

# ENHANCING WATER COOPERATION IN AFRICA: THE ROLE AND CHALLENGES OF INTERNATIONAL LAW IN MANAGING TRANSBOUNDARY RESOURCES

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**Abstrak:** Pengelolaan air lintas batas di Afrika menghadirkan tantangan yang signifikan akibat perjanjian historis, ketegangan geopolitik, dan tekanan lingkungan. Studi ini menyelidiki peran hukum air internasional dalam mendorong kerja sama antarnegara riparian, dengan fokus pada Afrika. Penelitian ini mengidentifikasi tantangan utama seperti kerangka hukum yang terfragmentasi, kapasitas kelembagaan yang terbatas, dan pembangunan infrastruktur yang tidak merata. Dengan menggunakan pendekatan metode campuran, termasuk analisis hukum normatif, studi kasus, dan wawancara pemangku kepentingan, studi ini meneliti efektivitas prinsip-prinsip seperti pemanfaatan yang adil dan pencegahan bahaya yang signifikan. Temuan tersebut mengungkap kesenjangan dalam penerapan konvensi internasional, yang terhalang oleh kesenjangan politik dan ekonomi. Namun, kasus-kasus yang berhasil, seperti pengelolaan Cekungan Sungai Senegal, menyoroti potensi kerangka kerja sama. Rekomendasi menekankan penguatan lembaga regional, merevisi perjanjian yang sudah ketinggalan zaman, dan mengintegrasikan pendekatan berbasis masyarakat. Strategi-strategi ini bertujuan untuk menyelaraskan realitas sosial-politik Afrika yang unik dengan standar internasional, memastikan tata kelola air yang berkelanjutan, dan mengurangi konflik. Implikasinya menggarisbawahi perlunya penyesuaian kerangka kerja global dengan konteks regional, yang mendorong keadilan lingkungan dan sosial.

**Kata Kunci:** Air, Hukum Internasional, Kerjasama, Pembangunan Berkelanjutan.

**Abstract:** Transboundary water management in Africa presents significant challenges due to historical agreements, geopolitical tensions, and environmental pressures. This study investigates the role of international water law in fostering cooperation among riparian states, with a focus on Africa. The research identifies key challenges such as fragmented legal frameworks, limited institutional capacity, and unequal infrastructure development. Employing a mixed-methods approach, including normative legal analysis, case studies, and stakeholder interviews, the study examines the effectiveness of principles like equitable utilization and prevention of significant harm. The findings reveal gaps in implementing international conventions, hindered by political and economic disparities. However, successful cases, such as the Senegal River Basin management, highlight the potential for cooperative frameworks. Recommendations emphasize strengthening regional institutions, revising outdated treaties, and integrating community-based approaches. These strategies aim to align Africa's unique socio-political realities with international standards, ensuring sustainable water governance and reducing conflicts. The implications underscore the necessity of tailoring global frameworks to regional contexts, fostering both environmental and social equity.

**Key words:** Water, International Law, Cooperation, Sustainable Development.



## INTRODUCTION

International law governs all areas, and there's no doubt that it remains a state creation, subject as it is to the political and economic stakes of competing sovereignties.<sup>1</sup> Its current architecture reflects these challenges, but also the compromises that States have been able to reach in several areas. Modern international water law emerged in the late 19th century and is based on the concept of territorial sovereignty. Two doctrines have clashed since then. The Hamon doctrine is based on the principle of unlimited or absolute territorial sovereignty, while the second doctrine is based on unlimited territorial integrity.<sup>2</sup> Further, international water law is characterized by great fragmentation. It is based on a few principles of customary law, a few international instruments and conventions of general application, and a multitude of treaties and bilateral and multilateral agreements regulating the use of water resources in transboundary basins.<sup>3</sup>

Water, an essential natural resource, constitutes a major issue in the design of today's world. Nowadays, exploring the range of reasoning that places water at the center of concerns is a necessity, because everywhere in the world its usefulness no longer needs to be demonstrated.<sup>4</sup> Water is used in every society to support the vital balance of all living species. The place it occupies, both in the political and economic approach of public authorities, will have no competition since it is the fundamental unity of our entire essence and our existence.<sup>5</sup> Water then becomes an issue in the dynamics of internal and international policies, highlighting relationships of conflict or collaboration, that is to say, cooperation<sup>6</sup>

Indeed, faced with the exasperation of poverty, social inequalities, and climate change, water, and sustainable development, not only form a couple with societal governance but also become the dominant thought of the 21st century<sup>7</sup>, while diplomacy and international cooperation constitute essential tools.<sup>8</sup>

Participants at the Wuhan meeting in September 2023 proposed creating a research project on Convergence to explore how convergent rules of international law contribute to transboundary water cooperation and the Water Action Agenda created at the UN Water Conference in New York.<sup>9</sup>

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<sup>1</sup> Muhammad mutawalli Mukhlis dkk., "regional government according to the 1945 constitution: ideas refinements and law reform," *Journal of law and legal reform* 5, no. 2 (2024): 495–530.

<sup>2</sup> J Sohnle, *Le droit international des ressources en eau douce : Solidarité contre souveraineté* (Paris: La Documentation française, 2002).

<sup>3</sup> A. Fallon, R. W. Jones, dan M. Keskinen, "Bringing resilience-thinking into water governance: Two illustrative case studies from South Africa and Cambodia," *Global Environmental Change* 75, no. May (2022): 102542, <https://doi.org/10.1016/j.gloenvcha.2022.102542>.

<sup>4</sup> Davies Wambwa, Jhonnah Mundike, dan Brian Chirambo, "Assessing financial assurance instruments for climate change mitigation and adaptation: A comparative study of Zambia and South Africa," *Scientific African* 25, no. October 2023 (2024): e02303, <https://doi.org/10.1016/j.sciaf.2024.e02303>.

<sup>5</sup> Maude Barlow dan Tony Clarke, *L'or bleu. L'eau, le grand enjeu du XXI<sup>e</sup> siècle* (Kanada: Fayard, 2002).

<sup>6</sup> Janine Assouline dan Samuel Assouline, *Géopolitique de l'eau*, 1 ed. (Paris: Studyrama, 2012).

<sup>7</sup> Mulenda Lomena Emamba dan Daniel, "La Chine en RD Congo : essai d'analyse geoeconomique et prospective du developpement endogene en Republique Democratique du Congo," *Cahiers économiques et sociaux* 33, no. 2 (2016): 53–70.

<sup>8</sup> Muhammad Mutawalli dkk., "Implementation of FLEGT Licensing Scheme in Deforestation Law Enforcement: Improvements and Handling in Indonesia," *Jurnal Hukum Unisula* 39, no. 2 (2023): 130–56, <https://doi.org/10.26532/jh.v39i2.32210>.

<sup>9</sup> International Water Law Academy, "March 2024 - Message from IWLA Director Prof. Patricia Wouters," International Water Law Academy, 2024, <https://iwla.whu.edu.cn/index.php?id=3645>.

Some current events related to international water law for example is a large number of rivers in the South Asia region are shared across borders.<sup>10</sup> Afghanistan, Bangladesh, Bhutan, China, India, Nepal and Pakistan share more than two dozen major rivers.<sup>11</sup> Conflicting claims over those transboundary watercourses is a major security challenge in the region. Indeed, shared watercourses have influenced South Asia's geography and history, as well as riparians' responses to the challenges of utilizing, managing, and protecting such water bodies<sup>12</sup>. Because of scarcity, population growth, and climate change impacts, national calls for water security have become louder and more intense in each of these countries.<sup>13</sup> Consequently, collaboration among the countries of South Asia for ensuring equitable sharing of such watercourses has not been optimal. Other factors such as information sharing and lack of trust has exacerbated the differences.<sup>14</sup> While most countries do not have reliable systems for data generation, those possessing some hydrological data consider them state secrets, restricting their exchange. Even when treaty obligations exist, data-sharing practices are *ad hoc*, and the range of information shared is limited. Thus, negotiating new transboundary water treaties amongst the South Asia countries has become a daunting task, and enforcing existing ones remains a real challenge.<sup>15</sup>

In May 2010, Pakistan initiated an arbitration proceeding against India concerning the construction of a hydroelectric infrastructure project ("KHEP") undertaken by India on the Kishenganga River—part of the Indus River basin<sup>16</sup>. The KHEP is situated in India-administered Jammu and Kashmir in north-west India, about 12 kilometres upstream of the Line of Control with Pakistan-administered Jammu and Kashmir, and is aimed at producing hydropower via a diversion of the River's flow. Once completed, the diverted waters would flow through a tunnel around 23.5 kilometres long toward a power facility situated 666 meters below the Kishenganga dam. The water will then be redirected into Wular Lake and the River Jhelum, which flows into the territory of Pakistan. The falling water would drive turbines producing about 330 megawatts of electricity.<sup>17</sup> According to Pakistan, the KHEP will have an impact on water flow downstream in Pakistan and affect

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<sup>10</sup> Nur Hannan dkk., "Between Adherence to Madhhab and Adaptation to Context: Fatwās on Female Leadership in Nahdlatul Ulama-Affiliated Islamic Higher Education Institutions," *Journal of Islamic Law* 5, no. 2 (30 Agustus 2024): 269–87, <https://doi.org/10.24260/jil.v5i2.2725>.

<sup>11</sup> Hasse Jubba dkk., "Compromise of Islam and Customary Practices in the Religious Practices of the Muslim Community in Papua: A Study of Maqāṣid Syar'ah," *Ijtihad: Jurnal Wacana Hukum Islam Dan Kemanusiaan* 24, no. 2 (28 Desember 2024): 305–30, <https://doi.org/10.18326/ijtihad.v24i2.305-330>.

<sup>12</sup> Salman dan Kishor Uprety, "Shared Watercourses and Water Security in South Asia: Challenges of Negotiating and Enforcing Treaties," *International Water Law Project*, 2018, <https://www.internationalwaterlaw.org/blog/2018/08/27/shared-watercourses-and-water-security-in-south-asia-challenges-of-negotiating-and-enforcing-treaties/>.

<sup>13</sup> Aminuddin Ilmar, Muhammad Mutawalli Mukhlis, dan Rasyidah Md Khalid, "Exploring SDGs Regulatory Frameworks and Regional Regulation for Climate Change Mitigation and Adaptive Resilience in Coastal Communities," *Jurnal IUS Kajian Hukum dan Keadilan* 12, no. 3 (2024): 572–87, <https://doi.org/10.29303/ius.v12i3.1543>.

<sup>14</sup> Junaidi Abdullah dkk., "Contribution Model of Al-Mas'ūliyyah al-Jinā'iyah in the Formulation of Criminal Liability in Indonesia's New Criminal Code," *Al-Ahkam* 34, no. 2 (31 Oktober 2024): 367–92, <https://doi.org/10.21580/ahkam.2024.34.2.22592>.

<sup>15</sup> Hasyim Sofyan Lahilote dkk., "Digitalisasi Peradilan di Indonesia Tengah: Studi Implementasi E-Court dan E-Litigasi di Pengadilan," *Syariah: Jurnal Hukum dan Pemikiran* 24, no. 2 (2024): 315–32, <https://doi.org/10.18592/sjhp.v24i2.13879>.

<sup>16</sup> Mara Tignino, "The Kishenganga Awards and their Contributions to International Water Law," *International Water Law Project*, 2015, <https://www.internationalwaterlaw.org/blog/2015/08/05/the-kishenganga-awards-and-their-contributions-to-international-water-law/>.

<sup>17</sup> Mellya Embun Baining dkk., "Finding The Maqashid Al-Syariah Performance Model on Syariah Management Accounting Information System Values," *Al-Risalah: Forum Kajian Hukum Dan Sosial Kemasyarakatan* 24, no. 2 (30 Desember 2024): 87–104, <https://doi.org/10.30631/alrisalah.v24i2.1642>.

its own production of hydropower. The uses of the Indus River and its tributaries are regulated by the Indus Waters Treaty, adopted by India, Pakistan and the International Bank for Reconstruction and Development (IBRD) in 1960.<sup>18</sup> Article IX of the treaty provides for the establishment of mechanisms for the settlement of differences and disputes between the two States. As a result of Pakistan's request, an arbitral tribunal composed of seven arbiters was established under article IX, which subsequently issued four decisions: an Order on Interim Measures in September 2011, based on an application made by Pakistan in June 2011, a Partial Award in February 2013, a Decision on India's Request for Clarification or Interpretation in May 2013, and a Final Award, issued in December 2013. All four decisions were adopted unanimously.<sup>19</sup> Signed after ten years of negotiations, the Indus Waters Treaty represented an ambitious landmark in the development of international water law.<sup>20</sup> The treaty is emblematic of the potential for international law to facilitate cooperation in the governance of international watercourses. As emphasized by the tribunal itself, the treaty has been continuously applied for over 50 years, despite recurring hostilities in the Kashmir region, including three episodes of direct armed conflict between India and Pakistan. In fact, while Pakistan had made use of the dispute settlement procedures of the treaty once before—in 2006, it requested the intervention of a Neutral Expert under article IX in the case of the Baglihar hydropower project—this was the first time that an arbitral tribunal had been established to settle a dispute concerning the application and the interpretation of the treaty.<sup>21</sup>

Nowadays, the issue of water is the subject of numerous scientific publications attesting that it will exacerbate conflicts in the 21st century, to the point of announcing “water wars” here and there<sup>22</sup>. To this end, three segments stand out, notably those that present water as a conflicting issue.<sup>23,24,25</sup>; those who approach water as an issue of cooperation<sup>26,27,28</sup> and those who present water as a social issue with a view to sustainable development.<sup>29,30</sup>

Then came the Barcelona Convention of April 20, 1921, on the Regime of International Navigable Waterways, which remains the international act signed in the field of freshwater, defining the

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<sup>18</sup> Mustafa Omar Mohammed, Mohamed Cherif El Amri, dan Ayman Mohammad Bakr, “Guiding Fiqh Analysis of Crypto Assets: A Proposed Framework,” *AHKAM: Jurnal Ilmu Syariah* 24, no. 2 (24 Desember 2024): 277–94.

<sup>19</sup> Husain Insawan dkk., “Implementation of the Eco-Metaverse in Indonesia: Sharia Economic Perspective,” *Samarah: Jurnal Hukum Keluarga Dan Hukum Islam* 9, no. 1 (15 Januari 2025), <https://doi.org/10.22373/sjkh.v9i1.26262>.

<sup>20</sup> Nuraida Fitri Habi dkk., “Prioritizing Restorative Justice in the Settlement of the Sumbang Besar Adultery Case in Babeko Village, Jambi,” *El-Mashlahab* 14, no. 2 (30 Desember 2024): 343–60, <https://doi.org/10.23971/el-mashlahab.v14i2.8030>.

<sup>21</sup> Amir Fazlim Jusoh Yusoff, “Reassessment of Islamic Legal Bases for Matrimonial Property in Malaysia,” *El-Usrah: Jurnal Hukum Keluarga* 7, no. 2 (31 Desember 2024): 541–56, <https://doi.org/10.22373/ujhk.v7i2.26374>.

<sup>22</sup> Franklin Oniamba Mundala, *Diplomatie de robinet Une nouvelle stratégie de coopération sur l'eau douce du bassin du congo* (Etudes africaines, 2023).

<sup>23</sup> M. M. Mutinga, *Le fleuve Congo et ses affluents : un château d'eau convoité. La guerre de l'eau aux portes de la RDC* (Kinshasa: Le Potentiel, 2014).

<sup>24</sup> Yves Lacoste, *L'eau Dans le Monde: Les Batailles Pour la Vie* (Paris: Larousse, 2010).

<sup>25</sup> Frédéric Laserre, *Les guerres de l'eau ; l'eau au coeur des conflits du XXI siècle* (Paris: De La Villa, 2009).

<sup>26</sup> Assouline dan Assouline, *Géopolitique de l'eau*.

<sup>27</sup> M. G. Mwamba, *Gouvernance Post-Conflit par la Justice Transitionnelle. Fondements, Management, Profils et Perspectives* (Beau Bassin: Universitaires Européennes, 2018).

<sup>28</sup> Henri Mova, *Praxis internationale pour une gestion stratégique de l'eau* (Paris: Dounia, 2009).

<sup>29</sup> Franck Glland, *L'eau Géopolitique, enjeux, stratégies* (Paris: CNRS Editions, 2008).

<sup>30</sup> Kasongo-Numbi Kashemukunda, *Eaux et forêts de la république démocratique du Congo* (Paris: L'Harmattan, 2008).

term "international river".<sup>31</sup> This convention, too, concerned only the navigability of watercourses, not their sharing between riparian countries. However, the drive to systematize international water law began in 1966, with the adoption of the Helsinki Rules, followed by the Helsinki Convention of 1992 and the New York Convention of 1997, as we shall see in the body of the text.<sup>32</sup>

Regarding international treaties containing provisions on water concluded throughout history, the FAO has identified 3,600, of which more than 2,000 are still active. Since 1945, nearly 300 treaties relating to the allocation and management of water resources in transboundary basins have been concluded. Customary law and international conventions deal with aspects as varied as navigation, hydroelectricity, the fight against pollution, the regulation of flows, the conciliation of uses, the distribution of resources, and many other questions.<sup>33</sup> The accommodation of States to these numerous instruments would demonstrate a certain desire for cooperation.<sup>34</sup>

International water law provides a framework for cooperation among states sharing water resources, guiding their interactions and establishing norms for equitable and reasonable use. This framework includes principles such as equitable utilization, prevention of significant harm, and the obligation to cooperate. By promoting dialogue, facilitating data sharing, and providing mechanisms for dispute resolution, international water law plays a vital role in mitigating potential conflicts and ensuring the sustainable and equitable use of shared water resources.<sup>35</sup>

The governance of transboundary water resources under international law is fraught with challenges arising from conflicting doctrines of sovereignty, fragmentation of legal instruments, and geopolitical tensions.<sup>36</sup> While international water law offers frameworks to promote cooperation, including principles such as equitable utilization and prevention of significant harm, its effectiveness is often undermined by factors like limited data sharing, distrust among states, and the lack of robust enforcement mechanisms. In light of these challenges, understanding how international water law can foster collaboration and mitigate conflicts remains a critical question, especially in regions where water scarcity and competing claims threaten stability. This paper seeks to examine the role of international water law in addressing these challenges, with a specific focus on its capacity to facilitate cooperation in transboundary water governance.<sup>37</sup>

While in Islamic teachings, water is considered a divine blessing and a fundamental right of all living beings. The Quran emphasizes the sanctity and sustenance provided by water, stating, "And We have made from water every living thing. Then will they not believe?" (Surah Al-Anbiya, 21:30). This verse underscores the central role of water in creation and its universal significance. Similarly, the Prophet Muhammad (peace be upon him) highlighted the equitable sharing of water, as reflected in his hadith: "Muslims are partners in three things:

<sup>31</sup> Edouard Engelhardt, *Du Régime Conventionnel des Fleuves Internationaux* (Paris: Cotillon et Cie, 1979).

<sup>32</sup> Hasanudin, Kamsi, dan Ahmad Yani Anshori, "The Contestation of Legal Foundations in the Resolution of Islamic Economic Disputes in Religious Courts," *Al-Manabij: Jurnal Kajian Hukum Islam*, 19 September 2024, 271–88, <https://doi.org/10.24090/mnh.v18i2.11934>.

<sup>33</sup> J Sironneau dan F Lasserre, *L'eau en tant qu'enjeu politique et stratégique* (Paris: L'Harmattan, 2004).

<sup>34</sup> Ismail Jalili dkk., "The Legitimacy of Abortion: A Socio-Legal Analysis of Islamic Jurisprudence and Indonesian Law," *De Jure: Jurnal Hukum Dan Syar'iah* 16, no. 2 (17 Desember 2024): 382–405, <https://doi.org/10.18860/j-fsh.v16i2.29077>.

<sup>35</sup> Triyono Adi Saputro dkk., "The Urgency of Using Al-Milk an-Naqiṣ in Geographical Indications: An Ideal Preservation for Intellectual Property in Indonesia," *JURIS (Jurnal Ilmiah Syariah)* 23, no. 2 (25 September 2024): 269–79, <https://doi.org/10.31958/juris.v23i2.12227>.

<sup>36</sup> Muhammad Mutawalli Mukhlis, Muhammad Saleh Tajuddin, dan Abdul Rahman, *Hukum Otonomi Pemerintahan Daerah dan Pemerintahan Desa di Indonesia* (Yogyakarta: Jejak Pustaka, 2024).

<sup>37</sup> I. Made Yunita, Anak Agung Putu Sugiantiningsih, dan Mohammad Hidayatullah, "The Vote Buying among Madurese Muslim; Islamic Law Standpoint," *AL-IHKAM: Jurnal Hukum & Pranata Sosial* 19, no. 2 (31 Desember 2024): 444–69, <https://doi.org/10.19105/al-lhkam.v19i2.13025>.

*water, pasture, and fire*" (Sunan Abu Dawood, Hadith 3477). These principles resonate with the modern tenets of equitable utilization and prevention of significant harm enshrined in international water law. Islamic jurisprudence further reinforces this view by prioritizing the collective welfare and sustainable management of natural resources, aligning closely with the principles of cooperation and shared responsibility in addressing transboundary water issues.

This research holds significant implications for Indonesia, a nation characterized by its vast network of transboundary rivers and growing water management challenges. The findings on equitable utilization, prevention of harm, and the necessity of robust institutional frameworks provide actionable insights for improving water governance within Indonesia's complex socio-political landscape. As a country with shared river systems such as the Mahakam and Kapuas, and facing pressures from population growth, industrialization, and climate change, adopting principles of international water law can facilitate sustainable management and foster collaboration with neighboring states. Furthermore, the emphasis on aligning global frameworks with regional realities resonates with Indonesia's ongoing efforts to strengthen water diplomacy and ensure equitable access for its diverse population.

Despite the introduction and conclusion, the present paper is divided into three parts: the question of water in international relations (i), water and international law (ii) and the role of international water in promoting water cooperation in Africa (iii).

## METHODS

This study employed a mixed-methods approach to investigate the role of international law in fostering water cooperation in Africa. It combined statute analysis, focusing on relevant treaties and agreements, with empirical research. The research utilized primary legal materials, including articles of the African Charter and key international conventions. Secondary legal materials were sourced from academic publications, reports, expert opinions, and digital archives. Interviews with stakeholders involved in water resource management provided additional qualitative data, ensuring real-world applicability.

Collected data were evaluated based on relevance, reliability, and alignment with the study's objectives. Criteria included the legal applicability of international norms, historical context, and the consistency of documented case outcomes with established legal principles.

The empirical methods directly supported the research objectives by illustrating how international law addresses transboundary water conflicts. Case analyses provided concrete examples of successes and challenges, while expert interviews enriched the understanding of current practices and areas needing reform. These methods collectively underpin the study's conclusions and recommendations for strengthening international water laws and cooperation frameworks.

## RESULT AND DISCUSSION

### The question of water in international relations

In international relations, water is undoubtedly a natural resource whose history is the longest and perhaps the most turbulent, because it has sometimes poisoned relations between nations; constituting ipso facto, an issue in the dynamics of internal and

international policies, and highlighting relationships of conflict or collaboration.<sup>38</sup> Initially an environmental problem, with political implications, water becomes a problem between States, a problem of humanity and therefore of survival. It is with this in mind, in particular, that the Congo and Nile rivers served as access and communication routes of primary importance during the colonization of Africa.<sup>39</sup>

According to certain indicators<sup>40</sup>, 1.1 billion people in the world do not have access to good quality water and 2.6 billion do not have an adequate water sanitation system. Result: between three and four million people - half of them children - die each year from water-borne diseases. Also, if the average annual consumption per capita is 6,800 m<sup>3</sup>, some authors note that the differences remain gigantic between countries, ranging from 1 to 20,000 liters.<sup>41</sup> In the Democratic Republic of Congo, Mozambique, or Burundi, for example, each inhabitant has on average 10 liters of water per day, while in the United States, each inhabitant has 300 liters per day.<sup>42</sup> Due to its unequal distribution across the world, water reveals social inequalities and its mismanagement aggravates shortages and sometimes causes more deaths than wars. Water is also at the heart of issues of power, life, security, health, and the environment.<sup>43</sup>

Today, we report several disputes over water which are listed throughout the world, notably in North and South Africa, the Middle East, Central America, Canada, and the Western United States. In the Middle East, for example, around ten centers of tension exist. Thus, Egypt, entirely dependent on the Nile for its water resources, must nevertheless share these with other states in the Nile Basin: notably Ethiopia where the Blue Nile has its source, and Sudan where the river meanders. before entering Egyptian territory. As for Iraq and Syria, they are both at the mercy of Turkey, where the two rivers that feed them, the Tigris and the Euphrates, have their source.<sup>44</sup>

The water of the Euphrates has often served as a weapon brandished by Turkey against its two neighbors: thanks to the numerous dams that it has erected on the upper course of the river and which allow it to regulate it at its discretion. whatever the flow downstream, Turkey has, in fact, a powerful means of pressure. Moreover, “with demographic growth and increasing needs, these tensions could multiply in the future”.<sup>45</sup>

Since the end of the Second World War, there have been more or less 30 international political or military conflicts linked to water.

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<sup>38</sup> Assouline dan Assouline, *Géopolitique de l'eau*.

<sup>39</sup> M. G. Mwamba, *Manuel d'institutions politiques du Congo* (Kinshasa: CEP, 2019).

<sup>40</sup> L Chauveau, “L'eau : de sa qualité dépend le sort de milliards d'individus,” *Science et Vie* 1020 (2002).

<sup>41</sup> Coordonné par Pascal Gauchon dan Jean-Marc Huissoud, *Les 100 mots de la géopolitique*, 5 ed. (Paris: Presses Universitaires de France, 2019).

<sup>42</sup> Pascal Boniface, *Comprendre le monde - 7e édition Les relations internationales expliquées à tous* (Paris: Armand Colin, 2023).

<sup>43</sup> Ifesinachi Okafor-Yarwood dkk., “Technology and maritime security in Africa: Opportunities and challenges in Gulf of Guinea,” *Marine Policy* 160, no. December 2023 (2024): 105976, <https://doi.org/10.1016/j.marpol.2023.105976>.

<sup>44</sup> Bahri, F. Brikké, dan K. Vairavamoorthy, “Managing Change to Implement Integrated Urban Water Management in African Cities,” *Aquatic Procedia* 6 (2016): 3–14, <https://doi.org/10.1016/j.aqpro.2016.06.002>.

<sup>45</sup> Matthew Adah Onu dkk., “Challenges of wastewater generation and management in sub-Saharan Africa: A Review,” *Environmental Challenges* 11, no. July 2022 (2023): 100686, <https://doi.org/10.1016/j.envc.2023.100686>.

Table 1.  
Water conflicts across regions

|                    |  |
|--------------------|--|
| <b>Middle East</b> | Jordan, Tigris, Euphrates.             |
| <b>Asia</b>        | Indus, Mekong, Ganges, Brahmaputra     |
| <b>America</b>     | Amazon, Colorado, Rio Grande           |
| <b>Africa</b>      | Congo, Niger, Nile, Senegal, Lake Chad |

Source: Sironneau and Lasserre, 2004 and Oniamba 2021.

Without wishing to minimize the different perceptions of those who predict water as being the basis of wars between states in the 21st century, this paper demonstrates that international law promotes cooperative water management through negotiation and application of several legal instruments in Africa. It therefore seems important to us to understand the foundation, the birth, and the development of African international law on freshwater resources.<sup>46</sup>

### International Law to Defuse Tensions?

The international community is aware of the recurring, sometimes serious, tensions that prevail in this area, and is seeking to establish rules. At the level of international bodies, for example, water was the subject of an action plan for the decade 2005-2015, entitled "Water, source of Life"<sup>47</sup>. This plan aims to encourage the efforts of all stakeholders to ensure compliance with international commitments made in the field of water and water-related issues, until 2015, with a special emphasis on the participation of women in these efforts. This is the second international decade devoted to water-related issues. It follows the International Drinking Water Supply and Sanitation Decade (1981-1990).

Several declarations of intent have been made, such as the one signed by 130 countries at the end of the 6th World Water Forum held in March 2012 in Marseille. This advocated "accelerating the implementation of human rights obligations for access to drinking water and sanitation".

Several texts have also been adopted to try to resolve the various disputes related to water sharing. For a long time, international law considered water as an economic element or a factor of economic activity, so much so that most of the texts relating to water concerned navigation. However, since the early 1970s, international organizations have worked to create international laws protecting aquatic resources. The Helsinki Convention of March 17, 1992, and the New York Convention of May 21, 1997, adopted by the United Nations General Assembly, are major texts in this area.

The first, on "the use of transboundary watercourses and international lakes", aims to ensure equitable use of water resources through a holistic approach that addresses the different aspects of water. It emphasizes the principle of equitable use for shared water bodies, such as rivers and lakes that traverse national borders. This agreement aims to ensure that all countries utilizing these resources have fair access and benefit from them. To achieve this, it advocates for a holistic approach to water management, encompassing various aspects such as maintaining water quality, ensuring sufficient water availability, determining equitable water allocation among users and countries, promoting efficient water conservation practices, and safeguarding the health of aquatic ecosystems. By considering these multifaceted dimensions, the agreement seeks to address the complexities of shared water resource management in a manner that is both just and

<sup>46</sup> Ndidzulafhi Innocent Sinthumule, "An analysis of policy and legal framework on wetland conservation and management in South Africa," *Watershed Ecology and the Environment* 6, no. February (2024): 63–69, <https://doi.org/10.1016/j.wsee.2024.03.001>.

<sup>47</sup> UN General Assembly, "The UN General Assembly Resolution A/RES/58/217," 2004.



sustainable for all involved nations. The second, on “the law relating to the non-navigational uses of international watercourses”, aims to codify the law of transboundary watercourses. However, these two conventions and their subsequent amendments have not been ratified by all States. Above all, nobody has been set up to ensure their application and impose sanctions where appropriate. It would nevertheless seem that the most preferred solution is ad hoc regional cooperation, leading to the signing of treaties or the creation of a formal negotiation space. To date, 145 treaties can be identified, most of them bilateral. These aim to resolve border issues and the sharing of water between the parties to the treaty, the equitable and rational use of resources (navigation, hydroelectricity, and irrigation), the communication of data between riparian countries and the protection of ecosystems.<sup>48</sup> Gradually, international assistance programs have also been set up to establish regional cooperation and negotiation spaces.

It is in this sense that UNESCO and the World Bank are active in the field of cooperation as a reasoned solution in this area. These two international organizations are committed to ensuring that regions maximize the potential of common basins and ensure the sustainability and more or less equitable sharing of water resources.<sup>49</sup> Thus, the first has set up a global program for the assessment of water resources (World Water Assessment Program – WWAP), one of the components of which is called “From conflict to cooperation”. Its goal is to establish and strengthen the bases of cooperation between States. As for the second, it has joined forces with the United Nations development programs. The World Bank and the United Nations Development Program (UNDP) founded the Global Water Partnership (GWP) in 1996, with the support of the Swedish International Development Cooperation Agency.<sup>50</sup> The goal of this partnership remains to provide all stakeholders with a response to the development of a hydraulic project while connecting the governments, companies, and banks involved.

Since the end of the Second World War, there have been approximately 30 international political or military conflicts related to water.<sup>51</sup> Without wishing to minimize the different perceptions of those who predict that water could be at the root of wars between states in the 21st century, this paper demonstrates that international law promotes cooperative water management through the negotiation and application of several legal instruments in Africa. It therefore seems important to us to grasp the foundation, birth, and development of African international law on freshwater resources. The role of international law in promoting water cooperation in Africa.<sup>52</sup>

The African context of water resources offers the opportunity to observe how international standards are adopted and adapted to regional specificities<sup>53</sup>, but it also shows that certain practices can be widely integrated despite the reluctance that prevents them from being enshrined in law.

The internationalization of waterways in Africa, just like the appearance of

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<sup>48</sup> Laurence BOISSON DE CHAZOURNES dan Salman M.A SALMAN, *Les ressources en eau et le droit international = Water Resources and International Law* (Leiden: M. Nijhoff, 2005).

<sup>49</sup> Alexandre Taithe, *Partager l'eau Les enjeux de demain* (Paris: Editions Technip, 2006).

<sup>50</sup> Chukwuka G. Monyei dkk., “Regional cooperation for mitigating energy poverty in Sub-Saharan Africa: A context-based approach through the tripartite lenses of access, sufficiency, and mobility,” *Renewable and Sustainable Energy Reviews* 159, no. February 2021 (2022): 112209, <https://doi.org/10.1016/j.rser.2022.112209>.

<sup>51</sup> Silas Mvulirwenande dan Uta Wehn, “Dynamics of water innovation in African cities: Insights from Kenya, Ghana and Mozambique,” *Environmental Science and Policy* 114, no. August (2020): 96–108, <https://doi.org/10.1016/j.envsci.2020.07.024>.

<sup>52</sup> Oliver O. Apeh dan Nnamdi I. Nwulu, “The water-energy-food-ecosystem nexus scenario in Africa: Perspective and policy implementations,” *Energy Reports* 11, no. June (2024): 5947–62, <https://doi.org/10.1016/j.egy.2024.05.060>.

<sup>53</sup> Cécile Pilarski, *La gestion partagée des ressources en eau dans le bassin du Congo : état des lieux et perspectives* (Québec: Québec : Université Laval, 2009).

the first legal rules relating to these cross-border waterways, is above all a colonial work, which will undergo certain changes from the 1960s onwards. African States have therefore had to adapt their cooperation to new water management challenges and, as elsewhere, the content of multilateral agreements has been enriched with considerations linked to environmental protection and sustainable development.

### **The internationalization of watercourses and international river law in Africa**

There is no need to recall that water, a moving resource, knows no borders and a fortiori, does not recognize those of state territories over which distinct sovereignties are exercised. Paradoxically, this state of affairs reinforces the central character of borders in the shared management of waterways. This observation is particularly true on the African continent and Kamto offers the following explanation: “This problem [the existence of borders] is neither new nor specific to African waterways. However, it is of particular importance due to the great sensitivity of States to everything relating to the territorial framework of their sovereignties.”<sup>54</sup>

However, in Africa, there is a very close link between waterways and borders, which can be understood in the light of the colonial experience. Indeed, the role played by the great European powers in the creation of this link is major and it is therefore appropriate to return to the history of the creation of political entities in Africa to better understand the geopolitical dimension of water sharing today. Today, illustrated by the existence of more than sixty bodies of fresh water “whose basins are located within the territorial limits of more than one State”.

#### 1. The doctrine of natural borders, a factor in the internationalization of watercourses

In the 19th century, the great European powers used the doctrine of natural borders, born in the previous century with the French Revolution, to delimit their respective possessions on the African continent. This doctrine is based on the idea according to which “certain geomorphological objects, such as mountain ranges, rivers or seas, act as barriers which prevent interactions between human societies”.<sup>55</sup> These barriers, because they are natural, are perceived as more legitimate than so-called “artificial” borders which cannot hide the power relations from which they result. In addition, the natural borders of the State will merge with those of the nation, thus forming “uniform” territories.

Nourished by the ideal of the nation-state, the colonial powers will then strive “to create modern states in an underpopulated continent that is difficult to tame”, gradually replacing the border zones which characterized the delimitation of the precolonial empires and kingdoms of Africa in favor of linear borders. While the former are by nature vague and shifting, the latter is intended to clearly and lastingly set the limits of the exercise of power between the different colonial powers. However, the data of physical geography are perceived as immutable.

Renan in his famous speech what is a Nation criticized the doctrine of natural borders, as an ideological argument for the division of nations, as early as 1882?<sup>56</sup> The philosopher particularly deplors its use for expansionist purposes as well as the arbitrariness which dictates that certain rivers or mountains constitute natural borders when the purely national character of several others is not even questioned.

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<sup>54</sup> Maurice Kamto, “Le droit international des ressources en eau continentales africaines,” *Annuaire Français de Droit International*, 1990, 843–911.

<sup>55</sup> Pilarski, *La gestion partagée des ressources en eau dans le bassin du Congo : état des lieux et perspectives*.

<sup>56</sup> Ernest Renan, “Qu’est-ce qu’une nation ?” (Sorbonne, 1882).

However, such criticisms are rare and, as late as the beginning of the 20th century, the distinction between natural and artificial borders was closely associated with that of good and bad borders.

Beyond the ideal of the nation-state, there is above all another major advantage, much more pragmatic, which will push the colonizers to rely on geomorphological objects to trace the borders of Africa: their convenience. Mountains, rivers, lakes, and deserts are visible as much on the maps - even approximate - produced by European geographers as in the field. And the division of Africa was decided as much on the continent as in the metropolises.<sup>57</sup>

The Berlin Conference, which was held in 1884 and ended on February 26, 1885, constituted the symbolic event of “the materialization of the division of the continent by the metropolises”. Its main object concerns the delineation of the borders of the new Congo Free State, the private property of Leopold II, from which the limits of French Equatorial Africa, German East Africa, and Portuguese Angola will flow.

The provisions of the Berlin General Act<sup>58</sup> illustrate the preponderance of so-called natural borders, and particularly, the use of river or lake supports. Thus, the immense territory attributed to the King of the Belgians is mainly delimited by the Congo River, its main tributary the Oubangui, and certain Great Lakes in the East (Edouard, Kivu, Tanganyika, Moero). To the south, the Kwango, Kasai, and Luapula rivers were also used to draw part of the borders of Angola and current Zambia.

Elsewhere on the continent, there are other examples of the use of waterways to draw borders. This is the case for the border between French Guinea and British Sierra Leone, those of the Gambia, or even the borders of current Benin with Togo and Nigeria. Other rivers, on the contrary, will be “nationalized” within the territories of the same power. This is the case of Senegal, under French administration, or the Nile, which flows through English possessions. At the time of independence, these rivers sometimes delimited new states (Senegal-Mauritania) and sometimes crossed them (Egypt-Sudan). Lautze and Giordano thus note that “The particular manifestations of colonial geography determine the specific internationalization of African watercourses”.

Faced with the proliferation of new States on the continent, the Organization of African Unity will affirm the principle of intangibility of borders in 1964e the specific internationalization of African watercourses”. Faced with the proliferation of new States on the continent, the Organization of African Unity affirmed the principle of intangibility of borders in 1964<sup>59</sup> to limit territorial conflicts, with the mixed success that we have experienced. As a result, much of the colonial boundaries remain. Foucher thus estimated, in 1991, that 87% of borders were “inherited”.<sup>60</sup> Therefore, the influence of the doctrine of natural borders at the time of colonization as well as the redistribution of the continent in the 1960s, allows us to better understand the place that transboundary water management takes in interstate relations in Africa. Furthermore, in parallel with the determination of their respective zones of influence, the colonial powers will also import the standards of river law of the time onto the African continent, standards which will subsequently experience an evolution similar to that observed worldwide.

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<sup>57</sup> Hussam Hussein, Meadow Poplawsky, dan Tanisha Mohapatra, “The political context of change in transboundary freshwater agreements,” *Environmental Science and Policy* 149, no. September (2023): 103572, <https://doi.org/10.1016/j.envsci.2023.103572>.

<sup>58</sup> Saint Germain Convention, “General Act of the Berlin Conference on West Africa, 26 February 1885” (1919).

<sup>59</sup> BOUTROS BOUTROS-GHALI, *L'ORGANISATION DE L'UNITÉ AFRICAINE* (Paris: LIBRAIRIE ARMAND COLIN, 1968).

<sup>60</sup> Michel Foucher, *Fronts et frontières. Un tour du monde géopolitique*, 2 ed. (Paris: Fayard, 1991).

## 2. International river law in Africa: the Berlin General Act

The Berlin Conference of 1885 constitutes a major element in the history of African river law, and more broadly, of international law on the continent. Indeed, Tiyanjana Maluwa notes<sup>61</sup> : “For the student of the history (and development) of international law in Africa, in particular, the Berlin General Act is significant, among other things, in this respect: it represented the first opportunity by which the European formulated conventional rules of international law-for the Euro-Central international legal system of the time-was transplanted to a continent that had not, until then, been in significant enough contact with international law that it sounds like a subject or object participating in this system of law. And these were rules outlined in Articles 12-33 of the Berlin Act, regarding the freedom of navigation for all nations along the rivers of the Congo and the Niger.”

The interest of the colonial powers in issues relating to the management of Transboundary Rivers was to be relayed by the independent states that succeeded them. Thus, in 1962, the President of Mali proposed to his Guinean and Mauritanian counterparts that a meeting be held on the joint use of the Senegal basin. At the same time, the Niger riparians organized themselves and the first Conference of Riparian States took place in 1963.<sup>62</sup>

If several States denounce the colonial agreements at the time of their accession to independence, article 1 of the Act of Niamey<sup>63</sup> on Niger for example, expressly repeals the Berlin Act and its successor, the Treaty of Saint-Germain-en-Laye, the fact remains that the general principles they set out will be taken up "in most of the post-independence conventions. The perpetuation of colonial principles can be explained in part by the fact that "the Berlin General Act can be seen as a progressive interpretation of international river law as it existed before 1885." Maluwa here refers to the extension of the principle of navigation for all nations, as well as the introduction of the notion of dependence on waterways.<sup>64</sup>

But the subject of the agreements concluded between residents is changing. Uses relating to the use of waterways are experiencing a development similar to that observed at the global level: technical progress has, for example, made possible the exploitation of the hydroelectric potential of waterways. Likewise, new irrigation and drainage techniques will make it possible to develop agricultural production, which consumes a lot of water, and thus to conquer new cultivable areas. Thus, Lautze and Giordano note that the study of agreements concluded between 1959 and 1989 “indicates fundamental changes in the nature and content of the treaty compared to the colonial period”.<sup>65</sup>

### **African law on water resources after independence**

As early as 1966, on the occasion of the Lagonissi Conference (Geneva), Boutros Boutros-GHALI noted that "while Europe [...] and South America [...] preferred the process of the

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<sup>61</sup> T Maluwa, *International Law in Post-Colonial Africa* (The Hague: Kluwer Law International, 1999).

<sup>62</sup> Tumaini Wambua John dkk., “Towards realization of nexus-doing at the grassroots level: Water-energy-food governance assessment in the Songwe River Basin (Tanzania and Malawi),” *Environmental Science and Policy* 150, no. November 2022 (2023), <https://doi.org/10.1016/j.envsci.2023.103596>.

<sup>63</sup> Nations Unies, “Traité concernant l’utilisation des cours d’eau internationaux à des fins autres que la navigation. Afrique.” (1984).

<sup>64</sup> Maluwa, *International Law in Post-Colonial Africa*.

<sup>65</sup> Dumisani Chirambo, “Moving past the rhetoric: Policy considerations that can make Sino-African relations to improve Africa’s climate change resilience and the attainment of the sustainable development goals,” *Advances in Climate Change Research* 7, no. 4 (2016): 253–63, <https://doi.org/10.1016/j.accre.2016.11.002>.

bilateral treaty to the collective treaty process to regulate river law, Africa seems to have a clear preference for the collective treaty"<sup>66</sup>. This multilateralism will not only continue with the extension of the subject of the agreements, but above all, it will lead to the multiplication of provisions providing for the creation of institutions for cooperation between residents.

#### 1. Multilateral agreements relating to the exploitation of water resources

It appears today that the vast majority of international basins in Africa have a basin organization. The West African basins were the first to be subject to such a regime: commissions were created between 1963 and 1972 for the watersheds of Niger, Chad, Gambia and Senegal. Thus, "with the creation in 2006 of the Volta Basin Authority (ABV), all the main transboundary watercourses of West Africa now have common organizations".

On the other hand, since the 1990s, it is mainly the southern African basins which have been the subject of similar agreements, as evidenced by the agreements relating to Limpopo, Okavango, and Orange.<sup>67</sup> The signing of the Protocol on shared water course systems in the Southern African Development Community (SADC), signed in 1995 and whose main purpose is to promote the creation of basin commissions between riparian states<sup>68</sup>, probably encouraged the development of these agreements.

Concerning the content of cooperation agreements, it is clear that, still at the beginning of the 1990s, water resources were considered in Africa from the angle of exploitation for economic purposes. Thus, the various multilateral agreements relating to the exploitation of watercourses will certainly integrate the hydrographic basin theory relatively early, adopt a global approach, and create cooperation institutions, but ultimately, these agreements will pay little attention to the quality of water and ecological interests. This assertion is consistent with the analysis of Lautze and Giordano, who points out that the agreements then mainly deal with "common management" and "the development of watercourses".

In 1996, Kamto justified the few ecological concerns raised by continental international water resources by the fact "that the industrialization of Africa [is] still relatively weak compared to that of Europe, Asia or of Latin America", and that, as a result, "African rivers and lakes are spared from the ecological disaster alerts that threaten those of Europe or Asia for example". However, the author immediately clarifies that this does not mean that these problems do not exist. Despite the scarcity of information and studies on the issue, he recalls in particular the drying up of Lake Chad, the pollution of the Kagera, the Mano River, the Great Lakes, and even the development of tropical diseases, following the construction of the reservoir dams.

However, this attitude will gradually change, such that studies identify "a gradual change from the objective of 'water development' to that of 'sustainable development'", starting in 1990. Existing organizations will then undergo changes and adjustments to their missions and objectives, mainly to take into account the developments ratified by the New York Convention of 1997, and more broadly, the growing concern for the preservation of the environment.

Freshwater is a key resource that is rising in demand but remains poorly distributed. Global water consumption continues to rise, creating an urgent need to address the problem of ensuring access to water for everyone. Although over two

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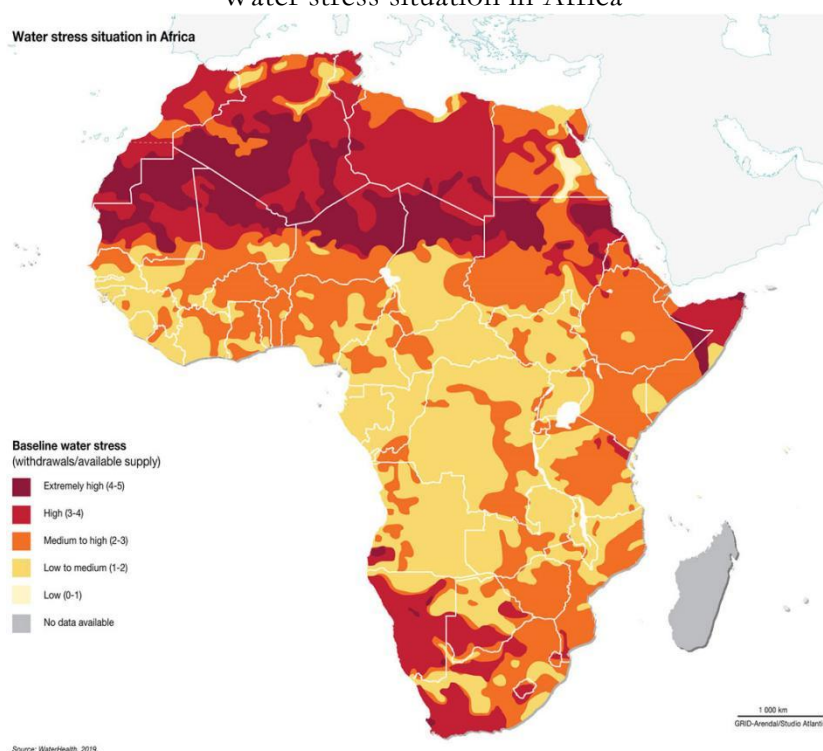
<sup>66</sup> Maluwa, *International Law in Post-Colonial Africa*.

<sup>67</sup> UN Environment Programme, "Hydropolitical vulnerability and resilience along international waters: Africa," 2006.

<sup>68</sup> Jonathan Lautze dan Mark Giordano, "Transboundary Water Law in Africa: Development, Nature, and Geography," *Natural Resources Journal* 45, no. 4 (2005): 1053–87.

billion individuals live in nations under significant water stress, almost 4 billion people endure acute dearths of water for at least one month each year. Access to potable water is a particularly delicate problem in Africa, specifically in Sub-Saharan Africa, where nearly half of the people who use water from unprotected sources live. The eight most major hydrographic basins account for over 75% of the region's water resources<sup>69</sup>. In the last three decades, climate change, along with numerous causes such as pressure from increasing urbanization, governmental vulnerability, corruption, insufficient investment, and inadequate oversight of water resources, have significantly decreased the quantity of freshwater accessible. This implies that many nations, such as South Africa, Namibia, Ethiopia, or Angola, suffer from major challenges relating to water stress.

Figure 1.  
Water stress situation in Africa



(Source : <https://www.frontiersin.org/journals/environmental-science/articles/10.3389/fenvs.2022.863903/full#B37>)

Approximately 60% of the populace of Sub-Saharan Africa lives in rural regions, with the great majority participating in agriculture for subsistence<sup>70</sup>. Therefore, rainfall is crucial to support their way of life and ensure their food security. Nevertheless, rainfall exhibits substantial interannual fluctuation, which is a source of actual worry for the region's desert parts<sup>71</sup>. Water shortage in the region contributes to hunger, poverty, and higher joblessness.

Despite accessibility to a clean, cheap, and safe drinking water supply is an essential human right acknowledged by the UN, this right is still not effective in most

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<sup>69</sup> A. Freitas, "Water as a Stress Factor in Sub-saharan Africa. European Union Institute for Security Studies," *European Union Institute for Security Studies (EUISS)*, 2013.

<sup>70</sup> L. Goedde, A. Ooko-Ombaka, dan G. Pais, "Winning in Africa's agricultural market," 2019.

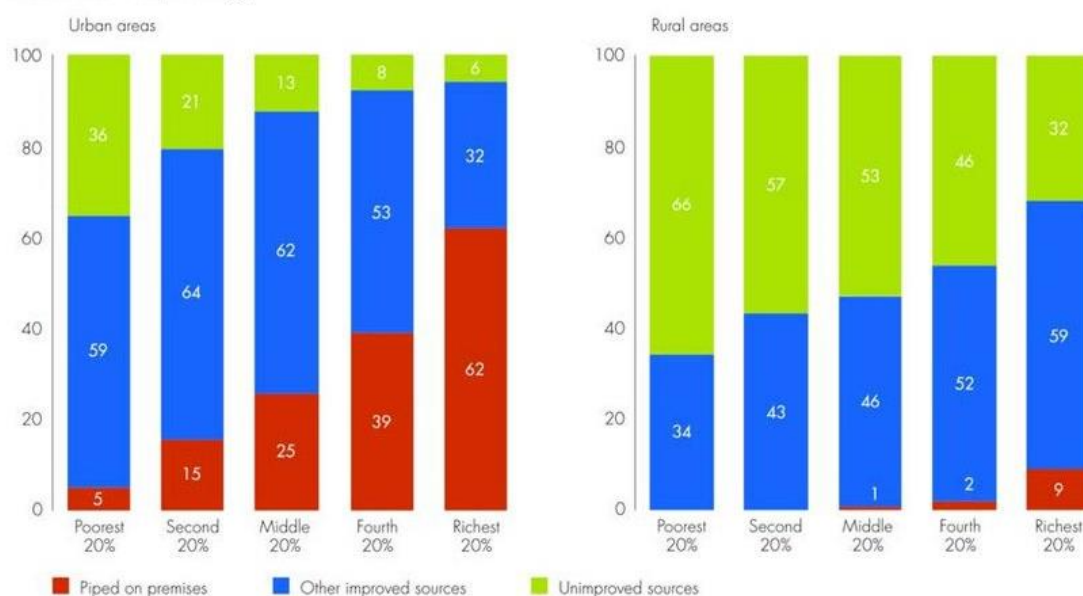
<sup>71</sup> S. Nicholson, "The Nature of Rainfall Variability over Africa on Time Scales of Decades to Milleni," *Glob. Planet. Change* 26 (2000): 137–58, [https://doi.org/doi:10.1016/S0921-8181\(00\)00040-0](https://doi.org/doi:10.1016/S0921-8181(00)00040-0).



do not have piped-in water, and less than half of the population uses an upgraded supply of water.

Figure 3.  
Drinking water status in sub-Saharan Africa

Drinking water coverage by wealth quintiles, urban and rural residence, sub-Saharan Africa, based on population-weighted averages from 35 countries (Percentage)



(Source : <https://www.un.org/waterforlifedecade/africa.shtml>)

## 2. The influence of international tools on the content of African agreements

The revision of the protocol on SADC watercourse sharing systems in 2000 clearly illustrates the adaptation of transboundary basin management tools on the African continent. Phera Ramoeli indeed recognizes that the process of revising the protocol initiated by the SADC Member States, “was further influenced by the development of international law on watercourses, in particular, the adoption by the United Nations of the Convention on the Law of Non-Navigational Use of International Watercourses (the UN Watercourses Convention), in April 1997.<sup>75</sup> Among the general principles, the new text now includes the notion of significant damage. Article 10-a) states: “Member States shall, in the use of a common watercourse in their territories, take all appropriate measures to prevent significant causes in the watercourses of other States”. In addition, specific provisions are added regarding the protection and preservation of the environment.<sup>76</sup>

Likewise, a similar development is observed within the framework of the African Convention on the Protection of Nature and Natural Resources or the Algiers Convention.<sup>77</sup> This convention, signed in 1968, was revised in 2003 with the adoption of the Maputo Convention, which bears the same name. “Model in its global character” at the time of its entry into force in 1969, “the first of the

<sup>75</sup> Pilarski, *La gestion partagée des ressources en eau dans le bassin du Congo : état des lieux et perspectives*.

<sup>76</sup> Southern African Development Community, “Protocol on shared water courses systems in the Southern African Development Community” (2000).

<sup>77</sup> African Union, “AFRICAN CONVENTION ON THE CONSERVATION OF NATURE AND NATURAL RESOURCES” (2016).



major modern conservation conventions”<sup>78</sup>, will however be a flagrant failure, for two major reasons: the rapid development of environmental law from the 1970s which will quickly make it obsolete, and the avant-garde of a convention not adapted to its context.<sup>79</sup>

The revision of the Algiers Convention resulted in the adoption of the Maputo Convention of 2003, which draws inspiration from numerous normative sources to which it succeeded. The most striking illustration of this integration probably lies in the recurrent use of “sustainability principles”, the epithet of which is attributed to the development, use, management, or even exploitation of resources. In addition, the new article 7 “Water” (former article 5 of the Algiers Convention) integrates the concept of integrated water resources management and provides, concerning transboundary basins:

“When surface or underground water resources and the ecosystems linked to them, in particular wetlands, are transboundary to two or more Parties, they consult each other and, where appropriate, constitute Interstate Commissions, responsible for their rational management and their equitable use, the settlement of disputes relating to the use of these resources and their development, management, and conservation through cooperation. It recognizes that surface water, groundwater, and the interconnected ecosystems, particularly wetlands, often extend across national borders. To ensure equitable and sustainable use of these resources, the paragraph emphasizes the importance of consultation and cooperation among the involved countries. It suggests the establishment of "Interstate Commissions" as a formal mechanism for joint management. These commissions would be responsible for overseeing the rational use of shared water resources, resolving any disputes that may arise regarding their utilization, and promoting their development, management, and conservation through collaborative efforts. Essentially, this framework aims to foster cooperation and ensure that the shared water resources are utilized in a manner that is fair, sustainable, and beneficial to all involved parties.

However, the optimism shown by certain authors about this new convention is not unanimous, and Doumbe-Bille notes that the Maputo Convention makes Africa "a laboratory for experimenting with a new way - once again - of considering protection”, now linked to sustainable development. Furthermore, the Algiers Convention is still the only applicable legal instrument because the Maputo Convention has not yet obtained the fifteen ratifications necessary for its entry into force.

In any case, at the watershed scale, several instruments have been adopted in order to implement integrated management of water resources. Thus, in 1998, the member states of the Lake Chad Basin Commission (LCBC) adopted a Strategic Action Plan for integrated and concerted management of water resources.<sup>80</sup> In 2001, an environmental partnership program was launched in the Niger Basin, the Niger Basin Initiative.<sup>81</sup>, and the launch of the Lake Tanganyika Authority program in December 2008, aims to “implement the priority activities of its strategic action program with a view to sustainable management of the environment and its

<sup>78</sup> Alexandre Charles Kiss, *Droit International de l'Environnement* (Paris: Pedone, 2000).

<sup>79</sup> Stéphane Doumbé-Billé, “La nouvelle Convention africaine de Maputo sur la conservation de la nature et des ressources naturelles,” *Revue juridique de l'Environnement*, 2005, 5–17.

<sup>80</sup> Food and Agriculture Organization of the United Nations, “AQUASTAT - FAO's Global Information System on Water and Agriculture,” Food and Agriculture Organization of the United Nations, t.t., <https://www.fao.org/aquastat/en/countries-and-basins/country-profiles>.

<sup>81</sup> Awaïss Aboubakar, “L'Initiative Bassin du Niger (IBN) : développement durable et gestion intégrée d'un grand fleuve,” *Afrique contemporaine* 206, no. 2 (2003): 179–203, <https://doi.org/10.3917/afco.206.0179>.

resources”<sup>82</sup>

The adoption of the principles of integrated water resources management in continental and sub-regional normative instruments in Africa demonstrates the general enthusiasm for this management paradigm. Furthermore, the integration of international requirements relating in particular to fair and reasonable use as well as the prevention of significant damage, indicate that, beyond the criticisms made of the New York Convention, state practice seems to be improving, accommodate these prescriptions and their articulation.<sup>83</sup> In the context of international water law, "reasonable use" refers to the principle that countries sharing a watercourse, such as a river or lake, have the right to utilize the water within their borders. However, this right is not absolute. It must be exercised in a manner that does not significantly harm the interests of other countries that also depend on that watercourse. "Reasonable use" necessitates a careful balancing of the water needs and rights of all countries sharing the watercourse. This requires consideration of various factors, including the population size, economic development, existing water use patterns within each country, and the environmental needs of the watercourse itself. A crucial aspect of this principle is the obligation to avoid causing significant harm to other countries. This includes harm to water quality, quantity, or the ecological health of the watercourse.

### **Managing Transboundary Water Resources in Africa: Challenges, Cooperation, and the Path Forward**

Africa faces unique challenges in managing transboundary water resources, with notable examples including the Nile and Congo River basins. These basins illustrate the complex interplay of historical, geopolitical, and environmental factors influencing cooperation and conflict.

The Nile, the world's longest river, flows through 11 countries, including Ethiopia, Sudan, and Egypt. The construction of the Grand Ethiopian Renaissance Dam (GERD) has intensified tensions, particularly between Ethiopia, Sudan, and Egypt. Ethiopia views the dam as a cornerstone for energy independence and economic development, while downstream countries, especially Egypt, fear reduced water flow, jeopardizing agriculture and livelihoods. Despite negotiations mediated by the African Union and other stakeholders, reaching a binding agreement remains elusive. This underscores the need for strengthened legal frameworks and cooperative mechanisms under international water law, including equitable and reasonable utilization principles.

The Congo River, the second-largest river in Africa, provides critical resources for millions. However, infrastructure development, deforestation, and pollution threaten its ecosystem. While the Congo Basin countries have established agreements under the Congo Basin Forest Partnership and other regional frameworks, implementation often faces challenges due to weak governance and resource constraints. Enhanced regional cooperation and funding for sustainable infrastructure are vital to addressing these issues.

These cases highlight gaps in implementing international principles such as equitable and reasonable use and the obligation to prevent significant harm. Regional cooperation frameworks, supported by international institutions like the African Union, could be strengthened by adopting lessons from successful models in other regions, such as the Mekong River Commission. It refers to the principle that countries sharing a watercourse, such as the Congo River, have the right to utilize the water within their borders, but this right

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<sup>82</sup> Programme des Nations Unies pour le développement, "Le PNUD au Burundi Ne laissons personne de côté," Programme des Nations Unies pour le développement, 2008, <https://www.undp.org/fr/burundi>.

<sup>83</sup> Kokouvi Edem N'TSOUKPOE dkk., "Overview of solar thermal technology development and applications in West Africa: Focus on hot water and its applications," *Scientific African* 21 (2023): e01752, <https://doi.org/10.1016/j.sciaf.2023.e01752>.

is not absolute. It must be exercised in a way that does not significantly harm the interests of other countries that also depend on that watercourse. This means that each country must use the water in a way that is fair and equitable to all other countries that share the river, taking into account the needs of all users and the health of the river ecosystem. The challenges the Congo Basin countries face in implementing this principle. Infrastructure development, deforestation, and pollution threaten the river's ecosystem and the well-being of the people who depend on it. While there are agreements in place, such as the Congo Basin Forest Partnership, weak governance and resource constraints hinder their effective implementation. It concludes by emphasizing the need for enhanced regional cooperation and funding for sustainable infrastructure to address these issues. It also suggests that regional cooperation frameworks, such as the African Union, could be strengthened by adopting lessons from successful models in other regions, such as the Mekong River Commission. Furthermore, integrating community-based approaches and technological solutions, such as real-time water monitoring, could improve trust and data sharing among riparian states.

The African context emphasizes the urgency of effective governance and infrastructure development to ensure equitable access and sustainable management of water resources. Addressing these challenges requires a dual approach: enhancing international legal frameworks and fostering local and regional cooperation tailored to Africa's unique socio-political realities.

### **Application of Equitable and Reasonable Use in Africa**

The principle of equitable and reasonable use, enshrined in modern international water law, aims to ensure that all riparian states sharing a watercourse can benefit fairly from its resources. It emphasizes that all countries sharing a watercourse, such as a river or lake, have the right to utilize its resources, but this right is not absolute. The principle ensures that all riparian states, meaning countries bordering the watercourse, can benefit fairly from its resources. This implies a balanced approach that considers the needs and interests of all involved countries, promoting a fair and equitable distribution of water resources while acknowledging the right of each country to utilize the water within its borders. In Africa, this principle has been both successfully implemented and significantly challenged due to political, economic, and infrastructural disparities.

One example of its application is in the Nile Basin, where the Cooperative Framework Agreement (CFA) seeks to redistribute water usage rights more equitably among the 11 riparian states. However, despite this framework, historical agreements favoring downstream states like Egypt and Sudan continue to hinder consensus, reflecting the failure to fully implement the principle. Similarly, in the Senegal River Basin, the Organisation for the Development of the Senegal River (OMVS) demonstrates successful regional cooperation, with member states sharing benefits from hydroelectric projects and irrigation schemes. Several factors impede the consistent application of equitable and reasonable use across Africa:

- a. **Historical Agreements.** Many existing treaties, such as the 1959 Nile Waters Agreement, heavily favor downstream states, creating tensions with upstream countries seeking to exercise their rights.
- b. **Infrastructure Disparities.** Unequal development of water-related infrastructure leaves many upstream states unable to utilize shared water resources, despite legal entitlements fully.
- c. **Lack of Institutional Capacity.** Weak governance and institutional frameworks often undermine the enforcement of international water laws and agreements.

The dwindling water levels in the Lake Chad Basin exemplify the failure to apply international law effectively. While the Lake Chad Basin Commission (LCBC) promotes

equitable water use, the lack of compliance mechanisms and external pressures from population growth and climate change exacerbate resource conflicts. Recommendations for strengthening application:

- a. Revision of Treaties. Existing agreements should be revisited to align with contemporary principles of equity and sustainability.
- b. Capacity Building. Strengthening regional institutions like the LCBC and OMVS to monitor and enforce agreements is critical.
- c. Integrated Water Resource Management (IWRM). Promoting cooperative projects that balance ecological preservation and economic development can enhance compliance with international principles.

By addressing these challenges, Africa can better leverage the principle of equitable and reasonable use, fostering sustainable and peaceful water-sharing practices.

### **Water Cooperation Based on Islamic Law Perspective**

Water holds a central place in Islamic teachings and is recognized as one of the most essential blessings bestowed by Allah for the sustenance of life<sup>84</sup>. The Quran declares, "*And We have sent down blessed rain from the sky and made grow thereby gardens and grain from the harvest*" (Surah Qaf, 50:9), emphasizing water as a source of abundance and prosperity. Its significance extends beyond sustenance to spiritual purification, as water is integral to rituals such as ablution (wudu) and ghusl. The Quran further asserts, "*And We have made from water every living thing*" (Surah Al-Anbiya, 21:30), symbolizing its universal necessity and unifying value across all living beings. Prophet Muhammad (peace be upon him) underscored the ethical imperative of equitable water use by stating, "*Muslims share in three things: water, pasture, and fire*" (Sunan Ibn Majah, Hadith 2472), which reflects an early acknowledgment of shared resource rights and the prohibition of monopolization.

Islamic jurisprudence (fiqh) expands on these ethical guidelines, incorporating principles such as Maslahah (public interest) and Darar (prevention of harm), which mandate fair and sustainable management of shared resources<sup>85</sup>. The fiqh maxim, "*Harm must be eliminated*," aligns with modern principles of international water law, such as the obligation to prevent significant harm in transboundary water governance. Historical Islamic practices also provide a precedent for cooperative resource management. For instance, during the Caliphate of Umar ibn Al-Khattab (RA), public access to water sources was prioritized, ensuring equitable distribution among communities regardless of social or economic standing<sup>86</sup>.

In addressing contemporary challenges in water cooperation, integrating these Islamic principles offers a robust ethical framework. The Quranic emphasis on accountability, reflected in the verse, "*Then on that Day you will be asked about the blessings*" (Surah At-Takathur, 102:8), calls for responsible stewardship of Allah's blessings, including water. This perspective aligns seamlessly with international conventions on the equitable and sustainable use of transboundary water resources. Furthermore, the Prophetic tradition of consultation (shura) can inspire collaborative approaches among nations, fostering trust and mutual benefit. Applying these values, alongside contemporary legal frameworks, provides a holistic model for addressing water governance challenges, particularly in regions where resource scarcity and competing interests risk exacerbating conflict.

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<sup>84</sup> Ummu Salamah, "Mensyukuri Dan Menjaga Ketersediaan Sumber Daya Air," 2014.

<sup>85</sup> Muhammad Farhan Hamid, "ANALISIS HUKUM ISLAM ( FIKIH WARIS ) TERHADAP PENYATUAN HARTA DALAM PASAL 189 KOMPILASI HUKUM ISLAM" (UNIVERSITAS ISLAM NEGERI Kiyai Haji Achmad Siddiq Jember, 2024).

<sup>86</sup> Muhammad Abror, "Teladan Tanggung Jawab Umar bin Khattab kepada Rakyatnya," Kementerian Agama Republik Indonesia, 2023, <https://kemenag.go.id/hikmah/teladan-tanggung-jawab-umar-bin-khattab-kepada-rakyatnya-P4VBw>.

## CONCLUSIONS

This study emphasizes the vital role of international water law in addressing Africa's transboundary water management challenges. By exploring historical, legal, and geopolitical contexts, the research highlights the fragmented nature of legal frameworks, the enduring impact of colonial-era agreements, and the increasing pressures from climate change, population growth, and infrastructure disparities. Key principles such as equitable and reasonable use, the prevention of significant harm, and the obligation to cooperate remain central to fostering water cooperation and mitigating conflicts, yet their inconsistent application underscores the need for reform. Returning to the research question, the study demonstrates the importance of tailoring legal frameworks to regional contexts, strengthening institutional capacity, and improving mechanisms for data sharing. While international conventions such as the New York and Helsinki agreements offer valuable guidelines, their broader ratification and integration into domestic policies are essential for meaningful progress. Future research should investigate methods to strengthen institutional frameworks, enhance the application of technological innovations like real-time monitoring systems, and address historical inequities embedded in colonial-era agreements. Additionally, understanding how to involve local communities in water management decisions could foster more inclusive and sustainable practices. By bridging gaps in legal and institutional structures and incorporating innovative and inclusive approaches, international water law holds the potential to ensure equitable and sustainable water management in Africa, contributing to regional stability and long-term prosperity.

The study also underscores the necessity of strengthening institutional capacities at regional and national levels to ensure the effective implementation of these principles. Furthermore, the findings emphasize the need for enhanced mechanisms for data sharing and transparency among riparian states, which are pivotal in building trust and preventing disputes. By showcasing successful examples, such as the management of the Senegal River Basin, this research demonstrates the potential for collaborative frameworks to mitigate conflicts and promote sustainable water use. Additionally, the incorporation of Islamic principles into water governance provides an ethical perspective that complements international norms, fostering justice and inclusivity in resource management. These insights not only contribute to academic discourse but also offer practical strategies for policymakers and stakeholders to address water security issues, reduce tensions, and support sustainable development across the African continent.

## REFERENCE

- Abdillah, Junaidi, Tri Nurhayati, Najichah Najichah, Lira Zohara, dan Muchammad Tholchah. "Contribution Model of Al-Mas'ūliyyah al-Jinā'iyah in the Formulation of Criminal Liability in Indonesia's New Criminal Code." *Al-Ahkam* 34, no. 2 (31 Oktober 2024): 367–92. <https://doi.org/10.21580/ahkam.2024.34.2.22592>.
- Aboubakar, Awaïss. "L'Initiative Bassin du Niger (IBN) : développement durable et gestion intégrée d'un grand fleuve." *Afrique contemporaine* 206, no. 2 (2003): 179–203. <https://doi.org/10.3917/afco.206.0179>.
- Abror, Muhammad. "Teladan Tanggung Jawab Umar bin Khattab kepada Rakyatnya." Kementerian Agama Republik Indonesia, 2023. <https://kemenag.go.id/hikmah/teladan-tanggung-jawab-umar-bin-khattab-kepada-rakyatnya-P4VBw>.
- African Union. African Convention On The Conservation Of Nature And Natural Resources (2016).

- Apeh, Oliver O., dan Nnamdi I. Nwulu. "The water-energy-food-ecosystem nexus scenario in Africa: Perspective and policy implementations." *Energy Reports* 11, no. June (2024): 5947–62. <https://doi.org/10.1016/j.egy.2024.05.060>.
- Assouline, Janine, dan Samuel Assouline. *Géopolitique de l'eau*. 1 ed. Paris: Studyrama, 2012.
- Bahri, F. Brikké, dan K. Vairavamoorthy. "Managing Change to Implement Integrated Urban Water Management in African Cities." *Aquatic Procedia* 6 (2016): 3–14. <https://doi.org/10.1016/j.aqpro.2016.06.002>.
- Baining, Mellya Embun, Amir Amir, Achmad Hizazi, dan Enggar Diah Puspa Arum. "Finding The Maqashid Al-Syariah Performance Model on Syariah Management Accounting Information System Values." *Al-Risalah: Forum Kajian Hukum Dan Sosial Kemasyarakatan* 24, no. 2 (30 Desember 2024): 87–104. <https://doi.org/10.30631/alrisalah.v24i2.1642>.
- Barlow, Maude, dan Tony Clarke. *L'or bleu. L'eau, le grand enjeu du XXI<sup>e</sup> siècle*. Kanada: Fayard, 2002.
- Boisson De Chazournes, Laurence, dan Salman M.A Salman. *Les ressources en eau et le droit international = Water Resources and International Law*. Leiden: M. Nijhoff, 2005.
- Boniface, Pascal. *Comprendre le monde - 7e édition Les relations internationales expliquées à tous*. Paris: Armand Colin, 2023.
- Boutros-Ghali, Boutros. *L'organisation De L'unité Africaine*. Paris: Librairie Armand Colin, 1968.
- Chauveau, L. "L'eau : de sa qualité dépend le sort de milliards d'individus." *Science et Vie* 1020 (2002).
- Chirambo, Dumisani. "Moving past the rhetoric: Policy considerations that can make Sino-African relations to improve Africa's climate change resilience and the attainment of the sustainable development goals." *Advances in Climate Change Research* 7, no. 4 (2016): 253–63. <https://doi.org/10.1016/j.accr.2016.11.002>.
- Doumbé-Billé, Stéphane. "La nouvelle Convention africaine de Maputo sur la conservation de la nature et des ressources naturelles." *Revue juridique de l'Environnement*, 2005, 5–17.
- Emamba, Mulenda Lomena, dan Daniel. "La Chine en RD Congo : essai d'analyse géoéconomique et prospective du développement endogene en Republique Democratique du Congo." *Cahiers économiques et sociaux* 33, no. 2 (2016): 53–70.
- Engelhardt, Edouard. *Du Régime Conventionnel des Fleuves Internationaux*. Paris: Cotillon et Cie, 1979.
- Fallon, A., R. W. Jones, dan M. Keskinen. "Bringing resilience-thinking into water governance: Two illustrative case studies from South Africa and Cambodia." *Global Environmental Change* 75, no. May (2022): 102542. <https://doi.org/10.1016/j.gloenvcha.2022.102542>.
- Food and Agriculture Organization of the United Nations. "AQUASTAT - FAO's Global Information System on Water and Agriculture." Food and Agriculture Organization of the United Nations, t.t. <https://www.fao.org/aquastat/en/countries-and-basins/country-profiles>.
- Foucher, Michel. *Fronts et frontières. Un tour du monde géopolitique*. 2 ed. Paris: Fayard, 1991.
- Freitas, A. "Water as a Stress Factor in Sub-saharan Africa. European Union Institute for Security Studies." *European Union Institute for Security Studies (EUISS)*, 2013.
- Gauchon, Coordonné par Pascal, dan Jean-Marc Huissoud. *Les 100 mots de la géopolitique*. 5 ed. Paris: Presses Universitaires de France, 2019.
- Germain Convention, Saint. General Act of the Berlin Conference on West Africa, 26 February 1885 (1919).
- Glland, Franck. *L'eau Géopolitique, enjeux, stratégies*. Paris: CNRS Editions, 2008.

- Goedde, L., A. Ooko-Ombaka, dan G. Pais. "Winning in Africa's agricultural market," 2019.
- Habi, Nuraida Fitri, Robi'atul Adawiyah, Hermanto Harun, Ardian Kurniawan, dan Rusli Abdul Roni. "Prioritizing Restorative Justice in the Settlement of the Sumbang Besak Adultery Case in Babeko Village, Jambi." *El-Mashlahah* 14, no. 2 (30 Desember 2024): 343–60. <https://doi.org/10.23971/el-mashlahah.v14i2.8030>.
- Hamid, Muhammad Farhan. "Analisis Hukum Islam ( Fikih Waris ) Terhadap Penyatuan Harta Dalam Pasal 189 Kompilasi Hukum Islam." Universitas Islam Negeri Kiyai Haji Achmad Siddiq Jember, 2024.
- Hannan, Nur, M. Syamsul Huda, Mohamad Anang Firdaus, Abdillah Afabih, dan Yayan Musthofa. "Between Adherence to Madhhab and Adaptation to Context: Fatwās on Female Leadership in Nahdlatul Ulama-Affiliated Islamic Higher Education Institutions." *Journal of Islamic Law* 5, no. 2 (30 Agustus 2024): 269–87. <https://doi.org/10.24260/jil.v5i2.2725>.
- Hasanudin, Kamsi, dan Ahmad Yani Anshori. "The Contestation of Legal Foundations in the Resolution of Islamic Economic Disputes in Religious Courts." *Al-Manahij: Jurnal Kajian Hukum Islam*, 19 September 2024, 271–88. <https://doi.org/10.24090/mnh.v18i2.11934>.
- Hussein, Hussam, Meadow Poplawsky, dan Tanisha Mohapatra. "The political context of change in transboundary freshwater agreements." *Environmental Science and Policy* 149, no. September (2023): 103572. <https://doi.org/10.1016/j.envsci.2023.103572>.
- Ilmar, Aminuddin, Muhammad Mutawalli Mukhlis, dan Rasyidah Md Khalid. "Exploring SDGs Regulatory Frameworks and Regional Regulation for Climate Change Mitigation and Adaptive Resilience in Coastal Communities." *Jurnal IUS Kajian Hukum dan Keadilan* 12, no. 3 (2024): 572–87. <https://doi.org/10.29303/ius.v12i3.1543>.
- Insawan, Husain, Alwahidin Alwahidin, Horiacheva Kira Kira, dan Azzahrah Insawan Putri. "Implementation of the Eco-Metaverse in Indonesia: Sharia Economic Perspective." *Samarah: Jurnal Hukum Keluarga Dan Hukum Islam* 9, no. 1 (15 Januari 2025). <https://doi.org/10.22373/sjhk.v9i1.26262>.
- International Water Law Academy. "March 2024 - Message from IWLA Director Prof. Patricia Wouters." International Water Law Academy, 2024. <https://iwla.whu.edu.cn/index.php?id=3645>.
- Jalili, Ismail, Helmi Syaifuddin, Fadillah Ulfa, Wery Gusmansyah, dan Muntaha Artalim Zaim. "The Legitimacy of Abortion: A Socio-Legal Analysis of Islamic Jurisprudence and Indonesian Law." *De Jure: Jurnal Hukum Dan Syar'iah* 16, no. 2 (17 Desember 2024): 382–405. <https://doi.org/10.18860/j-fsh.v16i2.29077>.
- John, Tumaini Wambua, Janez Sušnik, Sara Masia, dan Graham Jewitt. "Towards realization of nexus-doing at the grassroots level: Water-energy-food governance assessment in the Songwe River Basin (Tanzania and Malawi)." *Environmental Science and Policy* 150, no. November 2022 (2023). <https://doi.org/10.1016/j.envsci.2023.103596>.
- Jubba, Hasse, Sudirman Sudirman, Suparto Iribaram, Wan Khairul Aiman bin Wan Mokhtar, dan Rusdi Rasyid. "Compromise of Islam and Customary Practices in the Religious Practices of the Muslim Community in Papua: A Study of Maqāṣid Syar'ah." *Ijtihad: Jurnal Wacana Hukum Islam Dan Kemanusiaan* 24, no. 2 (28 Desember 2024): 305–30. <https://doi.org/10.18326/ijtihad.v24i2.305-330>.
- Kamto, Maurice. "Le droit international des ressources en eau continentales africaines." *Annuaire Français de Droit International*, 1990, 843–911.

- Kashemukunda, Kasongo-Numbi. *Eaux et forêts de la république démocratique du Congo*. Paris: L'Harmattan, 2008.
- Kiss, Alexandre Charles. *Droit International de l'Environnement*. Paris: Pedone, 2000.
- Lacoste, Yves. *L'eau Dans le Monde: Les Batailles Pour la Vie*. Paris: Larousse, 2010.
- Lahilote, Hasyim Sofyan, Frangky Soleman, Faradila Hasan, Rusdaya Basri, dan Azizah Lahilote. "Digitalisasi Peradilan di Indonesia Tengah: Studi Implementasi E-Court dan E-Litigasi di Pengadilan." *Syariah: Jurnal Hukum dan Pemikiran* 24, no. 2 (2024): 315–32. <https://doi.org/10.18592/sjhp.v24i2.13879>.
- Laserre, Frédéric. *Les guerres de l'eau ; l'eau au coeur des conflits du XXI siècle*. Paris: De La Villa, 2009.
- Lautze, Jonathan, dan Mark Giordano. "Transboundar ansboundary Water Law in Africa: De ater Law in Africa: Development, Natur elopment, Nature, and Geography." *Natural Resources Journal* 45, no. 4 (2005): 1053–87.
- Maluwa, T. *International Law in Post-Colonial Africa*. The Hague: Kluwer Law International, 1999.
- Mason, N., D. Nalamalapu, dan J. Corfee-Morlot. "Climate Change Is Hurting Africa's Water Sector, but Investing in Water Can Pay off." World Resources Institute, 2019. <https://www.wri.org/insights/climate-change-hurting-africas-water-sector-investing-water-can-pay>.
- Mohammed, Mustafa Omar, Mohamed Cherif El Amri, dan Ayman Mohammad Bakr. "Guiding Fiqh Analysis of Crypto Assets: A Proposed Framework." *AHKAM : Jurnal Ilmu Syariah* 24, no. 2 (24 Desember 2024): 277–94.
- Monyei, Chukwuka G., Kingsley O. Akpeji, Olamide Oladeji, Olubayo M. Babatunde, Okechukwu C. Aholu, Damilola Adegoke, dan Justus O. Imafidon. "Regional cooperation for mitigating energy poverty in Sub-Saharan Africa: A context-based approach through the tripartite lenses of access, sufficiency, and mobility." *Renewable and Sustainable Energy Reviens* 159, no. February 2021 (2022): 112209. <https://doi.org/10.1016/j.rser.2022.112209>.
- Mova, Henri. *Praxis internationale pour une gestion stratégique de l'eau*. Paris: Dounia, 2009.
- Mukhlis, Muhammad mutawalli, Maskun, muhammad saleh Tajuddin, dan Zuhilmi Paidi. "regional government according to the 1945 constitution: ideas refinements and law reform." *Journal of law and legal reform* 5, no. 2 (2024): 495–530.
- Mukhlis, Muhammad Mutawalli, Muhammad Saleh Tajuddin, dan Abdul Rahman. *Hukum Otonomi Pemerintahan Daerah dan Pemerintahan Desa di Indonesia*. Yogyakarta: Jejak Pustaka, 2024.
- Mundala, Franklin Oniemba. *Diplomatie de robinet Une nouvelle stratégie de coopération sur l'eau douce du bassin du congo*. Etudes africaines, 2023.
- Mutawalli, Muhammad, Maskun Maskun, Harlida Abdul Wahab, dan Andi Tenri Yeyeng. "Implementation of FLEGT Licensing Scheme in Deforestation Law Enforcement: Improvements and Handling in Indonesia." *Jurnal Hukum Unissula* 39, no. 2 (2023): 130–56. <https://doi.org/10.26532/jh.v39i2.32210>.
- Mutinga, M. M. *Le fleuve Congo et ses affluents : un château d'eau convoité. La guerre de l'eau aux portes de la RDC*. Kinshasa: Le Potentiel, 2014.
- Mvulirwenande, Silas, dan Uta Wehn. "Dynamics of water innovation in African cities: Insights from Kenya, Ghana and Mozambique." *Environmental Science and Policy* 114, no. August (2020): 96–108. <https://doi.org/10.1016/j.envsci.2020.07.024>.
- Mwamba, M. G. *Gouvernance Post-Conflict par la Justice Transitionnelle. Fondements, Management, Profils et Perspectives*. Beau Bassin: Universitaires Européennes, 2018.
- . *Manuel d'institutions politiques du Congo*. Kinshasa: CEP, 2019.



- Nations Unies. Traités concernant l'utilisation des cours d'eau internationaux à des fins autres que la navigation. Afrique. (1984).
- Nicholson, S. "The Nature of Rainfall Variability over Africa on Time Scales of Decades to Milleni." *Glob. Planet. Change* 26 (2000): 137–58. [https://doi.org/doi:10.1016/S0921-8181\(00\)00040-0](https://doi.org/doi:10.1016/S0921-8181(00)00040-0).
- N'tsoukpoe, Kokouvi Edem, Sara Claude Lekombo, Francis Kemausoor, Gaëlle Kafira KO, dan El Hadji Bamba DIAW. "Overview of solar thermal technology development and applications in West Africa: Focus on hot water and its applications." *Scientific African* 21 (2023): e01752. <https://doi.org/10.1016/j.sciaf.2023.e01752>.
- Okafor-Yarwood, Ifesinachi, Oliver Eastwood, Noleen Chikowore, dan Lucas de Oliveira Paes. "Technology and maritime security in Africa: Opportunities and challenges in Gulf of Guinea." *Marine Policy* 160, no. December 2023 (2024): 105976. <https://doi.org/10.1016/j.marpol.2023.105976>.
- Onu, Matthew Adah, Olusola Olaitan Ayeleru, Bilainu Oboirien, dan Peter Apata Olubambi. "Challenges of wastewater generation and management in sub-Saharan Africa: A Review." *Environmental Challenges* 11, no. July 2022 (2023): 100686. <https://doi.org/10.1016/j.envc.2023.100686>.
- Pilarski, Cécile. *La gestion partagée des ressources en eau dans le bassin du Congo : état des lieux et perspectives*. Québec: Québec : Université Laval, 2009.
- Pindua, George, Mikko Antero Juntunen, Paula Tommila, dan Ritva Saarinen. "TAMAA Case study report : Wellbeing of African villagers within their community," 2015. <https://doi.org/10.13140/RG.2.2.28962.89282>.
- Programme des Nations Unies pour le développement. "Le PNUD au Burundi Ne laissons personne de côté." Programme des Nations Unies pour le développement, 2008. <https://www.undp.org/fr/burundi>.
- Renan, Ernest. "Qu'est-ce qu'une nation ?" Sorbonne, 1882.
- Salamah, Ummu. "Mensyukuri Dan Menjaga Ketersediaan Sumber Daya Air," 2014.
- Salman, dan Kishor Uprety. "Shared Watercourses and Water Security in South Asia: Challenges of Negotiating and Enforcing Treaties." International Water Law Project, 2018. <https://www.internationalwaterlaw.org/blog/2018/08/27/shared-watercourses-and-water-security-in-south-asia-challenges-of-negotiating-and-enforcing-treaties/>.
- Saputro, Triyono Adi, Ismail Rumadan, Pujiyono Suwadi, Emmy Latifah, dan Muhammad Syaiful. "The Urgency of Using Al-Milk an-Naqiṣ in Geographical Indications: An Ideal Preservation for Intellectual Property in Indonesia." *JURIS (Jurnal Ilmiah Syariah)* 23, no. 2 (25 September 2024): 269–79. <https://doi.org/10.31958/juris.v23i2.12227>.
- Sinthumule, Ndidzulafhi Innocent. "An analysis of policy and legal framework on wetland conservation and management in South Africa." *Watershed Ecology and the Environment* 6, no. February (2024): 63–69. <https://doi.org/10.1016/j.wsee.2024.03.001>.
- Sironneau, J, dan F Lasserre. *L'eau en tant qu'enjeu politique et stratégique*. Paris: L'Harmattan, 2004.
- Sohnle, J. *Le droit international des ressources en eau douce : Solidarité contre souveraineté*. Paris: La Documentation française, 2002.
- Southern African Developemnt Community. Protocol on shared water courses systems in the Southern African Developemnt Community (2000).
- Taithe, Alexandre. *Partager l'eau Les enjeux de demain*. Paris: Editions Technip, 2006.

- Tignino, Mara. "The Kishenganga Awards and their Contributions to International Water Law." International Water Law Project, 2015. <https://www.internationalwaterlaw.org/blog/2015/08/05/the-kishenganga-awards-and-their-contributions-to-international-water-law/>.
- UN Environment Programme. "Hydropolitical vulnerability and resilience along international waters: Africa," 2006.
- UN General Assembly. "The UN General Assembly Resolution A/RES/58/217," 2004.
- Wambwa, Davies, Jhonnah Mundike, dan Brian Chirambo. "Assessing financial assurance instruments for climate change mitigation and adaptation: A comparative study of Zambia and South Africa." *Scientific African* 25, no. October 2023 (2024): e02303. <https://doi.org/10.1016/j.sciaf.2024.e02303>.
- Yunita, I. Made, Anak Agung Putu Sugiantiningsih, dan Mohammad Hidayatullah. "The Vote Buying among Madurese Muslim; Islamic Law Standpoint." *AL-IHKAM: Jurnal Hukum & Pranata Sosial* 19, no. 2 (31 Desember 2024): 444–69. <https://doi.org/10.19105/al-lhkam.v19i2.13025>.
- Yusoff, Amir Fazlim Jusoh. "Reassessment of Islamic Legal Bases for Matrimonial Property in Malaysia." *El-Usrah: Jurnal Hukum Keluarga* 7, no. 2 (31 Desember 2024): 541–56. <https://doi.org/10.22373/ujhk.v7i2.26374>.