountable water governance systems that promote dialogue, collaboration, and partnerships among diverse stakeholders.

Public Education and Awareness: Launch public education campaigns, outreach programs, and media campaigns to raise awareness about water-related issues, promote behavior change, and foster a culture of water conservation and sustainability among citizens, consumers, and communities. Provide information, resources, and tools for water conservation, pollution prevention, and sustainable water use practices, empowering individuals to take action to protect water resources and promote water stewardship.

Training and Capacity Development: Invest in training programs, capacity-building initiatives, and skill development workshops for water professionals, government officials, and community leaders to enhance their technical expertise, managerial skills, and institutional capacities in water management, governance, and decision-making. Build partnerships with academic institutions, research organizations, and training centers to deliver specialized courses, certifications, and professional development opportunities in water-related fields.

Recommendations for policy and practice outlined in this chapter provide actionable strategies and interventions for strengthening water governance, promoting equitable access to safe drinking water, and advancing sustainable water management practices. By implementing legislative reforms, enhancing regulatory frameworks, promoting stakeholder engagement, and investing in capacity building and awareness campaigns, governments, policymakers, and stakeholders can address water challenges, protect water resources, and ensure the realization of water rights for all.

Chapter 8- Conclusion

In conclusion, this dissertation underscores the importance of water justice as a fundamental human right and a cornerstone of sustainable development. By analyzing legal mechanisms, policy frameworks, and stakeholder perspectives, the study highlights the complex challenges and systemic inequalities that hinder equitable access to safe drinking water in India. Socioeconomic disparities, environmental degradation, and institutional gaps pose significant barriers to water justice, exacerbating water insecurity and perpetuating social injustices.

However, amidst these challenges, there are opportunities for transformative change and collective action. Case studies of successful water justice initiatives, comparative analysis with international legal frameworks, and stakeholder engagement highlight promising practices and innovative approaches to addressing water challenges and promoting inclusive water governance. From community-led water management initiatives to legislative reforms and capacity-building efforts, stakeholders across sectors are working towards realizing the right to water and advancing water justice in India.

Moving forward, it is essential to build on these efforts and mobilize political will, resources, and partnerships to scale up successful interventions, strengthen regulatory frameworks, and mainstream water justice principles into policy and practice. Empowering marginalized communities, enhancing public participation, and fostering collaboration among diverse stakeholders are crucial steps towards achieving equitable access to safe drinking water and sustainable water management for present and future generations.

By adopting a rights-based approach, integrating social equity and environmental sustainability considerations, and prioritizing the needs of the most vulnerable populations, India can overcome water challenges, realize its development goals, and ensure the human right to water for all. Ultimately, water justice is not only a legal imperative but also a moral imperative, reflecting our collective responsibility to protect, preserve, and sustainably manage one of the planet's most precious resources for the benefit of humanity and the natural world.

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