

# NORMATIVE FRAMEWORKS FOR THE SETTLEMENT OF WATER DISPUTES: NATIONAL AND INTERNATIONAL DIMENSIONS

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## Abstract

This article offers a comprehensive analysis of dispute settlement mechanisms within the broader framework of water law, situating the discussion against the backdrop of its growing complexity and legal significance. Contemporary water law is shaped by a dense network of statutes, treaties, judicial decisions, and policy instruments—many addressing water directly, others regulating it indirectly. These layered regimes, spanning diverse substantive domains and procedural models, have enriched the field yet also obscured its visibility in legal and policy debates. Such complexity, however, cannot diminish the reality that water law is fast becoming a cornerstone of both domestic governance and international legal order, demanding sustained scholarly and institutional engagement.

In this context, the imperative to strengthen legal frameworks for the peaceful resolution of disputes over the allocation and utilisation of natural resources, particularly transboundary water stands at the forefront of contemporary international law. In addition to providing protection from conflict, efficient systems promote sustainable growth as well as equitable resource management.

*Keywords:* Disputes, National and International Law, Doctrines, Judicial Decision

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## I. Introduction

It is increasingly apparent that competition for water will intensify in the future decades. Rising population, rapid urbanization, expanding industrial activity, and the ever-growing demands of agriculture are placing unprecedented pressure on a finite resource. At the same time, there is a growing recognition that environmental needs must be integrated into future water allocation strategies. Two significant risks emerge from this scenario. First, as national competition for water escalates, vulnerable groups—such as small-scale farmers and women—face the danger of having their entitlements eroded by more powerful stakeholders. Second, water is an inherently transboundary resource, flowing across political borders through rivers, lakes, and aquifers, which creates the potential for cross-border tensions in water-stressed regions. Both risks can be mitigated through robust public policy frameworks and sustained international cooperation; however, the warning signs on both fronts are already unmistakable.<sup>1</sup>

The development, management, and disputes surrounding water resources—such as rivers, lakes, springs, waterfalls, waterways, and aqueducts—at both international and interstate levels generate not only legal challenges but also social, economic, and political tensions for the states or provinces concerned. Over time, a complex framework of rules, regulations, statutes, agreements, customary practices, and state precedents has emerged in this field, collectively referred to as Water Resources Law. As the principle of the optimum utilization of water resources gains global acceptance, research in various dimensions of water resources law has acquired increasing significance.<sup>2</sup>

In the Indian context, such research must address issues arising at two distinct levels. At the international level, it involves navigating disputes and cooperative arrangements with neighbouring countries—most notably Pakistan, Nepal, and Bangladesh. At the interstate level, it requires engagement with conflicts that strain relations among the constituent units of the Indian federation. This paper undertakes a conceptual analysis of the terms international rivers, international drainage basins, and international water resources systems. Building on this framework, it surveys and critically evaluates India's water-related disputes with

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<sup>1</sup>Human Development Report 2006, UNDP, *Beyond scarcity: Power, Poverty and the Global Water Crisis* Preface (v). (Palgrave Macmillan, New York, 2006).

<sup>2</sup>B.G.Vergheese, *Water of Hope: Integrated Water Resource Development and Regional Cooperation within the Himalayan-Ganga-Brahmaputra-Bank Basin* 308 (Oxford and IBH, New Delhi, 1990).

Pakistan, as well as its problems and controversies with Nepal and Bangladesh concerning shared water resources.<sup>3</sup>

## II. Inter-state Water Disputes and Constitutional Provisions

This section examines the evolution of interstate water disputes in India, beginning with pre-Independence issues relating to interprovincial rivers, particularly those crossing both British Indian provinces and princely states, with the Cauvery River as a principal case study. Post-1950 developments are then assessed through an analysis of relevant constitutional provisions, statutory measures such as the River Boards Act, 1956, and international legal materials, including the Helsinki Rules and the work of the International Law Commission. Comparative perspectives are drawn from federal systems like the United States and Canada.

The paper critically evaluates key legal doctrines—riparian rights, prior appropriation, territorial sovereignty, natural flow, equitable apportionment, community of interest, and equitable utilization—alongside factors influencing water allocation in international and interstate contexts. Primary sources include legislation, commission reports, judicial decisions, tribunal awards, and interstate agreements. This paper provides a comprehensive framework by integrating legal, comparative, and theoretical analysis with an evaluation of the social, economic, and political impacts of water disputes, elucidating both the legal principles and the transformative effects of dispute resolution outcomes in India's interstate water conflicts.<sup>4</sup>

## III. From Boundary Rights to Water Sharing

From the latter part of the 19th century onwards, water law governing non-navigational uses underwent rapid development, particularly in North America, but also in other regions affected by colonization, new settlements, and competing claims over river flow apportionment. This evolution was driven by advancements in dam construction technologies, the creation of storage facilities for multiple purposes, and the increasing diversion of water for consumptive and often conflicting uses. Such challenges emerged both as interstate disputes within federations—such as those in the United States and Australia—and as international issues between nations, including the United States and Mexico, and the

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<sup>3</sup>*Ibid.*

<sup>4</sup>*Ibid.*

United States and Canada. Comparable developments occurred elsewhere, exemplified by agreements on the Nile between Egypt and Sudan, as well as treaties concerning shared rivers and lakes in South America, Africa, and Europe. In India, the expansion of irrigation during this period similarly gave rise to disputes and agreements between provinces and princely states under British rule. The evolution of water law in the Indian context was shaped not only by domestic needs but also by these parallel international developments.<sup>5</sup>

Boundary disputes along meandering rivers have often been resolved using the principle of the median line or *thalweg*—the line demarcating the deepest channel of a river. However, braided rivers and those prone to significant erosive shifts continue to create complex jurisdictional challenges, as territorial boundaries can be dramatically altered by changes in the river's course. In temperate regions, irrigation has historically been less urgent than in arid areas, with other priorities such as fisheries, timber transport, hydropower development, flood control, industrial water supply, municipal demands of large urban centres, recreational use, and navigation often taking precedence.

In more recent decades, environmental protection and ecological sustainability have emerged as central concerns. Notable examples include the U.S. Supreme Court's decision to halt the construction of a dam to preserve the habitat of the snail darter a species then thought to be unique to that location—and the international outcry following the 1986 Basel chemical spill in Switzerland, which released toxic substances into the Rhine, killing fish and other aquatic life over a 300-kilometre stretch.<sup>6</sup>

In industrially advanced nations, concerns over water quality have increasingly superseded worries of quantity. Nevertheless, traditional challenges of apportionment and competing uses remain unresolved, and the developing world is equally affected by, and attentive to, matters of water quality. It is important to recognize that much of the established body of international water law has been shaped by the experiences of temperate societies. While many of its principles possess universal applicability, the realities of the Global South often differ significantly. In these regions, contemporary water disputes are emerging within the

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<sup>5</sup>*Ibid.*

<sup>6</sup>*Id* at 309.

context of tropical climates, distinct hydrological cycles, rapidly expanding populations, and the absence of new geographic frontiers to absorb demographic and economic pressures.<sup>7</sup>

The question of water ownership has long been addressed in legal scholarship. Weil, writing in the *Harvard Law Journal* (1909), articulated the classical position: “Running water in a natural stream is not property but a transient and mutable resource without an owner—akin to fish in the stream, wild animals, the air, or other elements held in negative community.”<sup>8</sup> This reflects the foundational principle of English common law. In the context of India, the Joint Committee of the British Parliament on constitutional reforms, preceding the Government of India Act, 1935, affirmed that the Government of India has always possessed what may be described as a common law right to utilise and regulate, in the public interest, the nation’s water resources. Consistent with this principle, the Eradi Tribunal (Ravi and Beas Water Tribunal, 1987) dismissed Punjab’s assertion of exclusive ownership over the waters of the Ravi and Beas.<sup>9</sup>

Over time, various principles have been advanced for the apportionment of flowing water. In one notable instance, the Princely State of Patiala proposed diverting water from the Sutlej through what later became the Sirhind Canal—a proposal contested by the Punjab Government. The dispute was referred to the Inspector General of Irrigation Works, who, in 1867, opined:<sup>10</sup>

Such a project will be most desirable if, while ensuring a reasonable supply of water to British territories, it also allocates an equitable share to foreign states capable of being irrigated by the canal. The design should maximise aggregate benefits under these conditions, with the least possible expenditure.

However, as the Sutlej lay entirely within British Indian territory, the Punjab Government maintained that any diversion of flow would constitute a “favour,” which could nevertheless be granted on the condition that Patiala paid a seigniorage. This payment was considered a *sine qua non* before allowing the diversion of water from British-controlled rivers to the territories of native chiefs. Such levies were imposed under several agreements; for example,

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<sup>7</sup>*Ibid.*

<sup>8</sup>SC Weil, “Running Water”22(3)*Harvard Law Review*190 (1909).

<sup>9</sup>*Supra* note 2 at 309.

<sup>10</sup>N.D. Gulati, *Development of Interstate Rivers. Law and Practice in India*. Allied Publishers, New Delhi, 1972 as quoted in B.G.Vergheese, *Water of Hope: Integrated Water Resource Development and Regional Cooperation within the Himalayan-Ganga-Brahmaputra-Bank Basin* 309 (Oxford and IBH, New Delhi, 1990).

Mysore paid a royalty to the Madras Presidency for hydroelectric generation on the Cauvery, a boundary river. The practice of charging seigniorage was formally abolished after India's independence.<sup>11</sup>

#### **IV. Relevance of Harmon Doctrine in the U.S. Mexico Convention on the Rio Grande in 1906 and the Indus Water Treaty, 1960**

A confrontation over international water rights was perhaps inevitable, and it materialised in 1896 during the dispute between Mexico and the United States over the Rio Grande. Representing the upper riparian state, which sought to divert water for irrigation, U.S. Attorney General Harmon rejected the proposition and held that: "A servitude which makes the lower country dominant and subjects the upper country to the burden of arresting its development and denying to its inhabitants the use of a provision which nature has supplied entirely within its own territory." This viewpoint, later termed the *Harmon Doctrine*, asserted that the fundamental principle of international law is the absolute sovereignty of every nation, as against all others, within its own territory. Although the United States ultimately accommodated Mexico's claims under the 1906 U.S.–Mexico Convention on the Rio Grande, it maintained that this agreement did not in any way concede the establishment of any general principle precedent by concluding this Treaty. The Harmon Doctrine persisted in rhetoric until 1922, when the U.S. Supreme Court formally rejected it. Despite being invoked from time to time, it has been applied in international law only once—by the Imperial Royal Administrative Court of Austria in 1913, in a dispute between Austria and Hungary, then constituent parts of the Austro-Hungarian Empire under the Habsburg monarchy.<sup>12</sup>

Article XI(2) of the Indus Waters Treaty, 1960, stipulates that nothing within the Treaty shall create any general principle of law or precedent.<sup>13</sup> During the Indo–Pakistan dispute over the Indus River, some Indian scholars invoked the *Harmon Doctrine*, arguing that, as the upper riparian, India possessed absolute sovereignty over the Indus and its tributaries originating

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<sup>11</sup>*Supra note 2* at 310.

<sup>12</sup>Krishna Raj, "River basins and International law. Working Paper No.1. Prepared for the World Bank, Washington, 1979," as quoted in B.G.Vergheese, *Water of Hope: Integrated Water Resource Development and Regional Cooperation within the Himalayan-Ganga-Brahmaputra-Bank Basin* 309 (Oxford and IBH, New Delhi, 1990).

<sup>12</sup>*Supra note 2* at 310.

<sup>13</sup>K.V. Padmanabhan, "How the Indus Treaty was Signed" *The Hindu*, Sept.28,2016 and "Blood and water can't flow together: PM Narendra Modi gets tough on Indus treaty", *The Times of India*, Sept.27, 2016.

within its territory.<sup>14</sup> Nonetheless, India conceded certain rights to Pakistan as part of the negotiated settlement. This approach reflects the pragmatic compromise that ultimately resolved the complex water-sharing dispute between the two nations.<sup>15</sup> At the same time, by incorporating Article XI(2)—akin to provisions found in certain U.S. treaties with Mexico and Canada—the Treaty explicitly denied the creation of any general legal obligation arising from its terms, thereby preserving, at least in part, the underlying principle of the *Harmon Doctrine*. If the *Harmon Doctrine* represented one extreme, the theory of *territorial integrity* occupied the opposite end of the spectrum. According to this doctrine, a lower riparian state is entitled to receive the natural, uninterrupted flow of any river entering its territory. In 1925, Egypt sought to assert such a right over Sudan in relation to the Nile; however, the Nile Water Commission ultimately rejected this claim.<sup>16</sup>

### V. From Prior to Equitable Apportionment

As the arid lands of the northwestern United States were brought under settlement and irrigation, later users—particularly lower riparians—often found their access to water preempted. In *Wyoming v. Colorado*<sup>17</sup>, the U.S. Supreme Court held that “priority of appropriation gives superiority of right.” In contrast, as early as 1906, the Calcutta High Court declined to apply the doctrine of prior appropriation in a dispute between two private parties, instead emphasising “reasonable use” by the upper riparian in *Balbhadar Pershad v. Sheikh Barkat Ali*.<sup>18</sup>

In India, the doctrine of *equitable apportionment* gained prominence through the Indus Water Commission established under B.N. Rau in 1942 to address Sind’s objections to Punjab’s Bhakra Dam proposal. Drawing on the U.S. Supreme Court’s decision in *Kansas v. Colorado* (1907), the Commission adopted equitable apportionment as a guiding principle. This doctrine was subsequently reaffirmed by the Krishna (1971), Narmada (1978), and Ravi–Beas (1987) Water Disputes Tribunals when adjudicating the allocation of inter-state

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<sup>14</sup> Sikri (Advocate- General, Punjab India), Comments on I.L.A. Comm.1<sup>st</sup>Rep.(1956); Bains, “The Diversion of International Rivers,” 1 Indian J. Int. Law 38, 44(1960).

<sup>15</sup> Each Party declares its intention to prevent, *as far as is practicable, undue pollution* of the waters of the Rivers . . . and agrees to take *all reasonable measures* to ensure that, before any sewage or industrial -waste is allowed to flow into the Rivers, it will be treated, when necessary, in *such manner as not materially to affect those uses.*” Treaty between India and Pakistan, Sept. 19, 1960, Art. 3(2) (emphasis added). The text of the treaty may be found in 55 A.J.I.L. 797 (1961).

<sup>16</sup> *Supra note 2* at 311.

<sup>17</sup> 259 U.S.419(1922)

<sup>18</sup> 11 CWN 85(1906)

river waters. The Ravi–Beas Tribunal, in particular, linked equitable apportionment to the theory of *community interest* as defined by Prof. F.J. Berber in *Rivers in International Law*—under which rights are either vested collectively in all riparians or divided proportionally, and no state may unilaterally dispose of shared waters without the active cooperation of the others. The principle of *community of interest* in the river basin as a whole has found expression in several international agreements, notably the U.S.–Canada Columbia River Treaty (1961) and the 1959 agreement between Egypt and Sudan on the Nile. The Columbia River Treaty embodies the mutual aim of optimising the river’s resources to significantly enhance the economic advancement of both nations and the well-being of their populations, acknowledging that the most effective collaborative strategies for hydroelectric benefits to each country’s power generation can be achieved through flood control, which will also provide additional advantages.<sup>19</sup>

A related question that courts have addressed is the quantum of flow subject to equitable apportionment. In *Wyoming v. Colorado*<sup>20</sup>, the U.S. Supreme Court referred to a “fairly dependable and continuous flow” as the standard, while in India, the Irrigation Commission (1972) affirmed the prevailing practice of planning irrigation schemes on the basis of 75% dependability, taking into account carry-over storage. In elaborating the doctrine of *equitable apportionment* or *equitable utilisation*, the Narmada Water Disputes Tribunal (1978) emphasised “beneficial uses,” avoidance of waste, and a “duty of efficiency in the use of such waters commensurate with [the parties’] respective financial resources.” The idea of allowing a transitional period for less developed states to improve efficiency was recognised much earlier by the Rau Commission (1942) in adjudicating Punjab’s protest against Sind’s use of wasteful inundation (flood) canals. The Commission observed:<sup>21</sup>

Undoubtedly inundation canals are a wasteful relic, and they are replaced by weir-controlled systems which are superior. However many miles of such canals remain in Sind, and a significant population has relied on them for their sustenance for generations. They and their region may not currently possess the financial means to implement a superior and initially costlier irrigation system. Meanwhile, should they be denied their livelihood only due to the reason that an upper province needs water? If the upper province wishes to take the water, let it pay adequate

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<sup>19</sup>*Ibid.*

<sup>20</sup>259 U.S.419(1922)

<sup>21</sup>*Supra* note 2 at 312.

compensation in cash or kind. The Commission also noted that the Nile Commission (1925) had recommended a similar gradual transition away from flood irrigation on the lower Nile, accompanied by a corresponding delay in developing conservation works in Sudan.

## VI. Stress on Efficiency in Beneficial Use

In applying the doctrine of *equitable apportionment*, Indian tribunals have largely confined their scope to surface waters. While the Krishna, Narmada, and Ravi–Beas Water Disputes Tribunals all recognised that groundwater could serve as an alternative source to meet a state’s needs, they expressly excluded it from formal allocation. The Narmada Tribunal observed that groundwater flows could not yet be measured with the technical precision required for legal adjudication and were therefore “not fully cognisable as yet from the legal point of view.”

In support of the above view, the Tribunal cited Teclaff’s *River Basin in History and Law* (1967):<sup>22</sup>

Groundwater drainage divides do not invariably align with surface watersheds. An instance is the underground ridge located beneath the Chenab River, which affects the distribution and flow direction of groundwater, along with variation in its chemical composition as a result water that is below the surface may thus flow into more than one river system. An illustrative example is the upper Danube mainstream in Southern Germany: water lost from the Danube by percolation eventually re-emerges in the River Ach, which belongs to the drainage basin of the Rhine. The derivation of stream flow from underground sources is therefore highly complex and can often be traced only through detailed geological study of the basin.

## VII. U.S. Supreme Court Decision on Doctrine of Equitable Apportionment

The doctrine of *equitable apportionment* has been applied by tribunals and courts to reconcile competing claims over shared water resources, seeking fairness rather than rigid adherence to fixed formulas. In *Wyoming v. Colorado*<sup>23</sup> and *Kansas v. Colorado*<sup>24</sup> the U.S. Supreme Court

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<sup>22</sup> Ludwik A. Teclaff, *River Basin in History and Law* 7 (Martinus Nijhoff, The Hague, 1967).

<sup>23</sup> 259 U.S. 419 (1922).

<sup>24</sup> 206 U.S. 46 (1907)

established its jurisprudential foundation, later influencing Indian water law through the decisions of the Krishna, Narmada, and Ravi–Beas Water Disputes Tribunals.<sup>25</sup>

Its philosophical essence was memorably articulated by Justice Oliver Wendell Holmes in a U.S. Supreme Court case concerning the Delaware River:<sup>26</sup>

A river transcends mere utility; it is a valuable asset. It provides an essential resource that must be allocated among those who have possesses over it. New York possesses the physical capability to sever all water supply under its authority, but the implementation of such power to the detriment of subordinate states would be intolerable. Conversely, New Jersey could not compel New York to forfeit its authority totally to ensure the river flows to it unimpeded. Both states have real and substantial interests in the river that must be reconciled as best they may. The different traditions and practices in different parts of the country may lead to varying results, but the effort is always to secure an equitable apportionment without quibbling over formulas.

This reasoning captures the spirit of equitable apportionment as adopted in Indian jurisprudence—balancing the legitimate interests of all riparian states, avoiding waste, encouraging efficiency, and allowing for transitional arrangements where economic disparities exist. From the Rau Commission (1942) to the Ravi–Beas Tribunal (1987), this approach has informed adjudication, even as questions such as the inclusion of groundwater remain unresolved.<sup>27</sup> The Delaware River Basin Compact, concluded in 1961 between four states and the U.S. Federal Government, was founded on the principle of common or community interest. It affirmed that :

The water resources of the basin are functionally interrelated, and the uses of these resources are interdependent. A single administrative agency is therefore essential for the effective and economical direction, supervision, and coordination of efforts and programmes... Ever-increasing economies and efficiencies in the use and reuse of water resources can be achieved through comprehensive planning, programming, and management.

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<sup>25</sup>Stephen C. and Mc Caffrey ,Special Rapporteur, *Third Report on the Law of the Non-Navigational Uses of International Watercourses*, International Law Commission, 39<sup>th</sup> session. U.N.General Assembly, New York

<sup>26</sup>New Jersey v. New York, 283 U.S.805(1931)

<sup>27</sup> *Ibid.*

The idea of a river system as a unified whole was further articulated by H. Smith in his work on the law of international watercourses. He asserted that:<sup>28</sup>

The first principle is that every river system is naturally an indivisible unit, and as such it should be developed to render the greatest possible service to the entire human community it serves, regardless of whether that community is divided into two or more political jurisdictions. It is the positive duty of every government concerned to cooperate to the fullest extent possible in promoting this development, provided that no vital interest of its own—whether political, strategic, or economic, and recognised by the law of nations as legitimate—is imperilled.

### VIII. Status of Trans-Basin Diversions

A related question concerns the geographical scope of the doctrine of equitable apportionment. Some jurists contend that diverting river waters outside their natural basin is either unlawful or, at the very least, improper. The Narmada Tribunal rejected this view, observing that there may be circumstances where arid or drought-prone areas of a state, though technically located outside the basin, require water from within it for development purposes. Inhabitants of such regions may have no alternative water sources. When dealing with an inter-state river, the crucial consideration is the benefit such a river can provide to the state as a whole. Accordingly, diversion to arid areas from the river system should be permissible, and the watershed boundary should not be regarded as a rigid or insurmountable legal barrier.<sup>29</sup>

In support of its position, the Tribunal relied on Article IV of the Helsinki Rules of the International Law Association, which provides that “each basin state is entitled, within its territory, to a reasonable and equal share in the beneficial uses of the waters of an international drainage basin.” It also referred to Justice Oliver Wendell Holmes’ opinion for the U.S. Supreme Court in *New Jersey v. New York*,<sup>30</sup> where he observed: “The removal of water to a different watershed obviously must be allowed at times unless states are to be deprived of the most beneficial uses on formal grounds. However, the Tribunal cautioned that,

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<sup>28</sup>*Ibid.*

<sup>29</sup>*Ibid.*

<sup>30</sup>*Ibid.*

since governments derive their authority from the people, “the representatives of the people would not be justified in using, or permitting the use of, waters from rivers outside their basin until the needs of the people within the basin have been met—at least as known at the time.” This discussion highlights that Indian municipal water law, shaped by tribunals, commissions, and legislation, has drawn extensively from U.S. and other domestic laws as well as international law over time. Before partition, India and Bangladesh shared a common municipal water law framework.<sup>31</sup>

In some cases, Indian practices have been contemporaneous with or even ahead of those in other countries. For instance, in 1884, the Government of India sought approval from the British Government for the Periyar Project, intended to “utilise a portion of the superabundant rainfall on the western slopes of the Ghats (in Travancore) for irrigation in the Madurai district (Madras Presidency), located east of the watershed, where rainfall is scarce and often unreliable, and where famine had been severely experienced.”<sup>32</sup> The project, involving a dam intercepting 300 square miles of the Periyar catchment and tunneling water into the Vaigai River for irrigation, was approved and completed in 1893. A hydroelectric component was added later in 1954 under a separate agreement with the Travancore State.<sup>33</sup>

### IX: Helsinki Rules: Steps Towards Codification

Recognizing the need to consolidate national and international experiences into a unified framework on international river law, the Institute of International Law began addressing this issue in 1911. After developing various formulations over the years, the Institute adopted a resolution on the *Use of International Non-Maritime Waters* at its Salzburg session in 1961. This resolution emphasized the principles of equity and adequate compensation for loss or damage, and outlined a process for conflict resolution within “hydrographic basins” through technical expertise, good faith negotiations, judicial settlement, or arbitration.<sup>34</sup> In 1979, the Institute followed up with another resolution at Athens addressing the *Pollution of Rivers and Lakes in International Law*.<sup>35</sup>

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<sup>31</sup>*Ibid.*

<sup>32</sup>*Supra* note 2 at 314.

<sup>33</sup>*Ibid.*

<sup>34</sup>United Nations, Yearbook of the International Law Commission., Vol II, Part two. Documents of the 26<sup>th</sup> session of the Commission prepared by the secretariat. New York. 1974.

<sup>35</sup>*Supra* note 2 at 314.

Simultaneously, the International Law Association (ILA) began focusing on international water law in 1954. After several intermediate stages, it adopted the widely acclaimed *Helsinki Rules* at its 1966 session in Helsinki. These rules expanded the concept of an international river to that of an “*international drainage basin*,” including underground waters, and covered equitable utilization, pollution control, navigation, timber floating, and dispute settlement procedures. Building on these, the ILA introduced further articles addressing flood control and marine pollution of continental origin (New York, 1972); maintenance and improvement of naturally navigable waterways traversing or separating states (New Delhi, 1974); protection of water resources and installations during armed conflict, along with proposals for establishing an international water resources administration (Madrid, 1976); and regulation of international watercourse flows and the interrelationship between water, other natural resources, and the environment.<sup>36</sup> Article I of the Helsinki Rules refers to the general rules of international law applicable to the use of waters of an international drainage basin. Article II defines an international drainage basin as a geographical area extending over two or more states determined by the watershed limits of the system of waters, including surface and underground waters, flowing into a common terminus. Article III similarly defines a basin state as one the territory of which includes a portion of an international drainage basin.<sup>37</sup>

The rules governing equitable utilization of waters within an international drainage basin are set out in Articles IV to VIII. These stipulate that each state is entitled within its territory to a reasonable and equitable share in the beneficial uses of the waters of an international drainage basin. The key terms here are “*reasonable and equitable*” and “*beneficial uses*” within the state’s territory, not strictly limited to the basin itself. What constitutes reasonable and equitable use is to be assessed by considering “*relevant factors*” such as: the geography of the basin and the extent of the drainage area within each basin state; the climate affecting the basin; basin hydrology and each state’s contribution to the water flow; past utilization and existing uses; the economic and social needs of each basin state; the population dependent on the basin’s waters; comparative costs of alternative water supplies; availability of other resources; avoidance of unnecessary waste; practicability of compensation as a means to resolve conflicts among users; and the extent to which the needs of one basin state can be met

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<sup>36</sup>*Ibid.*

<sup>37</sup>*Ibid.*

without causing “*substantial injury*” to another co-basin state.<sup>38</sup>The weight assigned to each factor depends on its comparative importance, with all relevant factors considered together to reach a conclusion based on the whole picture.

The Helsinki Rules explicitly state that no category of water use holds inherent priority over others, and that no existing reasonable use shall be denied to reserve waters for potential future uses by another co-basin state. An established reasonable use may persist unless it is outweighed by a balance of factors favouring the accommodation of a conflicting and incompatible use. While a water use arises upon its relevant construction or implementation, it shall not be recognized as an existing use if, at the time of becoming operational, it is incompatible with a pre-existing reasonable use.<sup>39</sup>These Rules have been widely cited by jurists and tribunals internationally, yet they have not escaped criticism. One notable critique concerns the definitional clause of an international drainage basin as a system in which surface and underground waters flow into a common terminus. This definition has been challenged, particularly in the context of the Indus basin, where, although all surface waters drain into the Arabian Sea southeast of Karachi, the underground waters terminate in the Rann of Kutch. A similar discrepancy between surface and subterranean flows has been observed previously, exemplified by seepage from the Danube re-emerging in the Rhine basin.<sup>40</sup>

## X. International River Pollution: Theoretical Background

In the economic context, river pollution has emerged as a significant and complex challenge. Pollution is broadly defined as “any artificial change in the natural quality of any particular natural water,”<sup>41</sup> extending beyond narrower conceptions tied solely to use or damage.<sup>42</sup> A single river may serve diverse and sometimes conflicting purposes like providing chemicals for industries, power for factories, sewage disposal for urban centres, and potable water for populations. The imperative to resolve these competing uses has gained prominence only recently within the global community, driven by rapid industrialization and a burgeoning global population. While considerable national regulation exists regarding the economic

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<sup>38</sup>*Supra* note 2 at 315

<sup>39</sup>*Ibid.*

<sup>40</sup>*Ibid.*

<sup>41</sup>Second Report of Rapporteur of International Law Commission, U.N. Doc. A/CN.4/1/Rev.1 at 34-35(1949) as cited in A.P. Lester, “River Pollution in International Law” 57 *AJIL* 829 (1963).

<sup>42</sup>E.g., U.N. Doc. E/ECE/311, par.4; 14 W.H.O. Bulletin No.5, at 846 (1956) as cited in A.P. Lester, “River Pollution in International Law” 57 *AJIL* 829 (1963).

utilisation of rivers, but one area which remains comparatively underdeveloped is international governance. The absence of a universally accepted legal framework governing the use and protection of international watercourses constitutes a major impediment to resolving disputes, frequently delaying developmental advancement to the detriment not only of the states involved but also of the global community at large.<sup>43</sup>

International law must be taken into consideration both as it currently exists and as it may develop in light of the novelty and urgency of tackling global river pollution. Although the primary focus here is on water pollution, this issue forms part of broader concerns related to the economic exploitation of international waterways and the question of legal responsibility for extraterritorial economic harm. Recognizing the necessity for developing international legal norms in these areas, it is hoped that analyses of pollution challenges will contribute to advancements in this wider field. These preliminary definitions are not intended to limit the scope of international legal liability but rather to provide a foundational understanding for further development.<sup>44</sup>

A series of hypothetical questions helps to frame the scope of this analysis. In a straightforward scenario where a river flows from State A into State B, is State A liable to State B for damage caused by pollution? Does harm to sovereignty alone give rise to liability? Is it possible for State A to effectively claim the absence of fault, or is liability for pollution strict? May State A invoke its continuous and effective use of the river as a sewer, with the knowledge and acquiescence of State B? Can State B, on the other hand, depend on its historical domestic or industrial use of the river to stop State A from changing its condition? In such cases, what remedies would be appropriate?<sup>45</sup> How do these questions evolve when the context involves a multi-riparian river basin shared by States A, B, C, and D, where one or more states are polluting the watercourse? Are States A and B legally obliged to contribute to the costs of pollution abatement initiatives proposed by States C and D? How can riparian states balance their conflicting uses? Is the rigorous enforcement of formal legal regulations appropriate in these kinds of complicated situations, or would there be a better way to regulate? While definitive answers to these questions may not be readily available, articulating them is essential prior to exploring the extent to which international law can, or ought to, provide guidance

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<sup>43</sup>A.P. Lester, "River Pollution in International Law" 43 *AJIL* 829 (1963).

<sup>44</sup>*Ibid.*

<sup>45</sup>*Supra* note 43 at 830.

### ***Sic Utere Tuo* as a Principle of International River Law**

The principle of *sic uteretur*—that one must use their property without causing harm to others, is widely recognized in the legal literature as a foundational principle of international law, whether grounded in concepts of “equitable apportionment,” “natural justice,” or established state practice.<sup>46</sup> It is vital to highlight the general obligation of a riparian state to respect its neighbours' rights in the usage of shared rivers. Absent this obligation, the issue of river pollution would fall outside the purview of international law. This general obligation appears to be broadly accepted by publicists. Nonetheless, the invocation of a principle as broad as *sic uteretur* provides limited practical utility when addressing the complexities inherent in transboundary pollution disputes. Thus, before delving into relevant judicial decisions and state activities, it is vital to investigate whether more nuanced theoretical criteria exist that can provide clearer analytical guidance. In this context, state accountability for extraterritorial harm has been articulated through theories such as neighbourliness, abuse of rights, and international servitudes.<sup>47</sup>

The issue of state obligation under international law for extraterritorial damage remained largely unexplored by publicists prior to the Industrial Revolution's expansion across Europe in the nineteenth century, although early legal maxims touch upon related themes. For instance, Grotius qualified his assertion of riparian sovereignty over rivers by invoking the interest of the larger community<sup>48</sup>, albeit without explicit consideration of the international context.<sup>49</sup> Subsequent scholarship progressively articulated limitations on the use of international rivers, encapsulated in the maxim *sic uteretur ut non alienum laedas*—use your property so as not to harm another's.<sup>50</sup> In the nineteenth century, certain proponents of

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<sup>46</sup>*Ibid.*

<sup>47</sup>*Supra* note 43 at 833

<sup>48</sup> “Thus a river, when regarded as a body of water or a stream, is considered the property of the people through whose land it flows, or of the ruler who governs them. It is within their rights to build structures like piers into the river, and any resources or products found in the river belong to them. However, when the river is viewed simply as flowing water, it remains common property—accessible to all—so anyone may drink from it or collect water, and the natural resources it carries are shared by everyone.” As quoted in Hugo Grotius, *De Jure Belli ac Pacis Libri Tres*, ch.2, sec.12, trans. Francis W. Kelsey, Vol.2 of the *The Classics of International Law*, ed. James Brown Scott, New York, Oceana Publication, 1964. ch.2, sec.12 (1646 ed.)

<sup>49</sup> “But the same river, viewed as running water, has remained common property, so that one may drink or draw water from it.” Hugo Grotius, *De Jure Belli ac Pacis Libri Tres*, ch.2, sec.12, trans. Francis W. Kelsey, Vol.2 of the *The Classics of International Law*, ed. James Brown Scott, New York, Oceana Publication, 1964. ch.2, sec.12 (1646 ed.)

<sup>50</sup> Pufendorf, *De Jure Naturae et Gentium*, Ch.5, sec.7, ch.8, sec. 11 (1688 text, Oldfather trans.); 2 Vattel, *Le Droit des Gens*, Ch.1, sec.18 (1758 ed., Fenwick trans.); Wolff, *Jus Gentium Methodo Scientifica*, ch.2, sec. 173 (1764 ed., Drake trans.); 2 Wheaton, *Elements of International Law*, Ch.4, sec.193 (1866 ed.); 1 Martens,

absolute state sovereignty asserted that riparian states held unlimited rights over the use of transboundary waters; however, this outlook was largely rejected by the prevailing international legal consensus.<sup>51</sup>

Pollution in international rivers was almost non-existent in the pre-industrial age, and there is little indication that pollution was considered a concern even within domestic contexts. The legal notions controlling the economic use of water in the 17th and 18th centuries appear to have been primarily influenced by Roman law. By the mid-nineteenth century, interest in the economic exploitation of navigable waters had begun to emerge; however, as late as 1911, the Institute of International Law acknowledged that exploitation of water for industrial, agricultural, and other purposes remains outside the provisions of the law.<sup>52</sup> It is important to emphasise the general obligation incumbent upon riparian nations to protect the rights of their neighbours in the use of international rivers, because without such a requirement, river pollution would not fall within the scope of international law. This foundational duty is broadly recognized by legal scholars. However, the articulation of the doctrine *sic uteretur*—that one must use their property without causing harm to others—provides limited analytical utility in addressing the complex challenges of transboundary pollution. Accordingly, before examining relevant judicial decisions and state practice, it is essential to explore whether more nuanced theoretical frameworks exist that can assist in this analysis. Historically, state liability for extraterritorial injury has been based on notions such as abuse of rights, neighbourliness, and international slavery.<sup>53</sup>

### Concept of Neighbourship

The idea of neighbourship inherently involves reciprocity and has been identified as a foundational justification for restricting the sovereignty of riparian states over their rivers. It has been explicitly invoked in discussions concerning international river pollution. Neighbourship originates from the physical and ecological interdependence of neighbouring states and is widely recognised to put an obligation on states to prevent or minimise causes of extraterritorial harm. Despite its frequent citation in the literature on transboundary pollution,

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Traite de Droit International 480-481(1866). As cited in A.P. Lester, “River Pollution in International Law” 57 *AM.J.INT’LL* 830 (1963).

<sup>51</sup> Klüber, 1 *Europaisches Volkerrecht* 128(1821); Heffter, *Das Europaische Volkerrecht der Gegenwart* 150(1888) as cited in A.P. Lester, “River Pollution in International Law” 57 *AM.J.INT’LL* 830 (1963).

<sup>52</sup> Culter, *The International Law of Navigable Rivers* 3-4(1865) as cited in A.P. Lester, “River Pollution in International Law” 57 *AM.J.INT’LL* 830 (1963).

<sup>53</sup> *Ibid.*

it is acknowledged that neighbourship lacks precise, enforceable rules to delineate the specific rights and obligations it generates in concrete cases. While the concept may serve to clarify or reinforce the principle of *sic uteretur*, it falls short as a practical tool for resolving the complex challenges posed by international river pollution.<sup>54</sup>

### **Abuse of Rights**

The evolution of the controversial doctrine of abuse of rights, rooted in French jurisprudence, has been extensively traced by Politis.<sup>55</sup> This theory combines elements of individual fault and social harm, yet it remains ambiguous whether wrongful intent, the severity of injury, the nature of social damage, or some combination thereof constitute an abuse of rights. The doctrine's theoretical underpinnings are marked by inconsistency. It has been characterized as a legal instrument that "must be wielded with studied restraint." Although referenced in the dicta of international courts, abuse of rights has not been definitively established as a principle of customary international law. Indeed, framing state responsibility solely in terms of abuse of rights risks tautology or redundancy. The important question is not whether a right can be abused or forfeited, but rather under what conditions such forfeiture happens. It is important to emphasize that wrongful intent may transform the lawful exercise of a right into an actionable wrong provided a legally protected interest has been infringed—though this transformation is not always aptly captured by the terminology of abuse of rights.<sup>56</sup>

### **International Servitudes**

It is needless to delve into the ongoing debate regarding the status of international enslavements within international law. Some scholars recognise that such permanent obligations—imposing constraints on the sovereignty of the servient state—can develop through verbal or tacit consent. Notably, the entitlement of a lower riparian state to receive the natural flow of a river coming from an upper riparian state has been described as producing a "natural servitude," which exists independent of the upper riparian's permission.<sup>57</sup>

The defining characteristic of a servitude is its perpetuity. As a result, whether State X has a servitude to discharge pollutants into a river flowing into State Y or State Y has a

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<sup>54</sup> *Supra* note 43 at 833

<sup>55</sup> *Ibid.*

<sup>56</sup> *Supra* note 43 at 834

<sup>57</sup> *Ibid.*

servitude to receive the river's waters from State X in their original quantity and quality, the subservient state's use of the river is subject to long-term restrictions. The emergence of new developments—such as urban expansion in either State X or State Y, with attendant increased demands for drainage or water consumption—does not alter these obligations. Similarly, the absence of significant harm to the dominant state resulting from a change in water use is immaterial. In contrast, domestic legal systems have rejected such absolute assertions of property rights when they conflict with broader community interests.<sup>58</sup>

A right to contaminate a stream with sewage cannot be established by prescription if such usage has been permitted, nor can it arise if the acts constitute a public nuisance.<sup>59</sup> In recent times, industrialized states have increasingly regulated private property rights to align with national interests, significantly modifying the traditional notion of unfettered property enjoyment under municipal law. This evolution is inevitable, as the permanence inherent in private property rights could otherwise impede industrialization. If such limitations apply within individual states, they are even more compelling in the international context. A state that permanently prohibits the use of its river for specific reasons may jeopardise its population's future demands and urban growth. While a treaty—where explicit consent and intention are evident—may impose such permanent restrictions, a neighboring state cannot acquire a veto over river use merely through prescriptive claims.<sup>60</sup> Accordingly, the concept of international servitudes, when analogized from municipal principles of prescription, proves problematic in the realm of natural resource exploitation.

Private property doctrines cannot be transplanted to the international sphere without adaptation. Although a state might acquire territory with full sovereignty, its rights over that region are essentially relative and limited by the rights of neighbouring states. Thus, The idea of international servitudes largely serves a negative purpose, emphasising the difficulties of applying municipal notions of property and permanence to complex concerns like transnational river pollution. This short survey of the theoretical foundations underlying the issue reveals limited positive guidance. The principle *sic uteretur* is variously asserted and interpreted, yet fundamentally it represents a call for the reasonable use of natural resources. A brief digression may serve to underscore the risks inherent in relying solely on such a vague standard, as illustrated by analogous challenges in transnational air pollution. Unlike

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<sup>58</sup>*Ibid.*

<sup>59</sup>*Supra* note 43 at 835.

<sup>60</sup>Lauterpacht, *Private Sources and Analogies of International Law* 119 (1927).

air, the majority of the world's trans boundary water resources lack effective systems of shared administration and management. Consequently, the urgent need extends beyond the development of legal norms for dispute resolution to encompass the establishment of effective institutional frameworks for cooperative governance.

## XI. Conclusion

The imperative for effective dispute resolution is particularly acute in the context of international waters. Water is indispensable not only for industry and transportation but fundamentally for sustaining life itself. It is estimated that more than 75% of the Earth's geographical surface is susceptible to integrated river basin development, underlining the tremendous potential for resource exploitation—and, consequently, the capacity for conflict. A single river system often faces multiple, competing claims and uses, and when it traverses national borders, it engenders both natural and economic interdependence among riparian states. This complexity is further increased by the fact that many international boundaries were historically established without regard for the practical demands of successful water management, thereby aggravating the possibility for disputes.

Access to water is a basic human need and a fundamental human right. Yet, in an increasingly prosperous world, over one billion people remain deprived of clean water, while approximately 2.6 billion lack access to adequate sanitation. These figures represent only one facet of a multifaceted crisis. Each year, some 1.8 million children perish due to diarrhea and other diseases linked to contaminated water and poor sanitation—making unclean water the world's second leading cause of child mortality at the dawn of the 21st century. Moreover, the daily burden of water collection disproportionately falls upon millions of women and girls, perpetuating gender disparities in education and employment. Compounding this, the health impacts associated with inadequate water and sanitation infrastructure diminish productivity and economic growth, thereby entrenching the stark inequalities of globalization and perpetuating cycles of poverty among vulnerable populations.<sup>61</sup> Thus, the struggle for water rights is inextricably intertwined with the broader pursuit of fundamental human rights.

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<sup>61</sup> Human Development Report 2006, UNDP, *Beyond Scarcity: Power, Poverty and the Global Water Crisis* v preface (Palgrave Macmillan, New York, 2006).