



International environmental law and the Sundarbans: A legal analysis of UNESCO, CBD, and Ramsar framework implementation

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Abstract

The Sundarbans mangrove ecosystem, spanning 10,000 km² across Bangladesh and India, represents a critical test case for evaluating the effectiveness of international environmental law frameworks in protecting transboundary natural heritage sites. This comprehensive legal analysis examines the specific provisions, enforcement mechanisms, and implementation gaps within the UNESCO World Heritage Convention, 1972, Ramsar Convention on Wetlands, 1971, and the Convention on Biological Diversity, 1992, as they apply to this shared ecosystem. Through systematic doctrinal legal research methodology and detailed examination of treaty articles, state obligations, and implementation mechanisms, this study reveals fundamental weaknesses in cross-border environmental governance that undermine ecosystem-wide conservation efforts. The research employs comparative legal analysis of primary treaty texts, focusing on Article 4, 5, and 6(3) of the UNESCO Convention establishing state obligations for heritage protection and prohibiting transboundary damage, Article 2(1), 3(1), 3(2), and 5(1) of the Ramsar Convention mandating wise use principles and transboundary consultation, and Article 8(a), 8(j), and 15(7) of the CBD requiring protected area systems and benefit-sharing mechanisms. Secondary sources include UNESCO monitoring mission reports, state party compliance assessments, and bilateral cooperation agreements, particularly the 2011 Bangladesh-India MoU on Sundarbans conservation.

Current environmental data demonstrates alarming degradation trends that challenge existing legal frameworks. Current enforcement mechanisms relying on diplomatic pressure and voluntary compliance prove insufficient for addressing serious environmental threats, as demonstrated by continued Rampal power plant construction despite repeated UNESCO interventions and clear Article 6(3) violations. The study concludes that enhanced bilateral cooperation mechanisms, strengthened domestic integration of international environmental law principles, and development of binding enforcement frameworks are essential for effective transboundary ecosystem protection. Joint monitoring must be conducted in a manner that fully respects sovereignty and avoids any interference. Recognition of ecocide as a distinct criminal offense and establishment of a Joint Transboundary Sundarbans Management Authority with legal personality represent critical reforms necessary to address current governance failures. This research contributes to international environmental law scholarship by demonstrating how weak enforcement mechanisms undermine globally significant ecosystem protection, providing insights applicable to other transboundary conservation challenges worldwide.

Keywords: International environmental law, Sundarbans, UNESCO, Ramsar, CBD, transboundary conservation, environmental enforcement, ecocide legislation, Bangladesh-India cooperation

Introduction

The Sundarbans mangrove ecosystem represents a critical test case for international environmental law effectiveness in protecting transboundary natural heritage. Recent environmental monitoring reveals alarming degradation trends that challenge existing legal frameworks: satellite imagery analysis indicates a significant 5% decrease in mangrove cover over the 23-year period from 2000 to 2023. Forest crimes are escalating at unprecedented rates.

The governance of this transboundary ecosystem operates through multiple overlapping international environmental law regimes, each establishing specific legal obligations and enforcement mechanisms. The UNESCO World Heritage Convention, 1972 provides protection through Articles 4, 5, and 6(3), establishing state obligations for heritage conservation and prohibiting transboundary damage. The Ramsar Convention, 1971 governs wetland protection through Articles 2(1), 3(1), 3(2), and 5(1), mandating wise use principles and transboundary cooperation. The Convention on Biological Diversity, 1992 establishes comprehensive biodiversity conservation obligations through Article 8 and related provisions, supplemented by

the Nagoya Protocol, 2010 addressing genetic resource access and benefit-sharing.

The implementation of these overlapping regimes reveals significant institutional fragmentation and enforcement challenges. UNESCO's reactive monitoring missions identified serious concerns requiring enhanced conservation measures, with the World Heritage Committee deferring danger listing decisions. This pattern demonstrates both the potential and limitations of international legal pressure, showing effectiveness in maintaining diplomatic engagement while revealing fundamental enforcement constraints inherent in voluntary compliance mechanisms.

UNESCO World Heritage Convention: Detailed Legal Analysis

1. Primary State Obligations and Implementation Assessment

Article 4 of the UNESCO World Heritage Convention establishes the fundamental legal obligation that- "each State Party to this Convention recognizes that the duty of ensuring the identification, protection, conservation, presentation and transmission to future generations of the cultural and natural heritage. belongs primarily to that

State". This provision creates primary responsibility for heritage protection within national jurisdiction while establishing international accountability mechanisms through the World Heritage Committee oversight system.

The application of Article 4 obligations to the Sundarbans reveals significant implementation challenges across both Bangladesh and India. Bangladesh's compliance demonstrates systematic gaps between formal legal frameworks and effective implementation. Despite developing a Strategic Environmental Management Plan (SEMP) for the Sundarbans in 2023, the government's approval of 320 industrial projects within the 10-kilometer Ecologically Critical Area surrounding the Sundarbans directly contravenes Article 4 duties. The 2025 decision to ban new industries within this zone represents progress but does not address existing approvals that continue to threaten ecosystem integrity.

The designation of India's Sundarbans as a Ramsar site in 2019, 27 years after Bangladesh's designation, illustrates different national approaches to international environmental law implementation and has contributed to coordination challenges in transboundary management

2. Integration into Comprehensive Planning Programmes

Article 5 mandates that States Parties- "endeavour, in so far as possible, to adopt a general policy which aims to give the cultural and natural heritage a function in the life of the community and to integrate the protection of that heritage into comprehensive planning programmes".

This provision requires systematic integration of heritage protection into all relevant policy frameworks, extending beyond sectoral environmental planning to encompass economic development, infrastructure planning, and regional development strategies.

Bangladesh's compliance with Article 5 remains inadequate despite recent legal developments. The Bangladesh Environmental Conservation Rules 2023 addressed many lacking provisions in the Environmental Conservation Rules 1997. The new rules classify industrial units and projects into four categories (green, yellow, orange, and red) and require both location clearance and environmental clearance certificates from the Department of Environment for yellow, orange, and red category projects. However, the approval of the Rampal power plant without comprehensive cumulative impact assessment violates Article 5 obligations for integrated planning.

The 2023 UNESCO World Heritage Committee review emphasized the need for "further research and a data-gathering plan for the sustainable development of the Sundarbans," highlighting ongoing gaps in Article 5 implementation. The Committee's requirement for Strategic Environmental Assessment completion before allowing large-scale developments reflects international recognition of Article 5 integration obligations and provides binding guidance for domestic implementation.

3. Prohibition Against Transboundary Environmental Harm

Article 6(3) establishes that "each State Party to this Convention undertakes not to take any deliberate measures which might damage directly or indirectly the cultural and natural heritage referred to in Articles 1 and 2 situated on the territory of other States Parties to this Convention". This

provision creates binding obligations against transboundary environmental harm, representing a significant constraint on state sovereignty in heritage site vicinity and establishing legal basis for international intervention in domestic development decisions.

The Rampal power plant, a joint project by India and Bangladesh, located in Bangladesh, demonstrates a clear violation of Article 6(3) obligations and reveals fundamental enforcement limitations in international environmental law. Located 14 kilometers from the Sundarbans World Heritage site, the plant's emissions extend across Sundarbans. Environmental modelling shows pollution impacts covering the entire Sundarbans ecosystem and extending into West Bengal districts. Despite this evidence of transboundary harm and UNESCO's specific recommendation for project relocation, Bangladesh proceeded with construction, indicating non-compliance with Article 6(3) prohibitions. Recent assessments reveal ongoing Article 6(3) violations through the plant's operational impacts.

4. World Heritage in Danger Listing as Enforcement Mechanism

Article 11(4) establishes the List of World Heritage in Danger as an enforcement mechanism for sites "threatened by serious and specific dangers," providing international legal tools for addressing non-compliance with conservation obligations. The provision allows the Committee to inscribe properties without prior state request in cases of urgent need, though implementation relies on diplomatic pressure rather than binding sanctions.

The Sundarbans has faced repeated threats of danger listing since 2016, demonstrating both the potential and limitations of Article 11(4) mechanisms. UNESCO reactive monitoring missions identified serious concerns requiring enhanced conservation measures, with the World Heritage Committee deferring danger listing decision. This pattern shows international legal pressure effectiveness in maintaining diplomatic engagement while revealing enforcement constraints when states prioritize development over conservation obligations.

Ramsar Convention: Wetland Protection Legal Framework Analysis

1. Wetland Designation Obligations and Temporal Disparities

Article 2(1) of the Ramsar Convention requires that "each Contracting Party shall designate suitable wetlands within its territory for inclusion in a List of Wetlands of International Importance," establishing binding obligations for wetland identification and international recognition. This provision creates legal frameworks for enhanced protection of designated sites while requiring systematic assessment of wetland resources within national territories.

The implementation of Article 2(1) in the Sundarbans context reveals significant temporal disparities that have undermined transboundary coordination. Bangladesh achieved Ramsar designation for the Sundarbans in 1992, shortly after ratifying the Convention, while India designated its portion in January 2019, creating a 27-year gap in comprehensive international wetland protection for the ecosystem. This temporal disparity reflects different national approaches to international environmental law implementation and has contributed to coordination challenges in transboundary management.

The delayed Indian designation demonstrates how Article 2(1) implementation gaps can undermine ecosystem-wide protection. During the 27-year period without comprehensive Ramsar protection, the transboundary ecosystem lacked unified international legal framework for coordinated conservation planning.

2. Wise Use Planning Obligations and Ecological Character Maintenance

Article 3(1) establishes the core Ramsar obligation requiring Contracting Parties to "formulate and implement their planning so as to promote the conservation of the wetlands included in the List, and as far as possible the wise use of wetlands in their territory". The "wise use" principle has evolved through Conference of Parties decisions to require maintenance of ecological character and prevention of wetland destruction, change, or pollution.

Implementation of Article 3(1) obligations in the Sundarbans context reveals significant challenges despite formal planning frameworks. The First Conference of Parties amplified preservation of the ecological character of wetlands, i.e. by preventing their destruction, change or pollution, establishing higher standards for wetland protection than initially contemplated. Recent data showing 5% mangrove cover decrease over 23 years indicates failure to maintain ecological character as required under wise use principles

The interpretation of "wise use" has been progressively strengthened through institutional practice, demonstrating the dynamic nature of international environmental law obligations. Current environmental degradation through deforestation, hunting, overexploitation of natural resources, and water pollution continues despite formal planning frameworks, indicating fundamental implementation gaps in Article 3(1) compliance. The Ramsar Convention's reliance on "soft law" obligations and absence of binding enforcement mechanisms has limited its effectiveness in preventing Sundarbans degradation.

3. Ecological Character Change Notification Requirements

Article 3(2) requires that "each Contracting Party shall arrange to be informed at the earliest possible time if the ecological character of any wetland in its territory and included in the List has changed, is changing or is likely to change as the result of technological developments, pollution or other human interference". This provision creates information obligations supporting international monitoring and cooperation mechanisms essential for transboundary wetland protection.

Both Bangladesh and India demonstrate limited compliance with Article 3(2) obligations despite multiple ecological character changes in the Sundarbans ecosystem. The 5% mangrove cover reduction over 23 years, tiger population fluctuations, and hydrological alterations have occurred without timely notification to Ramsar authorities. The failure to report proposed industrial developments that could affect ecological character represents clear non-compliance with Article 3(2) requirements. This omission undermines international cooperation mechanisms and violates procedural obligations essential for transboundary wetland protection, demonstrating how domestic development priorities can override international legal obligations without effective enforcement mechanisms.

4. Transboundary Consultation and Cooperation Obligations

Article 5(1) mandates that "Contracting Parties shall consult with each other about implementing obligations arising from the Convention especially in the case of a wetland extending over the territories of more than one Contracting Party or where a water system is shared by Contracting Parties". This provision establishes specific legal obligations for transboundary cooperation in shared wetland management, requiring systematic consultation mechanisms and coordinated implementation approaches.

The implementation of Article 5(1) in the Sundarbans context demonstrates significant institutional weaknesses despite formal bilateral cooperation frameworks. The 2011 Bangladesh-India MoU on Sundarbans conservation established a Joint Working Group anchored in the Ministry of Environment, Forests and Climate Change, recognizing actions for conserving and monitoring the Sundarbans, encouraging mangrove regeneration, and addressing livelihood issues. However, consultation mechanisms remain sporadic and ineffective.

Recent bilateral cooperation initiatives show limited progress in implementing Article 5(1) obligations. The Bangladesh-India Sundarban Region Cooperation Initiative (BISRCI), established in 2015, aims to facilitate effective bilateral cooperation through knowledge-based advocacy but lacks formal legal status and binding implementation mechanisms. This institutional gap undermines Article 5(1) consultation requirements and creates enforcement vacuum for transboundary wetland protection, demonstrating need for enhanced legal frameworks with binding cooperation obligations.

Convention on Biological Diversity: Protecting Biodiversity

1. Protected Areas System Development and Effectiveness Assessment

Article 8(a) of the CBD requires Parties to "establish a system of protected areas or areas where special measures need to be taken to conserve biological diversity," mandating comprehensive protected area networks rather than isolated conservation sites. This provision emphasizes ecosystem-wide approach to biodiversity protection and requires systematic planning for representative protected area coverage across different ecosystem types.

Both Bangladesh and India have established protected area systems within their Sundarbans territories, with varying degrees of effectiveness in biodiversity conservation. Bangladesh designated three wildlife sanctuaries covering 139,700 hectares in 1977, expanded to 317,949 hectares in 2017, representing approximately 50% of the forest area. India established Sundarbans National Park with comprehensive management frameworks, demonstrating stronger institutional capacity for protected area management.

Recent data provides mixed evidence of Article 8(a) implementation effectiveness. The 2024 tiger census showing 125 tigers compared to 114 in 2018 indicates positive conservation outcomes for flagship species. However, this increase occurs against backdrop of overall habitat degradation, with dense forest cover nearly halving between 2000-2020. This pattern suggests that protected area designation alone is insufficient for Article 8(a) compliance without comprehensive ecosystem management addressing external pressures and cumulative impacts.

2. Traditional Knowledge Protection and Community Participation

Article 8(j) requires Parties to "respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity". This provision recognizes the role of traditional knowledge systems in biodiversity conservation and establishes legal obligations for community participation in conservation planning and benefit-sharing from traditional knowledge utilization.

Implementation of Article 8(j) in the Sundarbans context reveals significant gaps in both countries despite substantial community dependence on ecosystem resources. Approximately 6.5 million people depend on the ecosystem for livelihoods, engaging in traditional activities including fishing, honey collection, and resource harvesting. However, formal recognition and protection mechanisms for traditional knowledge remain underdeveloped, limiting community participation in conservation planning and violating Article 8(j) obligations.

3. Benefit-Sharing from Genetic Resource Utilization

Article 15(7) establishes that "each Contracting Party shall take legislative, administrative or policy measures, with the aim of sharing in a fair and equitable way the results of research and development and the benefits arising from the commercial and other utilization of genetic resources". This provision creates binding obligations for benefit-sharing from genetic resource utilization, establishing legal frameworks for ensuring provider country participation in benefits from genetic resource commercialization.

Both countries demonstrate limited compliance with Article 15(7) obligations despite the Sundarbans' exceptional biodiversity representing significant genetic resource value. The ecosystem supports 334 plant species, 693 wildlife species, and numerous endemic taxa requiring Article 15(7) protection. Both countries lack effective benefit-sharing frameworks for genetic resources derived from the Sundarbans ecosystem.

Current legal frameworks provide inadequate mechanisms for ensuring fair and equitable benefit-sharing from commercial utilization of Sundarbans genetic resources, indicating ongoing non-compliance with CBD obligations. The complex institutional requirements for prior informed consent, mutually agreed terms, and benefit-sharing agreements require substantial administrative capacity that both countries struggle to maintain effectively. This capacity gap undermines Article 15(7) implementation and limits effective genetic resource protection essential for biodiversity conservation.

4. Nagoya Protocol: Enhanced Access and Benefit-Sharing Legal Framework

4.1 Legislative Measures for Genetic Resource Benefit-Sharing

Article 5(1) of the Nagoya Protocol reiterates and expands Article 15(7) CBD obligations, requiring Parties to take "legislative, administrative or policy measures, to ensure that the benefits arising from the utilization of genetic resources, are shared in a fair and equitable way". This provision establishes more specific and binding obligations than the general CBD framework, requiring detailed implementation mechanisms for access and benefit-sharing regulation.

Bangladesh's compliance with Article 5(1) remains partial through the Biodiversity Act 2002, but enforcement mechanisms are limited and institutional capacity inadequate. The Act provides framework for genetic resource access regulation but lacks comprehensive benefit-sharing implementation mechanisms required under Nagoya Protocol obligations. Recent developments indicate ongoing challenges in Article 5(1) implementation, with complex institutional requirements for prior informed consent, mutually agreed terms, and benefit-sharing agreements requiring substantial administrative capacity.

4.2 Prior Informed Consent Implementation Mechanisms

Article 6(3) establishes detailed requirements for prior informed consent (PIC) mechanisms, mandating that access to genetic resources be subject to PIC and mutually agreed terms. This provision creates procedural safeguards for genetic resource providers and establishes clear legal frameworks for access regulation, requiring transparent and predictable administrative procedures for genetic resource access applications.

The transboundary nature of the Sundarbans creates particular challenges for Article 6(3) implementation requiring coordinated PIC mechanisms that current bilateral frameworks do not adequately address. Genetic resources may span both countries, requiring coordinated PIC mechanisms and harmonized access procedures. This jurisdictional gap undermines Article 6(3) effectiveness and creates enforcement challenges for genetic resource protection, demonstrating need for enhanced bilateral cooperation in implementing Nagoya Protocol obligations.

Comparative Implementation Analysis and Legal Enforcement Gaps

1. Implementation and Coordination Challenges

Legal Regime	Primary Articles	Enforcement Mechanism	Bangladesh Implementation	India Implementation	Key Gaps
UNESCO World Heritage	Articles 4, 5, 6(3)	Danger listing, monitoring missions	Partial - SEMP, but several industrial approvals	Systematic EIA, however, remains weak implementation	Article 6(3) violations (Rampal), limited transboundary coordination
Ramsar Convention	Articles 2(1), 3(1), 3(2), 5(1)	Soft law, diplomatic pressure	Designation 1992, limited wise use implementation	Designation 2019, 27-year delay	Article 3(2) notification failures, weak Article 5(1) consultation
CBD & Nagoya	Articles 8, 15(7), 5(1), 6(3)	National reporting, peer review	Limited benefit-sharing frameworks	NBA framework operational but limited implementation	Article 15(7) compliance gaps, insufficient traditional knowledge protection

The governance of the Sundarbans suffers from significant fragmentation between overlapping international environmental law regimes. UNESCO's focus on outstanding universal value through Articles 4 and 5, Ramsar's emphasis on wetland wise use through Article 3(1), and the CBD's comprehensive biodiversity approach through Article 8 create competing priorities and institutional mandates.

Current institutional arrangements demonstrate limited coordination between legal regimes despite formal cooperation mechanisms. UNESCO monitoring missions operate independently of Ramsar reporting mechanisms, while CBD national biodiversity strategies lack systematic integration with World Heritage management plans. The 2011 Bangladesh-India MoU establishing a Joint Working Group has met infrequently, with implementation remaining sporadic and ineffective.

2. Enforcement Mechanisms and Legal Accountability Assessment

Current enforcement mechanisms for international environmental law in the Sundarbans context rely primarily on diplomatic pressure and voluntary compliance rather than binding sanctions. UNESCO's Article 11(4) danger listing mechanism provides international visibility but lacks direct enforcement power, with repeated deferrals of danger listing demonstrating both pressure effectiveness and fundamental limitations. Ramsar Convention enforcement depends on the Conference of the Parties monitoring without sanctions for non-compliance, while CBD enforcement operates through national reporting and peer review mechanisms with limited accountability measures.

The effectiveness of these "soft law" enforcement approaches demonstrates both potential and limitations in addressing serious environmental threats. UNESCO's repeated warnings and monitoring missions have maintained international pressure for Sundarbans protection, but construction of the Rampal power plant despite international legal pressure indicates fundamental enforcement limitations. Recent environmental violations at the plant, including operation without effluent treatment facilities, demonstrate continuing non-compliance despite international monitoring.

Latest Environmental Data Analysis and Legal Implications

1. Forest Crime Escalation and Enforcement Response

Recent data from Bangladesh reveals alarming escalation in forest crimes that challenge the effectiveness of current legal frameworks. Forest Department data shows 2,498 criminals arrested and 1,169 water vessels seized through SMART patrolling from January 2018 to June 2023, indicating substantial enforcement efforts. However, the overall scale of violations with 4,838 cases against over 25,000 individuals demonstrates systematic breakdown in domestic enforcement of international legal obligations.

Environmental crimes include tree logging, wildlife poaching, destructive fishing practices using pesticide, and deliberate forest fires to facilitate illegal fishing. Recent fire incidents in Sharankhula and Chandpai Ranges, burning 80 acres of forest, were found to result from planned activities by local groups to destroy forest for personal gains. This pattern indicates organized criminal activity requiring enhanced bilateral cooperation and strengthened criminal law frameworks.

2. Industrial Development Pressures and Regulatory Response

Continuing industrial development pressures around the Sundarbans test the effectiveness of international legal frameworks despite recent regulatory improvements. The Rampal power plant environmental violations provide stark evidence of inadequate environmental protection under current legal frameworks. Recent assessments revealing operation without effluent treatment facilities since October 2022 and uncovered coal handling releasing ash into air and river demonstrate continuing Article 6(3) UNESCO violations. This case demonstrates how domestic development priorities can override international legal obligations without effective enforcement mechanisms.

3. Latest Legal Developments and Future Enforcement Prospects

Recent legal developments provide both opportunities and challenges for enhanced enforcement of international environmental obligations. Bangladesh's Environmental Conservation Rules 2023 represent progress in domestic law harmonization, establishing clearer categorization systems and requiring both location and environmental clearance certificates for industrial projects.

However, implementation challenges persist despite formal legal improvements. The 2025 decision to ban new industries within the 10-kilometer ECA represents significant progress but does not address existing approved projects that continue to threaten ecosystem integrity.

Enhanced Legal Reform Recommendations and Implementation Mechanisms

1. Bilateral Environmental Cooperation Treaty Framework

A comprehensive bilateral environmental cooperation treaty is essential to address governance gaps in current international legal arrangements. Such a treaty should incorporate specific provisions from UNESCO Article 6(3), Ramsar Article 5(1), and CBD Article 8 obligations while establishing binding implementation mechanisms and dispute resolution procedures. The treaty framework should establish a Joint Transboundary Sundarbans Management Authority with legal personality and operational autonomy, with powers to coordinate conservation activities, monitor environmental compliance, and facilitate joint enforcement actions.

Specific treaty provisions should address harmonization of environmental impact assessment procedures, coordinated permit systems for activities affecting the ecosystem, and joint monitoring protocols for Article 3(2) Ramsar obligations. Joint monitoring must be conducted in a manner that fully respects sovereignty and avoids any interference. The treaty should incorporate binding arbitration mechanisms for environmental disputes and establish shared liability frameworks for transboundary environmental damage, strengthening enforcement mechanisms currently lacking in international environmental law.

2. Ecocide Legislation and Enhanced Criminal Law Frameworks

Recognition of ecocide as a distinct criminal offense should be incorporated into both countries' penal codes to address large-scale environmental destruction threatening ecosystem integrity. The expert's definition of ecocide as "unlawful or

wanton acts committed with knowledge that there is a substantial likelihood of severe and either widespread or long-term damage to the environment" provides a framework for enhanced environmental criminal law.

While Vietnam, Uzbekistan, France, Russia, Belgium and other states have existing ecocide laws, Bangladesh and India require domestic frameworks addressing environmental crimes that transcend traditional pollution offenses. Current environmental laws provide insufficient penalties for activities causing severe environmental damage to shared ecosystems, requiring enhanced criminal law frameworks with deterrent effects against large-scale environmental destruction.

3. Integration of International Environmental Law Principles

Both countries must strengthen integration of UNESCO, Ramsar, and CBD obligations into domestic legal systems through constitutional recognition, statutory incorporation, and specialized judicial mechanisms. This integration should include explicit recognition of international environmental law principles in national constitutions and the establishment of specialized environmental courts with jurisdiction over international obligations. Bangladesh's 2023 Environmental Conservation Rules represent progress in domestic law harmonization but require further strengthening to incorporate international obligations systematically.

Concluding Remarks

1. Summary of Legal Analysis and Implementation Findings

This comprehensive legal analysis reveals fundamental weaknesses in the current international environmental law framework governing the transboundary Sundarbans ecosystem. Despite comprehensive legal instruments establishing binding obligations through UNESCO Articles 4, 5, and 6(3), Ramsar Articles 2(1), 3(1), 3(2), and 5(1), and CBD Articles 8 and 15(7), implementation gaps, enforcement challenges, and institutional fragmentation persist.

The comparative analysis demonstrates weak compliance patterns between Bangladesh and India. Recent environmental data showing 5% mangrove cover decrease over 23 years and forest crime escalation involving over 25,000 individuals indicates systematic failure to implement international legal obligations effectively.

2. Enhanced Accountability and Future Legal Development

Current enforcement mechanisms relying on diplomatic pressure and voluntary compliance prove insufficient for addressing serious environmental threats such as the Rampal power plant construction despite UNESCO Article 6(3) prohibitions. Enhanced accountability requires binding enforcement mechanisms, mandatory dispute resolution procedures, and potential sanctions for non-compliance with international environmental obligations.

Recent legal developments, including the 2023 Environmental Conservation Rules provide opportunities for enhanced domestic implementation, though systematic integration of international obligations remains incomplete. The ongoing recognition of ecocide as international crime provides models for enhanced environmental criminal law that could strengthen enforcement frameworks.

3. Toward Integrated Transboundary Environmental Governance

The Sundarbans case demonstrates urgent need for integrated legal frameworks addressing fragmentation between UNESCO, Ramsar, and CBD regimes while establishing effective transboundary governance mechanisms. A comprehensive bilateral environmental cooperation treaty incorporating specific provisions from all relevant international instruments, while establishing joint management authority, represents the essential next step for enhanced protection. Joint monitoring must be conducted in a manner that fully respects sovereignty and avoids any interference.

The development of integrated legal frameworks for shared ecosystems requires recognition that traditional approaches prove inadequate for transboundary environmental protection. Enhanced international cooperation and strengthened domestic implementation of international environmental law obligations are essential for protecting globally significant ecosystems facing unprecedented environmental pressures.

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