International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

Wetland Management and Conservation in Kamrup Metropolitan District, Assam: A Critical Socio-Legal Analysis of Governance and Judicial Activism

Shyam Krishna Kalita[1], Bhairabi Sharma[2]

[1]Teaching Associate, University Law College, Gauhati University
[2]Advocate, Gauhati High Court

Abstract

Wetlands are important ecosystems that sustain biodiversity, regulate hydrological cycles, and provide socio-economic benefits to communities. In the Kamrup Metropolitan District of Assam, wetlands such as Deepor Beel, Silsako Beel, and Borsola Beel illustrate the ecological importance of wetlands, yet they have faced severe stress from urbanisation, encroachment, waste dumping, and pollution. This paper undertakes a socio-legal analysis of wetland governance, situating local challenges within national and international frameworks. At the international level, instruments like the Ramsar Convention of 1971, the Convention on Biological Diversity of 1992, the United Nations Framework Convention of Climate Change of 1992, and the Sustainable Development Goals establish wetlands as ecological commons, mandating conservation, preservation and sustainable use. Nationally, constitutional provisions such as Articles 48A and 51A(g), statutory enactments including the Environment (Protection) Act, 1986, and the Wetlands (Conservation and Management) Rules, 2017, alongside policies such as the National Environment Policy (2006) and the National Plan for Conservation of Aquatic Ecosystems (2015), provide layered protections to it. At the state level, the Guwahati Water Bodies (Preservation and Conservation) Act, 2008 and the Assam State Wetland Authority embody localised governance, though their effectiveness is weakened by various problems like institutional overlap, political pressures, and improper enforcement. Judicial activism has emerged as a critical force in bridging the gap between law and practice. Landmark decisions by the Supreme Court have entrenched various doctrines such as the Public Trust Doctrine, Precautionary Principle, and Polluter Pays Principle, while interventions by the Gauhati High Court and the National Green Tribunal, most notably in Rohit Choudhury v. Union of India, have reinforced wetland protection by mandating closure of polluting sites near Deepor Beel. The analysis demonstrates that although robust legal frameworks exist, their success depends on institutional coordination, the will of the Government, and participation of communities. Preserving wetlands of Assam is essential not only for ecological integrity but also for sustainable urban growth and livelihood security in Assam's rapidly expanding metropolitan hub.

Keywords: Wetlands, Ramsar Convention, Environmental law

Introduction

As per the Ramsar Convention, 1971, a wetland is defined as 'areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tides does not exceed six meters. Wetlands are unique and productive ecosystems where terrestrial and aquatic habitats meet. They play a critical role in maintaining many natural cycles, provide enormous ecosystem services and also support a wide range of biodiversity. They also provide livelihood opportunities for local communities through fishing, agriculture, and other ecosystem services.

India is home to a wide variety of wetlands. The wide range of precipitation patterns, physiography, geomorphology and climate has facilitated this rich diversity. India has adopted various legal and policy measures to protect wetlands, including the Wetlands (Conservation and Management) Rules, 2017, framed under the Environment (Protection) Act, 1986, which regulate activities such as waste dumping, industrial expansion, and conversion of wetlands into non-wetland uses. Under Section 2(1)(g) of the Wetlands (Conservation and Management) Rules, 2017, a wetland is defined as an area of marsh, fen, peatland or water; whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six meters.

The Kamrup Metropolitan District of Assam, particularly around Guwahati city, contains several wetlands of ecological and socio-economic significance. The most prominent among them is Deepor Beel, a permanent freshwater wetland located southwest of Guwahati and recognised as a Ramsar Site since 2002. Deepor Beel functions as a natural stormwater reservoir for Guwahati and supports a wide range of biodiversity, including migratory birds and aquatic species. However, the wetland ecosystem has been facing serious threats due to rapid urbanisation, illegal encroachments, pollution, and unregulated waste dumping.

Despite existing legal frameworks and environmental policies, the effective implementation of wetland conservation measures remains a challenge. This situation necessitates a socio-legal investigation to examine the interactions among law, governance institutions, and local communities in wetland management.

This paper adopts a critical doctrinal methodology inflected with a socio-legal analytical lens, which is primarily concerned with the systematic analysis of legal principles, statutory frameworks, judicial precedents, constitutional mandates, and scholarly articles on wetland management and conservation.

The methodology includes primary sources of law such as the Constitution of India, statutory enactments such as the Environment (Protection) Act, 1986, and delegated legislation, including the Wetlands (Conservation and Management) Rules, 2017. It also includes Judicial Pronouncements such as M.C. Mehta v. Kamal Nath, Vellore Citizens Welfare Forum v. Union of India, Subhash Kumar v. State of Bihar, Intellectuals Forum, Tirupathi v. State of Andhra Pradesh, and M.K. Balakrishnan v. Union of India. These cases provide the doctrinal foundation for principles such as the Public Trust Doctrine, Precautionary Principle, and Polluter Pays Principle. The secondary sources include a review of scholarly articles, commentaries, and reports on environmental law and wetland governance to contextualise judicial activism within broader academic discourse. The paper employs a comparative and interpretative lens, linking national jurisprudence with local enforcement, and situating Kamrup's wetland protection within India's constitutional trajectory and international obligations under the Ramsar Convention.

By relying on doctrinal analysis, the paper seeks to demonstrate how judicial activism has transformed environmental principles into enforceable obligations, thereby bridging the gap between law on paper and law in action. This methodology ensures academic rigour by grounding arguments in authoritative legal texts and judicial reasoning, while also highlighting the normative and ethical dimensions of wetland conservation.

Comparative Frameworks: International and National Approaches to Wetland Protection

International and national legal frameworks for the conservation and management of wetlands constitute a comprehensive, multi-dimensional system designed to safeguard wetland ecosystems, which are critical for biodiversity, climate regulation, and human livelihoods. These frameworks integrate legal mandates, institutional arrangements, and community participation to address the complex challenges wetlands face globally and locally.

1. The Ramsar Convention, which was formally known as the Convention on Wetlands of International Importance especially as Waterfowl Habitat, is an international treaty established in 1971 to promote the conservation of wetlands and the sustainable use of them. The treaty was adopted on 2 February 1971 in the Iranian city of Ramsar. The primary objective of this convention is to prevent the loss of wetlands and to recognise wetlands as vital ecosystems that support biodiversity and maintain hydrological cycles.

   The key elements of the Ramsar Convention include:

a) Contracting parties shall identify and designate wetlands within their jurisdiction that satisfy established ecological criteria, thereby undertaking a binding commitment to ensure their conservation and promote their wise and sustainable use. Here, contracting party means a state or sovereign entity that has formally agreed to be bound by the provisions of this convention.

b) The Convention promotes sustainable management practices that maintain the ecological character of wetlands while allowing for human use and development. It protects the wetlands while providing resources to human beings.

c) Parties to this convention collaborate on transboundary wetlands, shared species, and issues such as pollution control and climate change adaptation.

d) Contracting parties shall report on the status of their Ramsar sites and the implementation of the provisions of the Convention, facilitating adaptive management.

e) The Convention also encourages education and training to support wetland conservation efforts at local, national, and international levels.

The Ramsar Convention plays a crucial role in the conservation of global biodiversity, climate regulation, and water resource management, making it a foundational framework for wetland protection worldwide.

2. The Convention on Biological Diversity is an international legal instrument for the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources, which 196 nations have ratified. It provides a broader biodiversity conservation framework that incorporates wetland ecosystems as vital components of global biodiversity. Through its ecosystem approach, the convention promotes the integration of wetland conservation into national biodiversity strategies and action plans. It emphasises the sustainable use of biological resources and equitable sharing of benefits arising from their utilisation, which includes wetland-dependent communities and indigenous peoples. Its Strategic Plan

for Biodiversity and Aichi Biodiversity Targets further reinforce the importance of wetlands in achieving global biodiversity goals.

3. The United Nations Framework Convention on Climate Change is the principal global treaty for coordinating international responses to climate change. It provides the foundation for subsequent legal instruments, including the Kyoto Protocol and the landmark Paris Agreement. The UNFCCC has 198 Parties, comprising 197 States and the European Union, making it one of the most widely ratified international treaties. Wetlands play a crucial role in climate mitigation and adaptation, which is also recognised under this convention. Peatlands, mangroves, and other wetland types are significant carbon sinks, storing vast amounts of carbon and thereby contributing to greenhouse gas reduction. This convention encourages the integration of wetland conservation into national climate action plans, including mechanisms such as Reducing Emissions from Deforestation and Forest Degradation and various National Adaptation Plans. These initiatives promote the restoration and sustainable management of wetlands as nature-based solutions to climate change.
4. Wetland conservation is also embedded within the Sustainable Development Goals, particularly in Goals 6, 13, and 15. Sustainable Development Goals were adopted by all United Nations Member States in 2015 as part of the 2030 Agenda for Sustainable Development. Goal 6 basically emphasises the importance of clean water and sanitation, recognising wetlands' role in water purification, groundwater recharge, and flood regulation. Goal 13 focuses on climate action, where wetlands contribute to resilience and carbon sequestration. Goal 15 highlights life on land, promoting the protection, restoration, and sustainable use of terrestrial ecosystems, including wetlands. These goals collectively underscore the interdependence of wetland health and sustainable development.

The governance of wetlands at the national level is shaped by a layered and evolving framework of constitutional mandates, statutory enactments, policy instruments, and institutional mechanisms. These frameworks reflect the recognition that wetlands are not merely ecological existences but multifunctional ecosystems that are important to biodiversity, water security, climate resilience, and community livelihoods. In India, as in many jurisdictions, wetlands are protected through a combination of various environmental laws, like the Environmental (Protection) Act of 1986 and various specialised regulations, which together provide the normative and institutional foundation for conservation and sustainable management.

At the constitutional level, the protection of wetlands is anchored in the Directive Principles of State Policy and the Fundamental Duty provisions of the Constitution of India. Article 48A obliges the State to protect and improve the environment, while Article 51A(g) imposes a duty on citizens to protect and improve the natural environment, including forests, lakes, rivers and wildlife, and to have compassion for living creatures. These constitutional commitments establish wetlands as part of the broader environmental commons, thereby legitimising legislative and administrative interventions.

The statutory foundation is provided by the Environment (Protection) Act, 1986, which empowers the central government to take measures for environmental preservation, including the issuance of rules and notifications specific to various wetlands. Building upon this authority, the Wetlands (Conservation and Management) Rules, 2017 constitute the first dedicated regulatory regime for wetlands in India. These rules define wetlands, prescribe criteria for identification, prohibit activities that threaten their ecological character, such as solid waste dumping, the discharge of untreated effluents, or encroachment, and mandate the preparation of integrated management plans for the conservation of the wetland. The rules also establish a framework for coordinating conservation efforts between central, state, and local authorities.

The Water (Prevention and Control of Pollution) Act, 1974, regulates effluent discharge and water quality, directly impacting wetland ecosystems. The Wildlife (Protection) Act, 1972, provides for the designation of wetlands as protected areas, thereby safeguarding their biodiversity. The Indian Forest Act, 1927 and subsequent forest conservation laws indirectly protect wetlands by regulating land use and preventing deforestation in such areas. Together, these statutes create a mosaic of legal protections that address wetlands from multiple ecological and governance perspectives.

Policy instruments further strengthen the statutory framework. The National Environment Policy (2006) recognises wetlands as critical ecosystems requiring integrated management. It calls for mainstreaming wetland conservation into developmental planning, promoting community participation, and enhancing scientific research. The National Plan for Conservation of Aquatic Ecosystems, which was launched in 2015, consolidates earlier schemes such as the National Lake Conservation Plan and the National Wetland Conservation Programme. It provides financial and technical support for wetland restoration, biodiversity conservation, and pollution abatement, while encouraging states to develop site-specific management plans.

Institutionally, the governance of wetlands was overseen by the Central Wetlands Regulatory Authority, which evaluated wetland-use proposals and ensured compliance with conservation rules. At the state level, State Wetland Authorities are mandated to identify wetlands, prepare inventories, and implement the various management plans. The Central Wetlands Regulatory Authority, which was established under the 2010 rules, was replaced by the National Wetland Committee following the Wetlands (Conservation and Management) Rules, 2017. The 2017 rules decentralised management, delegating the authority to identify and regulate wetlands to individual State Union Territories Wetland Authorities. Wetlands (Conservation and Management) Rules 2017 have enhanced the focus of management of wetlands from a central authority to state bodies. The rules provide for an advisory role for the National Wetland Committee to guide the state bodies on the integrated management of wetlands based on the wise-use principle and review the progress of integrated management of Ramsar Convention sites, among other roles. These authorities are supported by scientific advisory committees, research institutions, and civil society organisations, which contribute expertise and facilitate stakeholder engagement. Local governance institutions, including panchayats and urban municipalities, play a crucial role in monitoring wetlands, enforcing regulations, and mobilising community participation.

The national framework also reflects an effort to harmonise domestic law with international conventions. India is a contracting party to the Ramsar Convention on Wetlands of International Importance, and several wetlands have been designated as Ramsar sites under this convention. National legislation and policy are thus aligned with global obligations to maintain the ecological character of wetlands, promote sustainable use, and integrate wetlands into broader strategies for sustainable development.

In conclusion, the national legal and policy framework for wetlands represents a comprehensive, multi-layered system that integrates constitutional principles, statutory enactments, policy strategies, and institutional mechanisms. By embedding wetlands within both environmental law and developmental planning, the frameworks seek to balance ecological integrity with socio-economic imperatives and sustainable development. Its success, however, depends on the commitment of the Government, coordination among various departments and agencies, and active participation of local communities.

State Legal Framework and Institutional Governance in Assam

While national frameworks such as the Environment (Protection) Act, 1986 and the Wetlands (Conservat-

ion and Management) Rules, 2017 provide overarching mandates, their operationalisation at the state level depends on localised legislation and administrative implementation.

The Guwahati Water Bodies (Preservation and Conservation) Act, 2008, represents a landmark attempt to safeguard wetlands, especially within the metropolitan area. The Act explicitly prohibits land filling, illegal construction, wastage dumping and any activity that alters the ecological character of notified water bodies. Its provisions empower various authorities to identify and notify wetlands, restrict encroachment, and penalise the violators. On the one hand, the Act provides a clear statutory basis for the protection of various wetlands, recognising the ecological and hydrological importance of various wetlands in Guwahati. On the other hand, despite prohibitions, wetlands such as Silsako Beel and Borsola Beel have witnessed rampant encroachment and destruction of their ecological existence. Weak institutional capacity, political pressures, improper implementation and inadequate monitoring have diluted the effectiveness of the Act. Thus, while the legislation is conceptually robust, its implementation highlights the gap between normative commitments and practical outcomes.

The Assam State Wetland Authority, which was constituted under the Wetlands (Conservation and Management) Rules, 2017, serves as the nodal body for wetland governance in the state. The main function of this authority is to identify the wetlands, prepare the integrated management plans, coordinate among departments, and ensure compliance with national enactments and guidelines.

The power of this authority is significant in theory, as it can recommend actions for the preservation of water bodies and regulate various activities. However, its effectiveness depends on institutional support and the will of the Government. In practice, this authority has faced challenges in asserting authority in urban wetlands, where competing interests of development agencies often prevail. Limited financial resources and bureaucratic inertia further constrain its proper capacity. Its potential lies in strengthening inter-departmental coordination and fostering community participation in conservation.

Wetland governance in Assam is marked by institutional overlap and fragmentation. Multiple agencies exercise jurisdiction over wetlands, often with conflicting mandates. For example, the Guwahati Metropolitan Development Authority, which is responsible for urban planning and infrastructure development, projects frequently intersect with wetland areas. Then, Guwahati Municipal Corporation, which is charged with municipal services, including waste management, has inefficiencies that contribute to the pollution of wetlands. The Revenue Department oversees land settlement and allotment, often sanctioning conversions that undermine wetland conservation.

This multiplicity creates regulatory ambiguity. For instance, while the Guwahati Water Bodies Act prohibits construction, GMDA's urban expansion plans sometimes authorise projects that encroach upon wetlands. Similarly, GMC's failure to manage solid waste has led to dumping in Deepor Beel, despite legal prohibitions. The absence of a unified institutional mechanism results in fragmented governance.

The Land Settlement Policy of Assam illustrates the tension between land allotment practices and wetland conservation goals. Historically, the policy has prioritised allocation of land for residential, commercial, and industrial purposes, often overlooking ecological considerations.

The state legal framework and institutional governance of wetlands in Assam reveal a complex interplay between progressive legislation and weak implementation. The Guwahati Water Bodies Act, ASWA's mandate, and national rules provide a strong normative foundation, but institutional overlaps and conflicting land policies diminish their impact. Effective wetland governance requires not only legal instruments but also proper institutional coordination, political commitment, and community engagement.

Without addressing these structural challenges, Assam's wetlands will remain vulnerable to degradation despite the existence of protective laws.

Profile of Wetlands in Kamrup Metropolitan District

Wetlands constitute one of the most ecologically significant landscapes in the North-East of India, including Assam, which serves as a reservoir of biodiversity, and it also regulates hydrological cycles, and provides socio-economic benefits to local communities residing near it.

Within the Kamrup Metropolitan District, wetlands play a crucial role in balancing rapid urbanisation with ecological sustainability. Kamrup Metropolitan District is situated in the Brahmaputra Valley, which is characterised by a humid subtropical climate and high annual rainfall. Some of the important wetlands are Deepor Beel, Silsako Beel, Borsola Beel, Sarusala Beel, and Hengerabari Beel. These wetlands vary in size, hydrological regime, and ecological composition, but collectively they function as a natural element that absorbs excess rainfall, recharges groundwater, and mitigates floods in the densely populated urban landscape.

Deepor Beel, one of the most ecologically important wetlands in Assam, was declared a Ramsar Site in 2002. It supports more than 200 species of birds, including various migratory waterfowl such as the Lesser Adjutant Stork, Spot-billed Pelican, and Pallas's Fish Eagle. Aquatic flora includes species of Eichhornia, Hydrilla, and Nelumbo, while fish diversity sustains local livelihoods. Amphibians, reptiles, and mammals such as elephants, which use Deepor Beel as a corridor, further highlight the ecological connectivity of these wetlands. Smaller wetlands like Silsako and Borsola, though degraded, continue to provide habitats for resident avifauna and aquatic organisms.

Wetlands in Kamrup Metropolitan District are deeply intertwined with the socio-economic fabric of local communities. Traditionally, they have supported fisheries, agriculture, and the collection of aquatic plants as well. Deepor Beel, for instance, sustains fishing communities that depend on its resources for subsistence as well as income. Wetlands also provide ecosystem services such as water purification, climate regulation, etc. However, urban expansion has altered their socio-economic role, with many wetlands being encroached upon for housing, infrastructure development, road construction and waste disposal. This transformation has led to conflicts between conservation imperatives and developmental pressures.

The wetlands in Kamrup Metropolitan District are governed by national and state legal instruments. The status of Deepor Beel as a Ramsar Site places it under the ambit of international obligations for conservation and sustainable use. The Wetlands (Conservation and Management) Rules, 2017, provide a regulatory framework for the identification, notification, and management of wetlands. In Assam, the Guwahati Water Bodies (Preservation and Conservation) Act, 2008, specifically addresses the protection of wetlands within the metropolitan area, prohibiting encroachment, irregular waste disposal and illegal construction. Judicial interventions, particularly by the Gauhati High Court, have reinforced the need to safeguard wetlands against illegal construction and pollution. Despite these frameworks, enforcement remains a challenge due to developmental priorities and weak institutional coordination.

The wetlands of Kamrup Metropolitan District face multiple threats, including encroachment and pollution. Encroachment has drastically reduced the size of various wetlands, such as Silsako Beel. Pollution from untreated sewage, industrial effluents, and solid waste has degraded water quality, leading to loss of aquatic life. Infrastructure projects, including roads and railway lines, have fragmented wetland ecosystems, as seen in Deepor Beel. Climate change further exacerbates these pressures by altering rainfall

patterns and increasing flood risks. The cumulative impact of these threats undermines the ecological integrity and socio-economic functions of wetlands.

In conclusion, the wetlands of Kamrup Metropolitan District represent ecological treasures under severe stress from urbanisation and anthropogenic pressures. Their profile underscores not only their biodiversity and socio-economic importance but also the urgent need for effective governance and commitment of the community. Preserving these wetlands is essential for maintaining ecological balance, safeguarding livelihoods, and ensuring sustainable urban growth in Assam's rapidly expanding metropolitan hub.

Judicial Activism and Wetland Protection in Kamrup (M)

India's environmental jurisprudence has increasingly been shaped by judicial activism, particularly in regions where fragile ecosystems are threatened by rapid urbanisation, waste disposal, and encroachment. In Kamrup Metropolitan District, Assam, wetlands such as Deepor Beel and Silsako Lake have faced serious ecological strain, and the judiciary has played a great role in safeguarding them. Nevertheless, the National Green Tribunal (NGT) and the Gauhati High Court have exercised constitutional principles, statutory mandates, and environmental doctrines to ensure that wetlands are conserved as ecological commons.

Judicial activism in wetland protection cannot be understood in isolation from the wider constitutional trajectory of Indian environmental law. Landmark Supreme Court rulings have laid the doctrinal foundation upon which regional courts and tribunals have acted. In M.C. Mehta v. Kamal Nath (1997), the Court held that natural resources are held by the State in trust for the benefit of the public, imposing penalties on Span Motels for illegally altering the flow of the Beas River. Similarly, in Vellore Citizens Welfare Forum v. Union of India (1996), the Court affirmed that the right to a pollution-free environment is part of Article 21 and formally recognised the Precautionary Principle and Polluter Pays Principle as essential components of Indian environmental jurisprudence. In Subhash Kumar v. State of Bihar (1991), the Court acknowledged the intrinsic link between the right to life and the right to a clean environment, while cautioning against misuse of PILs. The Intellectuals Forum, Tirupathi v. State of Andhra Pradesh (2006) ruling further reinforced the Public Trust Doctrine by barring arbitrary diversion of lakes and tanks for urban expansion. More recently, in M.K. Balakrishnan v. Union of India (2017), the Court highlighted serious shortcomings in enforcing the Wetlands (Conservation and Management) Rules, 2010, stressing the urgent need for formal notification, scientific standards, and protection against encroachment. These rulings collectively shaped the jurisprudential framework within which the National Green Tribunal and Gauhati High Court have acted in Kamrup (M).

The case of Rohit Choudhury vs Union of India Through the Secretary demonstrates the significant impact of judicial intervention. Deepor Beel, designated as a Ramsar site of international importance, has been adversely affected by the Boragaon municipal dump site, which has discharged solid waste into its basin area. The National Green Tribunal, responding to petitions filed by environmental groups and local stakeholders, delivered a significant ruling mandating the closure of the dump site. The Tribunal held that its continued operation violated the Wetlands (Conservation and Management) Rules, 2017, and posed a non-reversible risk to the wetland's hydrology, biodiversity, and migratory bird population. In doing so, the NGT applied the precautionary principle, emphasising that environmental risks must be mitigated even in the absence of complete scientific certainty, and reinforced the polluter pays principle, directing municipal authorities to bear responsibility for ecological restoration. The ruling directed authorities to shift waste management facilities and implement sustainable practices, thereby remedying administrative

shortcomings. It also raised Deepor Beel's protection from a local concern to one of national and global importance, linking domestic statutory duties with India's obligations under the Ramsar Convention.

The Gauhati High Court, parallel to the NGT's efforts, has served as a crucial judicial forum for environmental PILs filed by citizens and activists. Litigation relating to encroachment has challenged unlawful construction and land-filling around wetlands, arguing that these actions violate the constitutional right to life and the State's environmental responsibilities. Through its directions for demolition of illegal constructions, the Court reiterated that wetlands are ecological commons not open to private appropriation. The Save Silsako movement signified how civil society initiatives converged into PILs demanding judicial intervention against rampant encroachment in Silsako Lake, a designated wetland under the 2017 Rules. The Court directed government authorities to formulate People's Biodiversity Registers while ensuring adherence to legal prohibitions on ecological alteration of wetlands. These rulings reinforced participatory governance by acknowledging the contribution of local communities and environmental activists in monitoring ecological violations. The judiciary, by recognising citizen voices, expanded democratic environmental governance and created legal precedents treating wetlands as collective community assets shielded from commodification and illegal occupation.

These judicial interventions are grounded in the Public Trust Doctrine, a key component of India's environmental legal framework. The Public Trust Doctrine maintains that natural resources such as air, water, forests, and wetlands are preserved by the State in trust for public benefit and cannot be transferred for private exploitation. The courts, in cases involving Deepor Beel and Silsako Lake, relied upon the Public Trust Doctrine to ensure State accountability in preventing wetland degradation caused by pollution and illegal occupation. The doctrine was associated with the principle of intergenerational equity, stressing that wetlands should be conserved for both present and future generations. The courts recognised wetlands as essential to ecological security due to their role in flood mitigation, groundwater replenishment, and biodiversity conservation. By incorporating the Public Trust Doctrine into constitutional interpretation, the judiciary recognised wetlands as legal commons and reaffirmed their status as indispensable ecological resources. This broadened the ambit of judicial activism by integrating environmental ethics into legal obligations and treating ecological protection as a constitutional necessity.

In Kamrup (M), judicial activism represents the transformation of legal principles into practical enforcement, with courts actively applying environmental norms instead of confining themselves to literal interpretation. Through various orders and directions, the judiciary has compensated for administrative inefficiency and ensured effective compliance with statutory obligations. By recognising PILs and civil society initiatives, the judiciary has promoted democratic environmental governance and encouraged public participation in ecological decision-making. Through the application of PIL and principles such as precautionary and polluter pays, courts have reinforced environmental ethics in legal interpretation, thereby widening the conceptual scope of environmental law. These actions highlight how judicial activism helps transform "law on paper" into "law in action" through effective implementation.

Although the primary focus is on Kamrup (M), judicial activism in wetland protection reflects a wider national trend. Similar judicial interventions have taken place in Delhi, where courts have sought to protect the Yamuna floodplains, and in Tamil Nadu, where the Pallikaranai marshland has been preserved through judicial directives. The Kamrup cases are unique for their strong emphasis on community participation and their recognition of wetlands not only as ecological resources but also as cultural assets. Therefore, Kamrup's jurisprudence must be understood within the larger constitutional trajectory in India, where courts have interpreted Article 21 as guaranteeing not only life but also a healthy environment.

In conclusion, judicial activism in Kamrup Metropolitan District illustrates how courts have moved beyond their conventional adjudicatory functions to safeguard ecological integrity. Through the intervention of the NGT in Deepor Beel, PILs before the Gauhati High Court, and the application of the Public Trust Doctrine, the judiciary has safeguarded wetlands from urban encroachment and administrative inaction. These rulings protect biodiversity, reinforce constitutional commitments to environmental protection, and promote the principles of participatory governance and intergenerational justice. An analysis of "law in action" through judicial pronouncements reveals that the judiciary has played a pivotal role in converting environmental principles into enforceable obligations, thereby influencing the course of wetland conservation in Kamrup (M). The judicial activism witnessed here is transformative rather than merely reactive, establishing the courts as vital institutions in promoting ecological sustainability.

Socio-Legal Challenges and Impediments to Conservation in Kamrup (M)

In Kamrup Metropolitan District, Assam, the protection of wetlands involves not only ecological considerations but also important socio-legal dimensions. Although judicial activism has contributed substantially to the protection of wetlands like Deepor Beel and Silsako Lake, the broader conservation regime remains constrained by institutional fragility, socio-economic demands, and ambiguities within the legal framework.

One of the primary challenges lies in the gap between the existence of legal frameworks and their effective implementation on the ground. India has an extensive legal and policy framework for environmental protection, including the Environment (Protection) Act, 1986, the Wetlands (Conservation and Management) Rules, 2017, and constitutional safeguards embodied in Articles 21 and 48A. Nevertheless, the effective enforcement of these laws remains weak. In Kamrup (M), instances such as the prolonged functioning of the Boragaon dump site, despite clear statutory restrictions, illustrate the failure of municipal authorities to adhere to their legal obligations. Bureaucratic inefficiency, fragmented institutional coordination, and deficient monitoring practices have hindered effective enforcement, thereby compromising the strength of legal safeguards. This disconnect between legal provisions and their practical enforcement represents a major systemic obstacle to conservation.

A further obstacle to effective wetland conservation is the pressure of urbanisation. As Guwahati continues to expand rapidly, wetlands are often regarded as convenient spaces for real estate and infrastructural development. Encroachment into the catchment area of Deepor Beel and the reclamation of Silsako Lake illustrate the manner in which wetlands are increasingly commodified for housing projects, commercial establishments, and infrastructural development. Although courts have issued directions for the demolition of illegal structures, enforcement has remained inconsistent and is frequently hindered by political influence and administrative unwillingness. The increasing demand for land driven by socio-economic factors thus stands in opposition to environmental priorities, generating an enduring tension beyond the capacity of legal frameworks alone to resolve.

Limited awareness among local communities about their legal entitlements and the ecological value of wetlands constitutes another significant conservation challenge. Despite being recognised as repositories of traditional ecological knowledge and sustainable practices, many communities are unfamiliar with the safeguards provided under the Biological Diversity Act, 2002, and the Wetlands Rules. This knowledge gap restricts effective community engagement and undermines participatory approaches to wetland governance. The absence of adequate awareness weakens participatory governance by limiting the ability

of communities to claim their rights and resist unlawful encroachments. In addition, the preparation of People's Biodiversity Registers (PBRs), mandated for the documentation of indigenous ecological knowledge, has not been effectively carried out in Kamrup (M). In the absence of proper documentation, traditional ecological knowledge risks marginalisation, depriving communities of an important means to assert their role in conservation.

Institutional deficiencies are also evident in the ineffective functioning of Biodiversity Management Committees, which frequently suffer from inadequate funding, insufficient training, and a lack of administrative support despite being envisioned as decentralised mechanisms for biodiversity governance. In Kamrup (M), Biodiversity Management Committees have faced considerable difficulties in effectively discharging their mandate, thereby leaving wetlands susceptible to exploitation. The lack of robust local institutions weakens the principle of participatory governance and reduces conservation efforts to a predominantly top-down process that inadequately involves stakeholders. Enhancing the effectiveness of BMCs through adequate financial assistance and capacity-building measures remains essential, although it continues to be a significant challenge.

The Access and Benefit Sharing mechanism, intended to promote the equitable distribution of benefits derived from biological resources, has likewise remained ineffective in practice. In Kamrup (M), the benefits arising from the exploitation of wetland resources, such as tourism, fisheries, and research, have rarely accrued meaningfully to local communities. This failure undermines public confidence in conservation measures, leading communities to view legal frameworks as exclusionary rather than empowering. Consequently, without equitable benefit-sharing, conservation is often perceived not as a shared responsibility but as an externally driven exercise.

Legal ambiguities also pose significant challenges to wetland protection. The definition and classification of wetlands under the Wetlands (Conservation and Management) Rules, 2017, have remained contentious, resulting in the exclusion of many smaller wetlands from official notification. In Kamrup (M), such ambiguities have enabled authorities to evade conservation responsibilities by contending that certain water bodies do not fall within the legal definition of wetlands. These ambiguities create legal loopholes that are often exploited by developers, thereby undermining the effectiveness of protective legal frameworks. In addition, jurisdictional overlaps among various governmental bodies contribute to fragmented governance, thereby diluting accountability and undermining effective enforcement.

Socio-economic factors also play a vital role in shaping conservation challenges, given that wetlands in Kamrup (M) sustain local livelihoods through fisheries, agriculture, and the extraction of natural resources. Conservation measures that limit access to these resources often generate resistance among local communities, especially in the absence of viable alternative livelihood opportunities. A major challenge is to harmonise ecological imperatives with socio-economic realities in a manner that prevents conservation from aggravating poverty and marginalisation. Without incorporating livelihood concerns into conservation frameworks, legal measures risk alienating local stakeholders whose support is indispensable for effective and lasting conservation.

Political factors also constitute a major obstacle to conservation efforts. Encroachments and illegal constructions frequently continue under political patronage, with vested interests protecting violators from accountability. Consequently, judicial directives ordering demolition or ecological restoration are often resisted or delayed by political actors seeking to safeguard their electoral constituencies. This politicisation of conservation weakens the rule of law and reduces judicial activism to mere symbolic intervention in the absence of strong administrative commitment. In Kamrup (M), the continued persistence of

encroachments despite repeated judicial interventions demonstrates how political interference can undermine and neutralise legal mandates.

A further socio-legal impediment to effective conservation is the inadequate transparency in environmental decision-making. Mechanisms like public consultations and environmental impact assessments are frequently reduced to procedural formalities, preventing meaningful engagement of affected populations. In Kamrup (M), decisions relating to urban development projects in the vicinity of wetlands have often been made without sufficient public consultation, thereby undermining public trust and institutional legitimacy. Transparency is fundamental to participatory governance; however, it continues to remain one of the weakest aspects of the conservation framework.

Finally, the absence of integrated ecological planning poses a major challenge to conservation in Kamrup (M). Wetlands are frequently managed in isolation instead of being recognised as components of a larger ecological network comprising forests, rivers, and urban ecosystems. This fragmented approach overlooks the interdependence of ecosystems, resulting in isolated interventions that fail to address the underlying causes of environmental degradation. Although judicial activism has emphasised the necessity of integrated planning, the institutional framework needed to translate these approaches into practice continues to remain weak.

In conclusion, the socio-legal challenges surrounding wetland conservation in Kamrup Metropolitan District highlight the complexities involved in transforming legal frameworks into effective mechanisms for ecological protection. Weak enforcement mechanisms, urbanisation-driven encroachments, limited community awareness, ineffective institutions, inadequate benefit-sharing systems, legal ambiguities, socio-economic pressures, political interference, and insufficient transparency collectively weaken wetland conservation efforts. Judicial activism has undoubtedly played a crucial role in addressing these issues; however, courts alone cannot overcome such deep-rooted systemic challenges. Effective wetland conservation in Kamrup (M) requires stronger institutions, empowered communities, greater transparency, and conservation strategies that incorporate socio-economic realities. Only through addressing these socio-legal impediments can conservation evolve from a reactive, court-driven process into one that is sustainable, participatory, and equitable.

Recommendations and Conclusion

Recommendations for Strengthening Wetland Governance-

1. Although Assam has enacted various legislation, such as the Guwahati Water Bodies (Preservation and Conservation) Act, 2008, its effectiveness has been undermined by weak enforcement and non-cooperation among the institutions. An effective legal framework is required that harmonises national mandates under the Environment (Protection) Act, 1986 and the Wetlands (Conservation and Management) Rules, 2017, with state-level enactments. This framework should clearly delineate jurisdictional authority, minimise institutional fragmentation, and establish accountability mechanisms for urban development agencies whose projects intersect with wetland areas.
2. The Assam State Wetland Authority must be empowered with adequate financial resources, technical expertise, and statutory authority to coordinate across departments. Establishing a unified Wetland Governance Council that brings together this authority, the Guwahati Metropolitan Development Authority, the Guwahati Municipal Corporation, and the Revenue Department would reduce regulatory ambiguity. Regular inter-departmental reviews and joint monitoring exercises should be institutionalised to ensure compliance with conservation mandates.

3. Wetland governance must move beyond state-centric regulation to embrace participatory models. Local communities, particularly fishing and farming households dependent on wetlands, should be integrated into decision-making and community-based monitoring systems. Traditional ecological knowledge, which has historically sustained wetland ecosystems, should be documented and incorporated into effective management plans.
4. Continuous ecological monitoring is essential to assess wetland health. Engagement with universities, research institutions, NGOs and civil society organisations should be strengthened to generate scientific data on biodiversity, hydrology, and pollution levels. Establishing a Wetland Research and Monitoring Centre in Guwahati could serve as a hub for interdisciplinary studies, integrating ecological science with socio-legal analysis. Such evidence-based policymaking would enable adaptive management strategies responsive to climate change and urbanisation pressures.
5. Judicial activism has played an important role in safeguarding wetlands in Kamrup Metropolitan District, as seen in the Deepor Beel and Silsako Lake cases. Courts should continue to apply doctrines such as the Public Trust Doctrine, precautionary principle, absolute liability and polluter pays principle to ensure accountability.
6. Wetland conservation must be mainstreamed into urban planning. The Guwahati Metropolitan Development Authority should adopt eco-sensitive zoning regulations that prohibit construction within designated wetland buffers. Infrastructure projects such as roads and railways must undergo rigorous environmental impact assessments, with mandatory provisions for ecological corridors to prevent habitat fragmentation.
7. Municipal authorities must establish decentralised waste treatment facilities and enforce strict prohibitions on dumping near wetlands. Industrial effluents should be regulated under the Water (Prevention and Control of Pollution) Act, 1974, with mandatory installation of effluent treatment plants. Public awareness campaigns should be launched to discourage indiscriminate waste disposal and promote community-led clean-up initiatives.
8. Assam's climate action plans should explicitly integrate wetland restoration as a nature-based solution. Initiatives such as mangrove regeneration, peatland restoration, and floodplain management should be prioritised. Financial incentives, including carbon credits and ecosystem service payments, could be mobilised to support community-led conservation projects.

In conclusion, Wetlands in Kamrup Metropolitan District, particularly Deepor Beel, Silsako Beel, and Borsola Beel, embody ecological treasures that sustain biodiversity, regulate hydrological cycles, and support local livelihoods. Yet they are under threat from urbanisation, pollution, waste dumping, and institutional fragmentation. The doctrinal study reveals that while robust legal frameworks exist at both national and state levels, their effectiveness is compromised by weak enforcement, overlapping jurisdictions, and inadequate community participation.

Judicial activism has emerged as a powerful organ, transforming law on paper into law in action by applying environmental doctrines and mandating administrative accountability. However, long-term conservation requires systemic reforms that integrate law, governance, science, and community stewardship. Recommendations such as strengthening institutional coordination, mainstreaming wetlands into urban planning, enhancing scientific monitoring, and fostering participatory governance provide a roadmap for sustainable wetland management.

Ultimately, wetlands must be recognised not merely as ecological entities but as socio-legal commons integral to sustainable development. Preserving them is essential for ecological balance, climate resilience,

and intergenerational equity. The future of Assam's wetlands depends on the collective commitment of the state, judiciary, civil society, and local communities to safeguard these ecosystems as an important public trust. By embedding wetlands within the broader discourse of environmental governance and sustainable development, Assam can transform its wetlands from vulnerable landscapes into resilient ecological assets that sustain both nature and society.

References

1. Ahmad, M., Ahmad, W. S., Ahmad, S. N., Jamal, S., & Saqib, M. (2024). Tracing the roots of wetland degradation in India: A systematic review of anthropogenic drivers, ecological consequences, and conservation strategies. GeoJournal. https:// doi.org/10.1007/s10708-024-10997-9
2. Bhattacharjee Swarupa, Boruah Sanchita, S. P. Biswas, 'Wetlands of Assam: Livelihood Potential and Management Issues' Uttar Pradesh Journal of ZoologyVolume 45, Issue 16, Page 154-163, 2024;
3. Deka, N., &Bhagabati, A. K. (2015). Wetlands in a village environment: A case from Brahmaputra floodplain, Assam. Transactions of the Institute of Indian Geographers, 37, 35-45.
4. Gojendro Sadokpam, Basudha Ch., Das Sanjay Kumar, 'Wetlands: Importance and Conservation Strategy for the Losing Ecosystem', volume 03, Agro-India Today, issue 03
5. https://indianwetlands.in/wetlands-overview/wetland-types/
6. https://indianwetlands.in/wetlands-overview/indias-wetlands-of-international-importance/, last visited at 8:00 PM, 10/03/2026
7. https://gscl.assam.gov.in/portlet-innerpage/deeporbeel-lake-wetland, last visited at 6:30, 15/03/2026
8. https://www.unesco.org/en/biodiversity/wetlands, last visited on 1/5/2026, at 11:00 A.M.
9. https://www.un.org/en/observances/biological-diversity-day/convention, last visited on 12/5/2026, at 09:00 A.M.
10. https://www.un.org/climatesecuritymechanism/en/united-nations-framework-convention-climate-change-unfccc-and-climate-peace-and-security, last visited on 17/5/2026, at 11:00 A.M.
11. https://sdgs.un.org/goals, last visited on 9/5/2026, at 11:30 A.M.
12. https://indianwetlands.in/our-work/regulatory-framework/, last visited on 18/5/2026, at 11:00 A.M.
13. https://gscl.assam.gov.in/portlet-innerpage/deeporbeel-lake-wetland, last visited on 1/5/2026, at 11:20 A.M.
14. https://frontline.thehindu.com/environment/deepor-beel-the-riverine-wetland-in-lower-brahmaputra-valley-on-the-brink/article34108353.ece, last visited on 12/5/2026, at 10:30 P.M.
15. https://indiankanoon.org/doc/1514672/, last visited on 9/5/2026, at 9:00 A.M.
16. https://indiankanoon.org/doc/1934103/, last visited on 11/5/2026, at 10:00 A.M.
17. https://indiankanoon.org/doc/1646284/, last visited on 19/5/2026, at 9:30 A.M.
18. https://indiankanoon.org/doc/1867873/, last visited on 15/5/2026, at 11:00 A.M.
19. https://indiankanoon.org/doc/85808566/, last visited on 23/5/2026, at 2:00 P.M.
20. https://indiankanoon.org/doc/78107628/, last visited on 24/5/2026, at 8:00 P.M.
21. https://www.indiatodayne.in/assam/story/assam-indefinite-protest-begin-by-displaced-persons-of-silsako-beel-891859-2024-02-20, last visited on 22/5/2026, at 11:00 A.M.
22. Medhi, P., & Borthakur, S. K. (2023). Wetland angiosperms of Assam (Aquatic and marshy land) (1st ed.). Scientific Publishers. ISBN 9789394645813
23. Saikia, Jekulin. (2019). Deepor Beel Wetland: Threats to Ecosystem Services, Their Importance to Dependent Communities and Possible Management Measures. Natural Resources and Conservation.

24. Sunkara, N. P., Ramachandra, T. V., Ahalya, N., Sengupta, T., Kumar, A., Tiwari, A., Vijayan, V., & Vijayan, L. (2001). Conservation of wetlands of India: A review. Tropical Ecology, 43.
25. The Constitution of India
26. The Environmental (Protection) Act, 1986, Act No. 29 of 1986
27. The Guwahati Waterbodies (Preservation and Conservation) Act, 2008, Assam Act No. XX Of 2008
28. The Indian Forest Act, 1927, Act No. 16 of 1927
29. The National Environment Policy (2006)
30. The Sentinel. (n.d.). Wetlands of Assam and their threat. Retrieved December 4, 2024, from https://www.sentinelassam.com/more-news/editorial/wetlands-of-assam-and-its-threat-635676
31. The Water (Prevention and Control of Pollution) Act, 1974, Act No. 6 of 1974
32. The Wetlands (Conservation and Management) Rules, 2017,
33. Deepor Beel Management Action Plan, 2002 ASTEC.