



Resolving Riparian Rivalry: A Comparative Analysis of Interstate Water Dispute Adjudication in India and the United States

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Abstract

Interstate water disputes present a critical challenge to federal governance, pitting sub-national claims over a vital, finite resource against the need for national harmony and economic stability. This paper undertakes a doctrinal and institutional comparison of the legal frameworks for resolving such disputes in India and the United States, two of the world's largest and most complex federal democracies. The analysis interrogates the institutional design, legal doctrines, and practical efficacy of India's legislative-tribunal model, established under the Interstate Water Disputes Act of 1956, and the U.S. model, which relies predominantly on the original jurisdiction of the Supreme Court and the use of interstate compacts. The study finds that India's framework, premised on ad hoc tribunals, suffers from profound procedural delays, weak enforcement mechanisms, and the politicisation of disputes, undermining the finality of awards. In contrast, the U.S. system, centred on the judicial doctrine of 'equitable apportionment,' offers greater legal certainty and enforcement power through Supreme Court decrees, while simultaneously encouraging negotiated interstate compacts as a more flexible, proactive solution. The U.S. emphasis on interstate compacts provides a valuable template for cooperative federalism that is underdeveloped in the Indian context. This study concludes by proposing modest, implementable reforms for India, tethered to lessons from the U.S. experience, aimed at enhancing efficiency, promoting data-driven negotiation, and strengthening the finality and enforceability of adjudicatory awards, thereby reducing the significant economic and social costs of protracted water conflicts.

Keywords: Resolving, Riparian, Rivalry, Water Dispute, Adjudication, United States, Governance

1. Introduction

The governance of transboundary water resources is a defining feature of modern federalism, representing a persistent and escalating source of friction within federal polities globally. When rivers cross political boundaries, they transform from simple natural resources into complex symbols of regional identity, economic survival, and sovereign entitlement. In nations like India and the United States, disputes over these shared waters are not mere administrative disagreements; they are deeply embedded conflicts that can trigger agricultural crises, stall economic development, and ignite popular protests, straining the very fabric of cooperative federalism (Gautam, 2017) ^[1]. The institutional mechanisms designed to resolve these disputes are, therefore, more than just procedural frameworks; they are critical components of national integration and stability. They reflect a nation's core commitments to the rule of law, the balance of power between central and regional governments, and the preference for either adversarial

adjudication or cooperative negotiation. While this challenge is global, manifesting in basins like the Nile, Mekong, and Danube, the comparison between India and the United States is particularly instructive. As two of the world's largest federal democracies with sophisticated legal systems, their divergent approaches to the same fundamental problem offer profound insights into the relationship between constitutional design and practical outcomes in resource management.

This paper employs a comparative legal-institutional analysis to dissect the structural and doctrinal architecture of interstate water dispute resolution in these two jurisdictions. The central tension explored is between two distinct philosophies of governance: India's constitutionally mandated, quasi-judicial, and legislatively driven tribunal system, which deliberately ousts the jurisdiction of its highest court, and the American model, which places the Supreme Court at the apex of an adjudicatory hierarchy while simultaneously fostering a robust tradition of

negotiated interstate compacts. This fundamental divergence in institutional choice prompts a series of critical inquiries that form the core of this research. The analysis will proceed by first establishing the foundational legal doctrines that shape water allocation claims in both nations. It will then undertake a detailed examination of the Indian framework, tracing its constitutional origins, the functioning of the Inter-State Water Disputes Act, and the legacy of its most significant tribunals. Following this, a parallel deep-dive into the United States system will explore the evolution of the Supreme Court's equitable apportionment jurisprudence and the critical role of interstate compacts. This comparative groundwork will facilitate a systematic analysis of the respective advantages and disadvantages of each system, measured against criteria of efficiency, doctrinal consistency, enforcement efficacy, and the capacity to foster cooperation. The paper argues that the Indian model, while conceptually sound in its aim to provide expert-led, apolitical resolutions, has been plagued by implementation failures—namely, extreme procedural delays, a critical enforcement deficit, and an inability to insulate itself from political pressures. In contrast, the U.S. system, though resource-intensive and often slow, provides a more stable and predictable framework, with the judicial power of the Supreme Court serving as a crucial backstop that incentivizes states to engage in more flexible, negotiated settlements. The paper concludes not by advocating for a wholesale transposition of the American model onto India, but by identifying specific, adaptable institutional innovations from the U.S. experience that could meaningfully address the well-documented shortcomings of the Indian framework. Specifically, it proposes pathways for reform focused on institutionalizing adjudication in a permanent body, creating a statutory framework to encourage negotiated compacts, and, most critically, designing a viable mechanism to ensure the enforcement of final awards.

2. Foundational Doctrines of Water Federalism and Allocation

The legal frameworks for resolving interstate water conflicts in India and the United States do not operate in a vacuum. They are built upon deeper constitutional principles of federalism and are animated by substantive legal doctrines governing water rights. Water federalism, as a specific subset of federal theory, concerns the allocation of legislative, executive, and judicial powers over water resources between national and sub-national governments (Sax, *et al.*, 2006) [25]. In the United States, this allocation is a complex interplay between the states' traditional police powers over property and resources, and the federal government's authority under constitutional provisions such as the Commerce Clause, the Property Clause, and the treaty-making power. Furthermore, the Winters Doctrine established federally reserved water rights for Native American tribes, adding another layer of federal interest (Winters v. United States, 207 U.S. 564, 1908). In India, the Constitution explicitly distributes legislative powers through the lists in the Seventh Schedule. While states have primary authority over "water supplies, irrigation and canals, drainage and embankments" (Entry 17, State List), this power is subject to the Union Parliament's power to legislate

on the "regulation and development of inter-state rivers and river valleys" where it is declared to be in the public interest (Entry 56, Union List). This constitutional design creates an inherent jurisdictional tension that sets the stage for conflict. Beyond this structural dimension, the substantive claims made by states are articulated through the language of established water law doctrines, which have been adapted from private law to the interstate public law context. The two primary doctrines are riparianism and prior appropriation. The doctrine of riparianism, which originated in the water-abundant common law of England, posits that the right to use water is an incident of owning land that abuts a watercourse. In its original "natural flow" formulation, every riparian owner was entitled to have the stream flow past their property undiminished in quantity or quality. This rigid rule proved unworkable and evolved into the American rule of "reasonable use," which allows each riparian owner to make any reasonable use of the water that does not unduly interfere with the reasonable uses of other riparians. This doctrine, emphasizing co-equal rights and correlative sharing, is prevalent in the eastern United States and forms the background of water law in India. In stark contrast, the doctrine of prior appropriation emerged from the customs of miners in the arid American West during the 19th-century gold rush. Its foundational maxim is "first in time, first in right." This doctrine severs water rights from land ownership, granting a superior and more secure property right to the party who first diverts water from a source and applies it to a "beneficial use," such as agriculture, mining, or domestic supply. This right is quantified and holds priority over all subsequent, or "junior," appropriators. This system provides security for investments in water infrastructure, which is critical in regions where water is scarce, but it can also be rigid and lead to inefficient outcomes.

In the context of interstate disputes, neither doctrine was found to be wholly suitable for balancing the sovereign interests of states. The U.S. Supreme Court, when first confronted with this issue, fashioned a unique federal common law doctrine: equitable apportionment. Articulated in *Kansas v. Colorado* (1907), the Court rejected Colorado's claim of absolute sovereignty over headwaters and Kansas's claim to the river's undiminished flow, stating that a controversy between states must be settled on the basis of "equality of right and equity." This is not a simple mathematical division of water but a flexible judicial determination based on a comprehensive balancing of all relevant factors. These factors include, but are not limited to: the protection of existing uses and established economies (prior appropriation principles), the physical and climatic conditions of the basin, the consumptive use of water and the potential for conservation, the harm that an allocation would cause to one state versus the benefit it would provide to another, and the extent to which each state follows principles of riparianism or prior appropriation in its internal water law (Tarlock, 2015) [30]. The state petitioning the Court for an apportionment bears a significant burden of proof, needing to demonstrate by clear and convincing evidence that it is suffering a substantial injury from another state's actions. While Indian tribunals do not use the formal label of "equitable apportionment," their adjudicatory principles have de facto coalesced around a similar

equitable balancing of interests, considering factors like each state's contribution to the river's flow, its dependent population, its existing uses, and the principle of avoiding undue harm to co-basin states (Iyer, 2019) [15].

3. The Legislative-Tribunal Framework in India: A Design Under Strain

The Indian approach to interstate water disputes is a unique constitutional experiment, born from a desire to depoliticize conflicts and entrust them to expert, apolitical bodies. The historical context for this design lies in the pre-independence era, where disputes were mediated, often unsuccessfully, by the British administration. The framers of the Indian Constitution, wary of burdening the nascent Supreme Court with these fact-intensive and politically volatile disputes, included Article 262. This provision gives Parliament exclusive authority to legislate for the adjudication of such disputes and explicitly allows for the ouster of the jurisdiction of all courts, including the Supreme Court. Acting on this mandate, Parliament enacted the Inter-State Water Disputes Act, 1956 (ISWDA), which has since been the sole statutory vehicle for resolution. The Act's process begins when a state government formally requests the Central Government to refer a dispute to a tribunal. The Act obliges the Centre to first attempt to resolve the dispute through negotiation. If these efforts fail within a year, the Centre is required to constitute a Water Disputes Tribunal. Historically, these tribunals have been ad hoc bodies, comprising a chairman and two other members nominated by the Chief Justice of India from among sitting judges of the Supreme Court or a High Court. Once the tribunal submits its report and award, and it is published by the Central Government, it is deemed to have the force of a Supreme Court decree.

The history of this framework is best understood through the detailed examination of its major tribunals, which reveals both its potential and its profound shortcomings. The Cauvery Water Disputes Tribunal represents the most protracted and contentious case in Indian hydro-politics. The dispute between the upper riparian state of Karnataka and the lower riparian Tamil Nadu dates back to agreements in 1892 and 1924. After decades of failed negotiations post-independence, the tribunal was finally constituted in 1990. It issued a controversial interim order in 1991, which Karnataka refused to implement, leading to widespread violence and requiring central government intervention. The tribunal's final award came only in 2007, seventeen years after its formation. It meticulously calculated water requirements based on irrigated acreage and cropping patterns, allocating specific monthly quantities to be released by Karnataka. However, the award was not published by the Centre until 2013, following a Supreme Court directive, and its implementation remained a source of constant friction, especially in drought years. The dispute ultimately returned to the Supreme Court, which, in a landmark 2018 judgment, asserted its power to hear appeals against tribunal awards on grounds of constitutional interpretation and water-sharing principles, despite the bar in Article 262(2). The Court subtly modified the award, reducing Tamil Nadu's share and reallocating some water for Bengaluru's drinking needs, demonstrating that the attempt to fully oust judicial review was ultimately

unsustainable.

The dispute over the Ravi and Beas rivers showcases the system's vulnerability to political interference. Following the reorganization of the state of Punjab in 1966, a dispute arose with the newly formed state of Haryana over the sharing of these river waters. A tribunal was constituted in 1986, but before it could deliver a final, binding award, the political climate in Punjab deteriorated. In 2004, in a move of legislative defiance, the Punjab state assembly passed the Punjab Termination of Agreements Act, unilaterally annulling all its water-sharing agreements with neighboring states. This unprecedented act rendered the tribunal process moot and forced the President of India to make a special reference to the Supreme Court for its opinion on the Act's constitutionality. The Supreme Court eventually found the Punjab Act to be unconstitutional, but the dispute on the ground remains unresolved, and the tribunal's work has been in limbo for decades, a stark illustration of how state-level politics can completely derail the legal-adjudicatory process. The system's limitations are now well-documented. Procedural delay is the most glaring issue; tribunals have taken anywhere from a decade to over three decades to produce an award. This delay stems from the ad hoc nature of the tribunals, which must start from scratch each time, prolonged legal arguments, and a lack of firm timelines in the original Act. Second, there is a severe data deficit. Tribunals spend years trying to adjudicate between conflicting and often unreliable hydrological and agricultural data submitted by the disputing states. There is no neutral, empowered central agency for water data collection and management whose findings are binding on all parties. Third, and most critically, is the enforcement vacuum. The ISWDA provides no effective mechanism for implementing an award when a state chooses to defy it. The onus falls on the Central Government, which is often reluctant to take coercive action against a state government, leading to a stalemate that perpetuates the conflict. Finally, the process, intended to be apolitical, has become heavily politicised, with state governments often using water disputes for electoral mobilisation, making compromise and compliance even more difficult (Mehta, 2020). The 2019 Amendment to the ISWDA attempts to address some of these issues by proposing a single, permanent tribunal with multiple benches and fixed timelines, but its implementation has been slow and its ability to solve the core enforcement problem remains uncertain.

4. The U.S. Model: Judicial Supremacy and Negotiated Compacts

The United States has developed a dual-track system for resolving interstate water disputes that is fundamentally different from India's. This system is anchored in the constitutional authority of the Supreme Court and a strong tradition of Congressionally approved interstate compacts. The primary track is judicial, flowing from Article III, Section 2 of the U.S. Constitution, which grants the Supreme Court original jurisdiction over controversies between states. This means a state can directly sue another state in the nation's highest court. The second, and often preferred, track is negotiation, enabled by the Compact Clause (Article I, Section 10, Clause 3), which allows states to form binding agreements or compacts among themselves,

subject to the consent of Congress. This institutional arrangement creates a powerful dynamic: the prospect of long, expensive, and unpredictable litigation before the Supreme Court acts as a strong incentive for states to find cooperative solutions through the compacting process (Benson, 2012) [4]. The judicial track has produced a rich jurisprudence of equitable apportionment over more than a century. The Court typically appoints a Special Master—an experienced lawyer or scholar—to manage the complex, trial-like proceedings, which can take many years. The Master oversees discovery, hears testimony, and ultimately submits a detailed report and recommendation to the Court, which the Justices then review before issuing a final decree. A deeper look at key cases reveals the doctrine's application. In *Wyoming v. Colorado* (1922), both arid states followed the doctrine of prior appropriation internally. The Court decided that equity required applying this doctrine between the states as well, protecting senior uses in Wyoming from newer diversions in Colorado. This showed that "equity" was not an abstract concept but was informed by the established laws and economies of the region. The case of *Arizona v. California* (1963) was monumental. It concerned the allocation of the Colorado River in the Lower Basin. After years of litigation, the Court concluded that the Boulder Canyon Project Act of 1928, a federal statute, constituted a congressional apportionment of the water, thereby supplanting the Court's need to apply its own common law doctrine. This landmark decision affirmed the supremacy of federal legislation—including ratified interstate compacts—over judicial apportionment. More recent disputes, such as *Florida v. Georgia*, concerning the Apalachicola-Chattahoochee-Flint (ACF) River Basin, highlight the doctrine's application to modern challenges. Florida alleged that Georgia's increasing agricultural and municipal water use in Atlanta was causing an ecological collapse in the Apalachicola Bay. After years of litigation, the Supreme Court ultimately ruled against Florida in 2021, finding that it had not provided clear and convincing evidence that the harm it was suffering would be redressed by capping Georgia's consumption, showcasing the extremely high burden of proof required in equitable apportionment cases. While the judicial track provides a powerful backstop, the interstate compact is the system's workhorse. The process of creating a compact is a model of cooperative federalism. It begins with negotiations among the basin states, often taking years. Once an agreement is reached, it must be ratified by the legislature of each signatory state. Finally, it is submitted to the U.S. Congress for approval, and upon receiving it, the compact becomes federal law, binding on the states and enforceable in federal court. These compacts are highly versatile. The Colorado River Compact of 1922, for example, is a foundational allocation agreement that divided the river's estimated flow between the Upper and Lower Basins. The Delaware River Basin Compact went further, creating a permanent commission with representatives from the signatory states and the federal government to manage the basin's water resources jointly. The Great Lakes Compact is primarily defensive, designed to prevent the diversion of water out of the Great Lakes basin. While powerful, compacts have their own limitations. They can be very difficult to negotiate and even more difficult to amend once ratified, sometimes

locking in outdated assumptions about water availability, as has become evident with the Colorado River Compact in the face of long-term drought and climate change.

5. Comparative Synthesis and Pathways for Indian Reform

A systematic comparison of the two systems reveals their fundamental differences in philosophy and function. In India, the trigger mechanism is a state government's request to the Centre, placing a political filter at the outset. In the U.S., the trigger is a state directly filing a lawsuit, a purely legal mechanism. The adjudicatory body in India is an ad hoc, quasi-judicial tribunal of judges, whereas in the U.S. it is the permanent, highest judicial body of the land. While both systems apply a form of equitable balancing, the U.S. doctrine of equitable apportionment is a more coherently developed body of common law. The most significant divergence is in enforcement power. A U.S. Supreme Court decree is backed by the full coercive power of the federal judiciary. A tribunal award in India lacks a direct, automatic enforcement mechanism, relying instead on the often-fickle political will of the central and state governments. This contrast in institutional design directly correlates with outcomes: the U.S. system, for all its costs, produces legally final and enforceable results, while the Indian system often produces awards that become the starting point for another round of political conflict. This comparative analysis provides a clear basis for proposing targeted reforms for the Indian framework. These reforms are not about imitation but about adaptation of successful institutional principles.

First, institutionalising adjudication and data management is paramount. The 2019 ISWDA amendment's proposal for a single, permanent tribunal is a crucial move away from the ad hoc model. To be effective, this tribunal must be supported by a permanent, professional secretariat with in-house technical experts. Critically, this must be paired with the creation of a statutory and independent National Water Data Authority. This body's mandate would be to establish monitoring protocols, collect and validate hydrological data in all interstate basins, and publish this information in an open and accessible format. Its data would be presumptively valid in all tribunal proceedings, drastically cutting down on the time currently wasted in data disputes.

Second, India must create a statutory framework for cooperative agreements, analogous to the U.S. Compact Clause. A new chapter in the ISWDA could be introduced, titled "Inter-State Water Compacts." This chapter would lay out a formal process for states to negotiate water-sharing and basin-management agreements. The role of the Central Government would be redefined from a passive adjudicator to an active facilitator, providing technical, legal, and financial support to states engaged in such negotiations. To incentivize this path, the law could specify that a ratified compact, approved by Parliament, would have the same legal force as a tribunal award and would preclude future litigation on the matters it covers. This would provide states with a credible, cooperative alternative to the high-stakes, zero-sum game of tribunal adjudication.

Third, and most importantly, the enforcement deficit must be addressed. The permanent tribunal should be given continuing jurisdiction over the awards it issues. This would allow it to hear implementation disputes and non-

compliance complaints directly, without requiring a fresh reference. The tribunal should be explicitly empowered to appoint Water Masters or Regulation Committees-composed of technical experts and representatives from the states-to oversee the on-the-ground implementation of its awards. These bodies would report back to the tribunal, which would then be empowered to issue binding compliance orders. While the ultimate coercive power may still lie with the executive, creating this clear, de-politicised, and legally-grounded compliance pathway would make defiance by states more difficult and politically costly.

6. Conclusion

The governance of shared rivers is a fundamental test of a federal nation's capacity for internal cooperation and conflict resolution. The divergent paths taken by India and the United States offer profound lessons in institutional design. The U.S. model, with its dual tracks of judicial adjudication and formalised negotiation, has created a robust, if imperfect, system that provides legal finality and powerfully incentivizes cooperative behaviour. Its strength lies in the certainty of judicial enforcement that looms over all disputes, making negotiated compacts an attractive alternative. India's framework, born of a laudable intent to create a specialized and expert-driven process, has been crippled in practice by structural flaws. The ad hoc nature of its tribunals, the absence of a culture of cooperative agreement-making, and, above all, the critical lack of an effective enforcement mechanism have rendered the system slow, inefficient, and susceptible to political manipulation. The result has been a series of simmering, unresolved conflicts that hinder development and sow regional discord. The path forward for India does not require abandoning its constitutional framework but rather invigorating it with principles that have proven effective elsewhere. The establishment of a permanent tribunal, the creation of a formal statutory pathway for interstate compacts, and the design of a clear and empowered mechanism for award enforcement are not radical proposals. They are pragmatic, necessary evolutions to ensure that the legal process for resolving water disputes leads to just, timely, and, most importantly, lasting solutions. As climate change, population growth, and economic development place ever-increasing stress on finite water resources, the need for an effective, credible, and enforceable system of water governance has never been more urgent. By adapting lessons from comparative experience, India can reform its framework to better meet this challenge, turning its rivers from sources of conflict into symbols of shared prosperity and federal unity.

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