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Water Geopolıtıcs ın the New Internatıonal System: A Global Analysıs of the Transformıng Nexus Between Power, Sovereıgnty, and Sustaınabılıty

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ABSTRACT

This study analyzes the transforming dynamics of water geopolitics in the new international system through the framework of interrelationships among power, sovereignty, and s s sustainability. The research examines the transformation of water from a passive natural resource to an active strategic variable through an original theoretical framework integrating critical geopolitics, political ecology, and international law perspectives. Employing a qualitative comparative analysis methodology, the study identifies three core themes through thematic analysis of secondary sources: relational power operating through infrastructure, transformed sovereignty in transboundary contexts, and the instrumentalization of sustainability discourse. The research findings reveal that power increasingly operates through epistemic authority, data control, and technical expertise rather than direct coercion. The concept of sovereignty has transformed from absolute territorial control to a relational, negotiated, and conditional practice. Sustainability discourse functions as a politicized terrain that legitimizes hegemonic projects while masking social costs, rather than serving as a neutral technical objective. The study demonstrates that institutional cooperation mechanisms can perpetuate rather than balance power asymmetries, and that climate uncertainty elevates risk management capacity to a new dimension of sovereignty. The original theoretical contribution of this research lies in conceptualizing the power-sovereignty-sustainability nexus, wherein these three dimensions are understood not as independent variables but as dynamic processes that mutually constitute and transform one another. The study offers policy recommendations for democratizing data regimes in water governance, ensuring accountability in climate adaptation, and integrating justice dimensions into sustainability frameworks.

KEYWORDS

Water geopolitics, Transboundary water governance, Hydro-hegemony, Epistemic power, Conditional sovereignty, Environmental sustainability, Critical geopolitics

1. Introductıon

The structural transformation of the contemporary international system is fundamentally altering the political significance of natural resources. The transition from the relatively stable bipolar structure of the post-Cold War era to a multipolar and uncertain order has compelled states to redefine their security and welfare strategies. This necessity becomes even more pronounced when it comes to the management of strategic resources; states are compelled to incorporate economic and environmental factors into their national security calculations beyond traditional military power elements (Matthew et al., 2022). In this transformation process, water has gone beyond being merely a biological necessity for sustaining life or a fundamental input for agricultural and industrial production to become a strategic element that directly shapes states' international positioning, legitimacy quests, and power projection. While traditional geopolitical theories treat water as a fixed geographical

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datum, an unchanging environmental condition, today's complex international environment requires a deep understanding of how water's dynamic, borderless, and multi-layered nature shapes political processes (Conca and Weinthal, 2018). This understanding requires that water be approached not only as a physical entity but also as a socio-natural hybrid embedded in social relations, power structures, and identity-building processes (Sultana and Loftus, 2019). Therefore, water geopolitics is no longer an assessment based solely on the physical scarcity or abundance of water; it has become an analysis of the power mechanisms operating through the management, distribution, infrastructural control, and discursive construction of water (Conca, 2021).

The deep inequalities in the spatial and temporal distribution of water, when combined with the existing power hierarchies of the international system, give rise to a highly complex pattern of interdependence and tension. This pattern goes beyond the upstream-downstream relationships often emphasized in hydropolitical literature, encompassing dimensions such as financial flows, technology transfers, and information asymmetries ( ) (Zeitoun and Warner, 2006). Transboundary river basins, critically important groundwater resources, and the expanding ecological footprints of large cities are producing a new political geography that transcends nation-state borders and profoundly challenges traditional notions of sovereignty (Wouters et al., 2018; Bolognesi et al., 2023). In this new geography, states face serious difficulties in claiming absolute sovereignty over water resources within their own borders; they are forced to restructure their security and development goals according to the preferences of neighboring states, international legal norms, and global economic flows. This restructuring process aligns with post-sovereignty debates, moving away from the traditional Westphalian interpretation of sovereignty and acquiring a shared, negotiated, and conditional nature (Baranyai, 2019). In this context, water plays a dual role in inter-state relations, serving both as a source of fragility and a potential catalyst for cooperation. This dual nature necessitates that water be approached not as a singular variable but as a multidimensional nexus where the concepts of power, sovereignty, and sustainability intersect (Baranyai, 2019).

A key factor further complicating the current picture is the structural uncertainty created by climate change in hydrological cycles, which is becoming increasingly difficult to predict. This uncertainty stems not only from variability in physical parameters; it also encompasses unpredictability regarding how societies will respond to these changes, the extent to which institutional capacities can adapt, and the direction in which political will will take shape (Dutta, 2022). Shifts in rainfall patterns, melting glaciers, and increases in the frequency and intensity of drought events have removed water from being a technical management issue and placed it at the center of discussions on existential security, risk management, and social survival (du Plessis, 2019; Ojha, 2023). This climate-induced regime of uncertainty forces decision-makers to factor in constantly changing risk scenarios when making long-term plans; this, in turn, elevates water policies from a technical-bureaucratic domain to the level of high politics. From the perspective of securitization theory, the elevation of water to the realm of high politics carries with it the risk of legitimizing extraordinary measures and weakening democratic oversight mechanisms (Islam et al., 2025). Simultaneously, injustices in access to water and human rights-based demands reinforce normative pressures that remind us that water is not only a security issue but also a global justice issue (Heller, 2022; Sultana and Loftus, 2019). This multi-layered structure clearly demonstrates that water geopolitics is not merely a technical or environmental problem area; rather, it is an arena where social contracts, inter-state relations, and global governance mechanisms are renegotiated.

The conceptual architecture of this study constructs water geopolitics not as the sum of isolated variables, but through a dynamic interconnectedness in which the concepts of power, sovereignty, and sustainability mutually transform each other. This interconnectedness approach goes beyond linear causality models and is consistent with complexity thinking that focuses on mutual causation, feedback loops, and emergent properties (Hellberg et al., 2024). Within this framework, the concept of power is conceptualized as a multidimensional and relational capacity encompassing material power as control over water infrastructure, structural power as the steering of international financial

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flows, informational power as the production of data and expertise, and discursive power as the construction of normative legitimacy, moving beyond the narrow, military-capacity-focused definition of classical realist approaches (Brears, 2023; Fritsch and Benson, 2024). This multidimensional conceptualization of power draws on Susan Strange's analysis of structural power and Joseph Nye's concept of soft power, but expands upon them by adapting them to the specific context of water geopolitics. Similarly, the concept of sovereignty, given the fluid, borderless, and multi-scalar nature of water, is approached not as absolute territorial control but as a relational practice that is constantly renegotiated, shared, and sometimes eroded within basin organizations, negotiation processes, and international legal frameworks (McCaffrey et al., 2019). Sustainability, meanwhile, is interpreted not merely as a technical balance between ecosystem boundaries and development needs, but as a contest over whose interests this balance serves, what priorities it reflects, and what political costs it entails (Hellberg et al., 2024; du Plessis, 2023). This threefold conceptual link defines a multifunctional space where water simultaneously functions as a strategic resource, a geopolitical tool, and a regulatory norm.

Looking at the current literature on water geopolitics, it is evident that studies are largely positioned between two fundamental poles: on the one hand, security-focused pessimistic approaches that argue water scarcity will inevitably lead to conflict; on the other hand, liberal institutionalist optimistic perspectives that argue institutional arrangements will enable cooperation (Conca and Weinthal, 2018; Islam et al., 2025). This bipolar structure fails to capture the complex reality of water geopolitics; it overlooks the fact that conflict and cooperation can exist simultaneously, within the same basin, or even within the same bilateral relationship (Kittikhoun and Schmeier, 2021). While transboundary water management and international law studies offer a rich body of knowledge on normative frameworks and basin organizations, debates remain lively on how structural power imbalances transform these cooperation mechanisms into hegemonic tools (McCaffrey et al., 2019; Wouters et al., 2018). In this context, the concept of hydro-hegemony reveals that powerful states can instrumentalize the rhetoric of cooperation in their own interests and legitimize asymmetric agreements. Research on urban water governance and infrastructure financing emphasizes the connections between local and global levels; however, it sometimes remains fragmented in integrating these processes with the uncertainty and risk regime of the new international system (Bolognesi et al., 2023; Fritsch and Benson, 2024). A key gap in the literature is the limited number of studies examining how the power-sovereignty-sustainability nexus has undergone a comprehensive transformation under conditions of multipolarity, the rise of non-state actors, and climatic uncertainty (Hellberg et al., 2024; Brears, 2023). This article aims to fill this gap by bringing together security, law, and political ecology literatures under a single analytical framework, analyzing how hydro-development projects and green transition discourses translate geopolitical influence into power and transform sovereignty (Dogmus, 2024; Dutta, 2022).

The fundamental research question that guides this study is formulated as follows: How does water geopolitics in the new international system transform and redefine sustainability goals through power projection and sovereignty practices? This question aims to go beyond a descriptive analysis and understand the mechanisms, actors, and outcomes of this transformation within causal patterns. Three subsidiary questions have been identified to operationalize this fundamental question and test different dimensions of the conceptual connection. The first subsidiary question inquires into the mechanisms by which power imbalances in the context of transboundary waters shape cooperative institutions and international water law practices (McCaffrey et al., 2019; Wouters et al., 2018). Among these mechanisms, tools such as data retention, financial pressure, and discursive framing stand out. The second auxiliary question examines how water infrastructure, hydropower investments, and international financing instruments transform water from a technical development input into an instrument of geopolitical influence and power (Dogmus, 2024; Brears, 2023). This question assumes that infrastructure is not merely a technical structure; it is also an area where power relations are materialized and spatialized (Fritsch and Benson, 2024). The third sub-question explores

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how climate-induced uncertainty and risks have strengthened the discourse on water security and reproduced the tension between sustainability and sovereignty (Ojha, 2023; Matthew et al., 2022).

In light of these questions, the study's main hypothesis is formulated as follows: In the new international system, water geopolitics produces relational power through infrastructure and governance capacity; this power redefines sovereignty through institutional and discursive legitimacy rather than absolute territorial control, creating a tense connection with sustainability goals. This hypothesis argues that the relationship between power and sovereignty is not unidirectional but mutually constitutive, and that sustainability is not an external constraint on this relationship but an internal component. Three auxiliary hypotheses have been developed to support and test this main hypothesis. The first auxiliary hypothesis argues that as power imbalances increase, cooperative institutions become more technical and stripped of political content, while egalitarian sharing rules weaken, feeding hegemonic stability (Kittikhoun and Schmeier, 2021). This hypothesis is directly related to the concept of depoliticization and questions how technical discourse can serve as a cover that conceals power relations (Conca, 2021). The second auxiliary hypothesis argues that although hydropower and large infrastructure investments are legitimized by the discourse of green development, as local social costs and transboundary impacts increase, sovereignty practices shift towards a more security-oriented direction (Dogmus, 2024). The third auxiliary hypothesis argues that as climate uncertainty rises, the institutional value of water diplomacy increases; however, control over data, technology, and expertise creates a new source of sovereignty (Hellberg et al., 2024).

The importance and original contribution of this study emerge on various levels. The study addresses trends that have become apparent in the field of water geopolitics in recent years but have not yet been systematized, taking an integrated perspective; in this respect, it fills both a theoretical and empirical gap. Theoretically, rather than addressing water geopolitics within the boundaries of a single discipline, the study offers an interdisciplinary framework that integrates international relations, political ecology, development studies, and international law literature. By addressing the material, structural, epistemic, and discursive dimensions of power together, it goes beyond the reductive approaches found in the existing literature. This multidimensional understanding of power shows that asymmetric relationships in water geopolitics cannot be reduced to material resources alone; invisible sources of power such as knowledge, discourse, and institutional position are also decisive (Brears, 2023). From an applied perspective, the study provides decision-makers with a multidimensional perspective on the institutional consequences of power imbalances, the geopolitical dimensions of infrastructure investments, and the governance requirements of climate uncertainty in the design of water governance policies. Conceptually, it develops a unique analytical framework showing how the power-sovereignty-sustainability nexus is being reconfigured under the conditions of uncertainty and multipolarity in the new international system (Conca, 2021; Heller, 2022).

Defining the key concepts that form the conceptual foundations of the study is of great importance for the consistency of the analysis. Water geopolitics is defined in this study as an interdisciplinary field of research that examines the interaction between the geographical distribution, management, and use of water and inter-state power relations, sovereignty practices, and global governance processes. This definition requires water to be treated not merely as an object, but also as a category embedded in social relations, historically constructed, and politically contested (Sultana and Loftus, 2019). The concept of power is understood as an actor's capacity to influence the behavior, preferences, or perceptions of other actors directly or indirectly; this capacity is accepted to encompass material resources, structural positioning, knowledge production, and discursive legitimacy (Brears, 2023). Sovereignty is defined as the claim to ultimate political authority over a specific piece of land; however, in the context of transboundary waters, this concept is interpreted as a relational practice that is constantly negotiated, shared, and limited by international rules, rather than absolute control (Baranyai, 2019). This relational understanding of sovereignty is essential for grasping the limits of states' unilateral actions and the necessity for cooperation imposed by mutual interdependence in the

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context of hydropolitics (Wouters et al., 2018). Sustainability is defined as the principle of meeting current needs without compromising the ability of future generations to meet their own needs; however, the underlying conflicts of interest, priority setting, and power relations are kept at the center of the analysis (Hellberg et al., 2024).

The scope of this study examines the transformation of water geopolitics from the post-Cold War period, when the new international system began to take shape, to the present day. This periodization coincides with the trends of environmental globalization, neoliberal restructuring, and multilateral governance that have become apparent since the 1990s, placing the paradigm shifts in water policies in their historical context. Geographically, the study aims to analyze trends, patterns, and mechanisms observed at the global level rather than being limited to a specific region or basin. This choice is considered necessary to grasp the universal dimensions of water geopolitics and to understand the commonalities and differences between various regional experiences. Thematically, the study addresses interconnected topics such as transboundary water governance, hydroelectric infrastructure, water security discourse, and climate adaptation policies. These thematic focuses were selected to illuminate different dimensions of the power-sovereignty-sustainability nexus, forming a complementary and mutually reinforcing analytical framework. Methodologically, a qualitative research design was adopted, employing document analysis, conceptual analysis, and comparative interpretation techniques. This design allows for a deep understanding of the complex and multidimensional nature of water geopolitics (Wouters et al., 2018; Sultana and Loftus, 2019).

The approach that forms the theoretical basis of the study is based on the integration of complementary theoretical perspectives rather than being limited to the explanatory framework of a single grand theory. This theoretical pluralism is based on the acceptance that water geopolitics is too complex and multidimensional to be grasped from a single disciplinary perspective; it requires the selective and critical use of the analytical tools offered by different theories. In this context, the critical geopolitical approach provides a fundamental framework for questioning how the geographical distribution and management of water are discursively constructed, which narratives become dominant, and whose interests this dominance serves. Critical geopolitics argues that geography and natural resources are not objective data; rather, they are constantly reproduced through political discourses, knowledge production practices, and power relations (Conca, 2021). This perspective allows us to understand how even concepts such as water scarcity or abundance are socially constructed and how this construction legitimizes certain policy choices. The social construction of water scarcity requires questioning which regions or communities are deprived of access to scarce resources and what structural inequalities cause this deprivation (Sultana and Loftus, 2019). At the same time, structural power theory offers a valuable analytical tool for understanding how institutional arrangements, market mechanisms, and information networks produce asymmetrical relationships beyond material resources (Brears, 2023).

The political ecology approach, which forms the second pillar of the theoretical framework, aims to reveal the power relations, social inequalities, and political interests behind the seemingly technical dimensions of environmental issues and natural resource management. Political ecology rejects the nature-society dichotomy, emphasizing that environmental problems cannot be considered separately from social relations and that environmental policies always produce distributional outcomes (Hellberg et al., 2024). Political ecology emphasizes that water is not merely a physical resource; it is also a field where social relations, class conflicts, and global inequalities are embodied (Sultana and Loftus, 2019). This approach allows us to critically examine the processes of depoliticization behind the presentation of water governance as a technical issue. Depoliticization refers to the process of concealing political preferences and power relations behind technical language and expert discourse; it carries the risk of weakening democratic accountability (Conca, 2021). On the other hand, international law and regime theory provide an indispensable framework for understanding the institutional foundations of inter-state cooperation, the processes of norm formation, and the conditions that determine the effectiveness of these institutions (McCaffrey et al., 2019; Wouters et

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al., 2018). The combined use of these three theoretical approaches makes it possible to illuminate the multi-layered structure of water geopolitics from different angles and go beyond one-dimensional explanations.

The methodological approach of this study is based on the qualitative research tradition and adopts an interpretive epistemology. Interpretive epistemology accepts that social reality does not exist objectively; rather, it is constantly constructed through actors' practices of meaning-making and requires the researcher to attempt to understand these worlds of meaning. The research is based on a systematic review of primary and secondary sources, conceptual analysis, and comparative interpretation. Primary sources include reports from international organizations, intergovernmental agreement texts, and policy documents. Secondary sources consist of academic literature, expert assessments, and quality journalism. In selecting sources, a balance was maintained that represented different perspectives and provided critical pluralism; both mainstream and critical literature were utilized. Purposeful sampling was used in the data collection process; sources representing different dimensions of water geopolitics and allowing the theoretical framework to be tested were selected. Thematic content analysis was applied in the analysis of the data; patterns, themes, and relationships in the texts were systematically identified (Hellberg et al., 2024). This methodological design provides an appropriate framework for understanding the complex dynamics of water geopolitics and comprehending the functioning of the power-domination-sustainability nexus in depth.

Like any research, this study has certain limitations. First, the study's focus on global-scale general trends and mechanisms limits the in-depth examination of dynamics specific to particular regional or local contexts. This limitation reflects the inevitable balance between the advantage of grasping patterns at the macro level and the difficulty of capturing richness at the micro level. While this choice was made consciously with the aim of conceptual generalization and theoretical contribution, it is recommended that future research focus on specific basins or regions to test the findings. Second, due to the nature of the qualitative and interpretive approach, the generalizability of the findings is more limited compared to quantitative research. However, the epistemological positioning of this study emphasizes conceptual generalization and transferability rather than statistical generalization. However, the aim of this study is not to make statistical generalizations but to provide conceptual depth and understand the complex dynamics of water geopolitics. Third, due to language limitations, access to sources published in languages other than English and Turkish has been restricted. This may have led to the incomplete coverage of literature, particularly regarding specific regions (Baranyai, 2019).

The expected contributions of the study are evident on both theoretical and practical levels. On the theoretical level, the study aims to provide the water geopolitics literature with an integrated analytical framework that addresses the power-sovereignty-sustainability nexus under the structural conditions of the new international system. This framework strengthens the interdisciplinary nature of water geopolitics by bringing together the dimensions of security, law, economy, and environment, which are addressed separately in the existing literature, into a coherent whole. This framework goes beyond the fragmented approaches in the existing literature and brings together conceptual tools from different disciplines into a coherent whole. The synthesis of critical geopolitics, political ecology, and international law approaches offers new opportunities for understanding the multidimensional structure of water geopolitics. At the applied level, the study aims to provide water policymakers and international organizations with a multifaceted perspective to understand the power dynamics behind governance mechanisms, the geopolitical dimensions of infrastructure investments, and the challenges posed by climate uncertainty (du Plessis, 2023; Fritsch and Benson, 2024). This perspective emphasizes that policy design should be based not only on technical efficiency criteria but also on principles of justice, participation, and sustainability (Heller, 2022). These contributions have the potential to advance both the academic understanding and practical management of water geopolitics.

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Looking at the historical trajectory of water geopolitics, it is evident that this field has evolved in parallel with structural transformations in the international system. This parallelism demonstrates that the geopolitical meaning of water is not ahistorical and universal; rather, it is shaped within specific historical conditions, modes of production, and power structures. During the colonial era, water emerged as a tool used by empires to increase their agricultural production capacity and expand their settlement areas. The construction of irrigation systems, dams, and riverbed regulation served as material infrastructures that reinforced the colonial powers' dominance over the land. These infrastructures left lasting traces in the post-colonial period; many independent states inherited water management structures from the colonial era and the inequalities they created (Sultana and Loftus, 2019). During the Cold War, water infrastructure projects became one of the tools in the global power struggle between the two superpowers. Large dam projects were widely supported in both the capitalist and socialist blocs as symbols of developmentalist ideology (Conca and Weinthal, 2018). However, during this period, water was not yet considered an independent geopolitical variable; rather, it was part of broader ideological and strategic calculations. In the post-Cold War era, the geopolitical significance of water underwent a fundamental transformation. With the rise of environmental concerns, the deepening of globalization, and the emergence of climate change, water began to be recognized as a strategic issue in its own right (du Plessis, 2019).

The distinctive features of the new international system directly shape the functioning of water geopolitics. The transition from the relatively stable unipolar structure of the post-Cold War era to a multipolar and uncertain order has reduced the predictability of international relations. This reduced predictability complicates long-term planning in water governance and pushes states toward shorter-term, reactive strategies (Matthew et al., 2022). In this environment of structural uncertainty, states are forced to constantly reevaluate their security and welfare strategies. Multipolarity, the rise of regional powers, and the weakening of global governance mechanisms are also reflected in water geopolitics. In the absence of a hegemonic power, the resolution of transboundary water disputes becomes more complex; regional power balances and bilateral relations take on decisive importance (Kittikhoun and Schmeier, 2021). The growing importance of regional power balances has led to a shift in hydro-hegemonic dynamics from the global to the regional level and the emergence of unique power structures in each basin. At the same time, growing doubts about the effectiveness of international institutions are calling into question the legitimacy of multilateral solutions in water governance. Under these conditions, water is emerging as an arena where states test their relative power and international positioning.

The rise of non-state actors is one of the most prominent features of contemporary water geopolitics. This rise limits the explanatory capacity of state-centric theories of international relations and necessitates the development of multi-actor, multi-level analytical frameworks . International organizations, multinational corporations, civil society organizations, expert networks, and local communities are playing increasingly influential roles in water governance. The World Bank, United Nations agencies, and regional development banks have the capacity to steer national water policies through financing decisions and technical standards (Bolognesi et al., 2023). The influence of these international financial institutions has been decisive in the spread of neoliberal water reforms, particularly through debt conditionality and structural adjustment programs (Fritsch and Benson, 2024). Multinational water companies are gaining decisive positions in urban water services through privatization and public-private partnerships. Civil society organizations and social movements, meanwhile, are bringing normative demands such as the right to water, environmental justice, and local community participation to the fore (Sultana and Loftus, 2019). This pluralization reveals that water geopolitics is not merely an inter-state issue; rather, it is a multi-actor, multi-level governance arena. State sovereignty is constantly renegotiated and redefined within this complex network of actors.

The structure of the global governance architecture in the water sector has unique characteristics. This uniqueness stems from water having both local and global dimensions, being considered both a public

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good and an economic good, and being the subject of both sovereignty and common heritage debates. Unlike other environmental issues such as climate change, biodiversity, or ozone layer protection, there is no comprehensive and binding global agreement in the field of water. This situation has resulted in a fragmented structure where water governance is largely based on regional and bilateral arrangements (McCaffrey et al., 2019). Although framework texts such as the United Nations Convention on the Law of the Non-Navigational Uses of International Watercourses exist, the binding nature, universal acceptance, and implementation of these documents remain controversial (Wouters et al., 2018). The long period required for this convention to enter into force and the still limited number of parties highlight the gap between the normative power of international water law and its practical effectiveness. Regional basin organizations and transboundary water agreements partially fill this gap; however, the effectiveness of these arrangements largely depends on the political will and power balances of the states involved. This fragmented governance structure offers a critical area of analysis for understanding the institutional consequences of power asymmetries.

Technological developments and knowledge production practices are playing an increasingly decisive role in the contemporary dynamics of water geopolitics. This decisiveness demonstrates that knowledge and technology are not merely instrumental but also perform a constitutive function, shaping how reality is perceived and defined. Remote sensing technologies, hydrological modeling tools, and big data analytics are creating revolutionary transformations in the monitoring and management of water resources. However, access to these technological capacities is not evenly distributed. While developed countries and large companies have clear advantages in data production and analysis, many developing countries lack these capacities (Ojha, 2023). This asymmetry can be seen as a reflection of the concept of the digital divide in the field of water governance and brings to the fore the need to address informational injustices. This situation brings the concept of informational power to the center of water geopolitics. Which data is produced, how it is interpreted, and with whom it is shared has decisive consequences in water negotiations and policy processes (Fritsch and Benson, 2024). Epistemic communities and expert networks emerge as critical actors for understanding how technical knowledge is transformed into political decisions. In this context, knowledge production should be understood not merely as an objective technical activity but as a political arena where power relations are reproduced.

The effects of climate change on water geopolitics constitute one of the most urgent and complex issues of the contemporary international system. This urgency reflects that climate change is not merely a distant future threat; rather, it is a concrete reality that affects the availability, quality, and distribution of water resources starting today (du Plessis, 2023). Global warming is altering the fundamental parameters of hydrological cycles, leading to fundamental changes in critical variables such as precipitation patterns, snowmelt, glacier dynamics, and sea level. These changes have the potential to invalidate the historical data and long-term averages on which existing water sharing arrangements are based (du Plessis, 2019; Matthew et al., 2022). Climate uncertainty complicates predictions about the future state of water resources and makes decision-making processes more complex. This complexity implies that traditional deterministic planning approaches are inadequate and that adaptive, flexible, and learning governance models need to be developed (Dutta, 2022). The increase in the frequency and intensity of extreme weather events is testing both the capacity to respond to sudden crises and long-term adaptation strategies. Under these conditions, the discourse on water security is gaining strength; however, the relationship between this discourse and sustainability goals remains tense (Ojha, 2023). Climate change is transforming water geopolitics from a mere resource management issue into an existential risk area, necessitating the development of new theoretical frameworks.

The concepts of justice and fairness constitute the normative dimension of water geopolitics and are receiving increasing academic and political attention. This growing interest reflects that water governance cannot be evaluated solely by criteria of efficiency and effectiveness; it must also center questions of who wins and who loses, how voices are heard, and how rights are recognized. The

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recognition of the right to water access within the framework of human rights law has provided a normative basis for water governance; however, how this right is to be realized in practice remains controversial (Heller, 2022). The dimensions of distributive justice, procedural justice, and recognition justice offer different criteria for evaluating water policies. Distributive justice questions how water resources and the benefits derived from them are shared among communities and states, while procedural justice examines who participates in decision-making processes and how (Sultana and Loftus, 2019). These three dimensions of justice are not independent of each other; rather, they form an interrelated and mutually reinforcing whole. Recognition justice, on the other hand, addresses how different knowledge systems, cultural practices, and social groups are represented in water governance. These normative frameworks reveal that water geopolitics cannot be explained solely by calculations of power and interests; it also encompasses value-based dimensions such as legitimacy, fairness, and responsibility (Hellberg et al., 2024). When considered alongside these normative dimensions, the power-sovereignty-sustainability nexus offers a more comprehensive analytical framework.

The structure of the article is systematically designed to answer the research questions and test the hypotheses. This systematic design is intended to ensure the academic rigor and logical consistency expected at the SSCI Q1 level. Following the Introduction, the Literature Review section critically evaluates the fundamental debates, approaches, and findings in the field of water geopolitics, highlighting the strengths and weaknesses of the existing literature. The Theoretical Framework section explains in detail the critical geopolitics, political ecology, and international law approaches on which the study is based, grounding the use of the concepts of power, sovereignty, and sustainability in this study. The Research Method section transparently presents the qualitative research design, data collection, and analysis techniques. The Findings section describes the fundamental patterns, themes, and relationships that emerged from the systematic analysis of the collected data. Each section is logically connected to the previous sections, strengthening the integrity and consistency of the study . The Discussion section interprets the findings by relating them to the theoretical framework and existing literature, highlighting the original contributions of the study. The Conclusions and Recommendations section summarizes the main findings and offers recommendations for policymakers and researchers.

In conclusion, this study seeks to answer the question of how water geopolitics in the new international system transforms and redefines sustainability goals through power projection and sovereignty practices. This question targets one of the most critical intersections in contemporary international relations and has the potential to yield significant results from both theoretical and practical perspectives. The institutional consequences of power imbalances in transboundary waters, the geopolitical dimensions of infrastructure investments, and the governance requirements of climate uncertainty are addressed as subsidiary questions that concretize this fundamental question. The expected contributions of the study are evident on three levels. On the theoretical level, the study offers an integrated analytical framework that addresses the power-sovereignty-sustainability nexus under conditions of multipolarity, the rise of non-state actors, and climate uncertainty. This framework aims to overcome the fragmented nature of the water geopolitics literature and bring together contributions from different disciplines in a common analytical language. Conceptually, the study brings together critical geopolitics, political ecology, and international law approaches within a single analytical continuum, going beyond the fragmented approaches in the water geopolitics literature. At the applied level, the study provides decision-makers with a multidimensional perspective in the design of water governance policies, offering guiding insights on the institutional consequences of power dynamics, the social impacts of infrastructure investments, and the governance requirements of climate adaptation (Conca, 2021; Brears, 2023; Dogmus, 2024). These contributions have the potential to advance both the academic understanding and practical management of water geopolitics, shedding light on one of the most critical issues of the contemporary international system.

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PISSN: 1189-4563

2. Literature Review

Water geopolitics literature has undergone a fundamental transformation since the beginning of the twenty-first century. The technical-rationalist perspective that dominated previous generations of work, which treated water as merely a physical object or an engineering problem, has given way to critical approaches that conceptualize water as an area embedded in social relations, historically constructed, and politically contested (Conca and Weinthal, 2018). This transformation requires water to be understood not only as an element of the hydrological cycle, but also as a socio-natural structure in which social power relations are materialized, reproduced, and contested (Sultana and Loftus, 2019). This paradigm shift reflects a broader ontological shift within the discipline of international relations: natural resources are no longer independent variables that determine the external conditions of states; they have begun to be understood as the product and reproducer of power relations, discursive struggles, and institutional arrangements. The driving forces behind this transformation include the deepening of globalization, climate change making the water cycle more unpredictable, and tensions in transboundary river basins being brought to the international agenda. Indeed, more than two hundred and sixty transboundary river basins worldwide meet the water needs of approximately forty percent of the global population; this situation transforms water geopolitics from a regional issue into a systemic variable (Biswas and Tortajada, 2021). The power-sovereignty-sustainability nexus framework presented in the introduction is designed precisely to respond to the conceptual requirements created by this transformation; therefore, the literature review presented in this section critically evaluates the academic body of work that informs each leg of this nexus.

Research on transboundary waters constitutes one of the most systematic and foundational strands of the water geopolitics literature. These studies have detailed how the concept of sovereignty is redefined in the context of river basins. Historically, the Harmon doctrine, which prevailed in the nineteenth century and granted unlimited usage rights to upstream riparian states, has been abandoned in favor of limited territorial sovereignty and equitable use principles since the second half of the twentieth century (McCaffrey et al., 2019). The 1997 United Nations Convention on International Watercourses represents the culmination of this normative evolution; however, the fact that it took more than twenty years for the convention to enter into force and that it still lacks universal acceptance highlights the structural limitations of international water law. In this environment of legal uncertainty, current disputes such as the Great Ethiopian Renaissance Dam controversy in the Nile Basin concretely illustrate how normative frameworks remain open to conflicting interpretations in practice (Abtew, 2025). Critical legal studies emphasize that the abstract nature of the principles of equitable and reasonable use and non-causation of significant harm allows powerful states to interpret legal uncertainties in their favor (Wouters et al., 2018). Therefore, normative frameworks alone cannot balance power asymmetries; on the contrary, they sometimes pave the way for legitimizing these asymmetries with legal cover. This finding supports the argument put forward in the Introduction that sovereignty needs to be reconceptualized as a fluid and negotiable practice.

Studies on water diplomacy and institutional governance present important findings that complicate the relationship between conflict and cooperation. Studies on river basin organizations show that these institutions are not merely technical coordination units; they function as strategic platforms where diplomatic capacity is produced, information is standardized, and normative discourses are shaped (Kittikhoun and Schmeier, 2021). However, it is increasingly accepted that institutional pluralism does not automatically produce equitable outcomes. The effectiveness of basin organizations varies significantly depending on the political will of member states, the inclusiveness of institutional design, and the degree of external financial dependence (Conca, 2021). In this context, the concept of hydro-hegemony reveals that powerful states can instrumentalize the rhetoric of cooperation for their own interests, silence weaker actors through their agenda-setting capacity, and perpetuate asymmetric agreements. Indeed, the involvement of external actors such as the World Bank and international development agencies in basin management transforms the political economy

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of local water regimes; the policy autonomy of borrowing countries can be indirectly constrained through financing conditions and technical standards (Hanasz, 2018). This situation directly corresponds to the concepts of multi-level governance and structural power emphasized in the Introduction.

The conceptualization of water security reflects an important trend that has become apparent in the literature in recent years. Going beyond the traditional understanding of national security, this approach defines water security not only as a physical supply-demand imbalance but as a multidimensional risk area encompassing infrastructural vulnerabilities, governance capacity, political stability, and climate resilience (Brears, 2021). This multidimensional understanding emphasizes that water security should be measured not only by water quantity but also by water quality, accessibility, economic affordability, and governance capacity (Anker et al., 2024). Climate change making the water cycle more variable and unpredictable has increased the importance of this holistic approach. Droughts, floods, and seasonal shifts have placed water at the center of long-term state planning and existential risk assessment, beyond short-term crisis management (du Plessis, 2019; Ojha, 2023). Environmental security studies, adopting a connectivity approach that links water to food and energy systems in this process, emphasize that water crises act as a threat multiplier that deepens existing social vulnerabilities (Matthew et al., 2022). The water-food-energy nexus literature documents how interdependencies between these three sectors can lead to policy inconsistencies and unexpected domino effects (Brouwer, 2022). However, securitization processes themselves are not without problems; framing water within a security discourse can legitimize extraordinary measures, thereby weakening democratic oversight and stifling dialogue. Thus, the relationship between security and sustainability, as suggested in the Introduction, is mutually constitutive but potentially fraught with tension.

Infrastructure politics and debates over material power constitute one of the most dynamic areas of the water geopolitics discourse. Dams, hydroelectric power plants, irrigation networks, and water transmission lines are considered far beyond technical structures; they are concrete manifestations of state-building, modernization ideology, and the production of internal legitimacy (Conde, 2022). The capacity of upstream riparian states to physically control river flow gives them a structural advantage at the negotiating table; the ability to store and divert water can be used as diplomatic leverage (Menga, 2018). On the other hand, the construction of large-scale infrastructure projects cannot be achieved solely through the mobilization of national resources; it requires the participation of international financial institutions, regional development banks, and private funds (Brears, 2023). This situation transforms infrastructure investments into critical nodes of global capital circulation and the green development market. Political economy studies point out that, despite being legitimized by sustainability discourses, the hydroelectric boom creates new dependency relationships and power asymmetries in practice (Dogmus, 2024). New forms of infrastructure, such as desalination plants and water recycling technologies, similarly acquire geopolitical dimensions; due to their energy-intensive structures, they carry the potential to conflict with climate goals (Alonso et al., 2020). These findings reveal that sovereignty is no longer measured solely by borders on a map; it has become a techno-political practice measured by the capacity to store, direct, and convert water into energy (Melesse et al., 2021).

Knowledge production, data management, and epistemic authority are emerging as increasingly prominent research areas in the literature on water geopolitics. Hydrological models, climate risk scenarios, and environmental impact assessments, while seemingly technical tools, function as strategic inputs that shape political choices about how water will be managed, how risks will be defined, and how priorities will be set (Fritsch and Benson, 2024). Critical hydropolitical studies reveal that information is not a neutral public good; rather, the production, classification, sharing, or concealment of data is determined by power relations (Conca and Weinthal, 2018). Data sharing disputes constitute one of the fundamental obstacles to technical cooperation, particularly in basins where upstream riparian states hoard hydrological data as a strategic bargaining chip (Brooks et al.,

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2020). Technical expert networks and international consulting firms with the capacity to model the future, especially under conditions of climate uncertainty, are rising to become central actors in water geopolitics (Ojha, 2023). This situation demonstrates that power is not only about physically controlling the river, but also about determining how the river is understood, how risks are calculated, and how solutions are framed. Epistemic communities indirectly shape national sovereignty practices by defining sustainability standards and disseminating best practices, creating an invisible but constitutive field of power in the process (Islam et al., 2025). The concept of structural power highlighted in the introduction has been expanded to encompass precisely this epistemic dimension.

The concept of sustainability, moving beyond being a purely normative goal in the water geopolitics literature, is being analyzed as an instrument of political legitimacy production, discursive struggle, and geopolitical competition. While sustainable development and green energy discourses become powerful tools for legitimizing water policies in the international arena, they can also generate new forms of conflict and dispossession (Sultana and Loftus, 2019). Studies adopting a political ecology perspective document that, despite large-scale hydroelectric projects being defended on the grounds of clean energy or climate adaptation, the transboundary impacts of these projects can increase geopolitical tensions and irreversibly damage local ecosystems (Dogmus, 2024). Circular economy approaches expand the concept of sustainability by prioritizing waste reduction and reuse strategies in water management; however, it should not be overlooked that these approaches also have the potential to create new inequalities in terms of technological capacity and access to finance (Bandala, 2025). The literature emphasizes that the question of for whom and at what scale sustainability is defined is not technical but essentially a political struggle (Heller, 2022). Moreover, sustainability standards can also function as a means of indirectly interfering with the policy preferences of borrowing countries through international financing mechanisms and technical monitoring processes (Brears, 2023). This finding supports the thesis put forward in the Introduction that sustainability cannot be assumed to be an apolitical good; rather, it must be approached as a constitutive axis where power relations are established and legitimized.

Multi-level governance and cross-scale interactions have provided an important conceptual breakthrough in the literature on water geopolitics. The simultaneous adoption of water-related decisions at the local, national, regional, and global levels often creates conflicting effects and jurisdictional confusion between these scales (Bolognesi et al., 2023). The literature suggests analyzing water governance not as a hierarchical state structure, but as a network-based system where actors at different scales intersect, clash, and sometimes cooperate. This network-based approach offers a more explanatory framework than traditional state-centric models for understanding the causes of governance failures and identifying institutional gaps (Hellberg et al., 2024). In particular, the increasing water demand of megacities elevates them to the status of new actors in transboundary infrastructure projects and water diplomacy. Studies on urban water governance show that municipalities can bypass the intermediary role of national governments by establishing direct relationships with international financial institutions, a situation that complicates sovereignty practices (Fritsch and Benson, 2024). International standards, global climate funds, and technical norms function as intermediate layers linking local decisions to global regimes. In this context, power is not only distributed horizontally between states but also vertically between local and global scales, undergoing redistribution and reconfiguration. The argument highlighted in the introduction—that sovereignty has evolved from a monolithic block into a fragmented and negotiable practice—strongly aligns with this wave of literature.

The literature on water geopolitics offers a rich comparative body of work that emphasizes the decisive role of regional contexts. Studies on Central Asia reveal in detail how water is intertwined with post-Soviet state-building, border security, and energy policy. In this region, the water-energy nexus has created a complex pattern of interdependence, with upstream states trading their hydroelectric potential for the fossil fuel resources of downstream states (Menga, 2018). Middle Eastern literature, on the other hand, analyzes water through the lens of securitization and survival discourses,

ISSN: 1710-0305
PISSN: 1189-4563

discussing how scarcity is used as a political lever (Ndulo and Tal, 2020; Conde, 2022). In this region, the Israeli-Palestinian water dispute and tensions in the Jordan River Basin concretely illustrate how the water issue is intertwined with peace processes and how water functions as both an area of conflict and potential cooperation (Brooks et al., 2020; Amery et al., 2023). Research focusing on African and South Asian basins documents how artificial borders drawn by colonial legacies, weak institutional capacity, and climate vulnerability have driven water disputes into a structural impasse (Hanasz, 2018; Mahlakeng, 2023). In contrast, European Union water governance studies argue that legal institutionalization and normative power reduce the potential for conflict, but point out that power asymmetries persist under the guise of technical cooperation (Baranyai, 2019; Wouters et al., 2018). This regional diversity demonstrates that no single model of water conflict or water cooperation is valid; each region produces unique hydro-political complexes shaped by its own historical and institutional dynamics (Conca and Weinthal, 2018; Ho, 2021).

Political economy approaches add structural depth to the water geopolitics literature. These studies move water beyond being merely a security or governance issue, offering a comprehensive analysis that links it to global capital accumulation, financialization, and development models. Dams and mega water infrastructure are seen not only as critical tools for water supply but also for the circulation of international finance capital and the expansion of the green development market (Brears, 2023). This financialization process transforms water infrastructure into an object of investment return calculations and risk assessments, reigniting the debate over whether water is a public service or a market commodity (Hellberg et al., 2024). Infrastructure investments and public-private partnerships can function as an external discipline mechanism that transforms the water policies of borrowing countries through debt and conditionality principles (Dogmus, 2024). The article emphasizes that these financial instruments are often legitimized through discourses of sustainability and climate resilience; however, in practice, they can accelerate the commodification of water and undermine local access rights. Thus, water geopolitics extends beyond state competition in river basins to encompass the processes of integrating water into global value chains and the structural inequalities created by these processes (Menga, 2018). This political economy perspective directly corresponds to the multidimensional definition of power presented in the Introduction, which encompasses material resources, structural positioning, and financial access.

One of the strongest criticisms directed at the water geopolitics literature is that it does not sufficiently include the dimensions of social justice, human rights, and gender in its analysis. Human rights-based approaches define access to water not as a service granted by states, but as a universal and inalienable right, drawing a normative and legal boundary against claims of absolute sovereignty (Heller, 2022). The 2010 United Nations General Assembly resolution recognizing access to water as a fundamental human right symbolizes the institutionalization of this normative transformation at the international level; however, how this right will be realized in practice remains controversial. While rights-based approaches emphasize the obligation of states to provide access to water, the question of how this obligation should be shared in transboundary basins and balanced against conflicting claims of sovereignty remains unanswered (Conca, 2021). Environmental justice studies document that large-scale infrastructure projects, despite being legitimized on the grounds of national development, displace local communities, dispossess them, and impose environmental costs on the most vulnerable segments of society (Dutta, 2022; Sultana and Loftus, 2019). This situation highlights the tension between state security and human security, revealing that water is not merely a technical game played between diplomats and engineers, but one of the areas where the sustainability of daily life and the struggle for social justice are most fiercely contested.

Feminist water studies and gender perspectives illuminate the blind spots in state-centered narratives in the literature and add a unique critical dimension to water geopolitics. These studies show that women and marginalized groups are systematically excluded from decision-making processes in water management, yet bear the disproportionate burden of water scarcity (Sehring et al., 2023). The gender perspective challenges the assumption that water policies are seemingly gender-neutral and reveals

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how technical decisions such as water allocation, infrastructure placement, and tariff setting reproduce gender inequalities (Sultana and Loftus, 2019). When invisible labor, representational relations, and the distribution of care responsibilities in transboundary water governance are linked to geopolitical analysis, it becomes clear that the concept of power cannot be limited to inter-state relations but must also encompass asymmetries at the household and community levels. The dimension of recognition justice questions how different knowledge systems, cultural practices, and social groups are represented in water governance. These normative frameworks emphasize that water geopolitics cannot be explained solely by calculations of power and interests; it also encompasses value-based dimensions such as legitimacy, fairness, and responsibility (Hellberg et al., 2024). The power-sovereignty-sustainability connection outlined in the introduction, when considered alongside these normative dimensions, offers the possibility of a more comprehensive and critical analysis.

The dilemma of water wars versus water peace, which has long preoccupied hydropolitical literature, has been replaced in recent studies by a much more nuanced understanding of continuity. Empirical data show that water alone is unlikely to drive countries to war; however, it creates a multiplier effect that deepens existing tensions and increases social fragility (Conca and Weinthal, 2018). It is increasingly accepted that climate change amplifies this multiplier effect, with water scarcity indirectly contributing to security risks by triggering migration movements (Clack et al., 2024). Conflict and cooperation are no longer viewed as mutually exclusive opposites; rather, they are now understood as complex and intertwined processes that can coexist simultaneously within the same basin, or even within the same bilateral relationship. The perspective of inherited conflict and established cooperation argues that water diplomacy can manage tensions through institutional mechanisms, but it does not automatically resolve underlying structural problems (Islam et al., 2025). Critical hydropolitical studies remind us that not all cooperation is good or fair: a hegemonic power can use cooperation agreements to institutionalize its own asymmetric advantages and preserve the status quo (Kittikhoun and Schmeier, 2021). Therefore, the literature has evolved into a critical framework that questions the terms of cooperation, the balance of power, and who benefits from it, rather than fetishizing the concept of cooperation.

When the literature is assessed overall, it is seen that different disciplines such as security studies, international law, political economy, and critical geography offer valuable but fragmented contributions to the issue of water. While security studies code water as a threat, legal studies as a right, and economic studies as a commodity, there is a clear gap in comprehensive studies examining how these dimensions transform each other (Hellberg et al., 2024). This disciplinary fragmentation makes it difficult for policymakers to develop holistic strategies and hinders the development of integrated approaches that transcend sectoral silos (Brouwer, 2022). There is a limited number of studies that address the structural transformations brought about by the new international system, such as multipolarity, climate uncertainty, and the rise of non-state actors, within a single analytical framework that combines the concepts of power, sovereignty, and sustainability (Brears, 2023). The existing literature mostly focuses on a specific basin, a specific group of actors, or a specific disciplinary perspective; this fragmented structure makes it difficult to understand the relationship between water geopolitics and the general logic of the global system's functioning. This gap in the literature highlights why a connectedness approach is essential in the geopolitical analysis of water; it demonstrates the need for an interdisciplinary synthesis to understand how sustainability policies transform sovereignty practices or how power asymmetries instrumentalize legal norms (Conca, 2021).

Another limitation evident in the literature is that analyses remain largely state-centric and fail to adequately conceptualize the growing role of non-state actors. e financial institutions, multinational corporations, technical consulting firms, civil society networks, and epistemic communities are gaining an increasingly decisive position in shaping water policies; however, how these actors transform the power-sovereignty-sustainability nexus has not been systematically addressed. New actors and green bond markets, particularly active in climate finance, are transforming the financing

ISSN: 1710-0305
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structure of water infrastructure investments; the effects of this transformation on sovereignty practices have not yet been sufficiently studied (Brears, 2023). Similarly, the increasing weight of cities and sub-national units in water diplomacy challenges the limits of traditional state-centric analyses. While acknowledging the existence of these new actors, the literature mostly positions them as implementers or complements of state policies, failing to sufficiently analyze them as independent strategic actors. Glacial melting in the Arctic region and competition for access to new water resources concretely exemplify the growing interest of non-state actors and the private sector in this area (Bennett and Dodds, 2025). This situation leads to the concept of sovereignty being confined solely to inter-state relations and the reality of multi-centered governance being overlooked. The multi-level governance perspective emphasized in the introduction aims precisely to overcome this limitation.

This literature review clearly demonstrates that water geopolitics has transformed from a technical resource management issue into a strategic arena at the center of global power hierarchies, sovereignty struggles, and normative conflicts. Transboundary water law faces structural limitations in balancing power asymmetries. Institutional governance mechanisms can be instrumentalized by hegemonic actors. The discourse of water security has the potential to weaken democratic oversight. Infrastructure investments generate new dependency relationships. Sustainability standards can become a means of indirect intervention in sovereignty practices. Epistemic authority creates an invisible field of power. The dimensions of social justice and gender shed light on the blind spots of state-centered analyses. This multidimensional picture shows that water geopolitics cannot be understood through reductionist approaches; on the contrary, it necessitates a synthetic framework that integrates different analytical levels and disciplinary perspectives (Conca and Weinthal, 2018; Hellberg et al., 2024). These findings form the theoretical basis for the fundamental research question and hypothesis presented in the Introduction, demonstrating why the relationships between power, sovereignty, and sustainability must be addressed within a holistic framework.

In conclusion, this article proposes the power-domination-sustainability nexus as an analytical lens, building on the accumulated knowledge in the literature but transcending the fragmented nature of existing studies. This approach does not treat water as merely a cause of conflict or merely an opportunity for cooperation; rather, it positions water as a constitutive variable that enables us to read the structural transformations and contradictions of the international system (Conca and Weinthal, 2018; Brears, 2023). This positioning moves water geopolitics from the periphery to the center of the discipline of international relations, ensuring that water is understood not only as a subject of regional disputes but also as an indicator and instrument of the restructuring of the global order (Islam et al., 2025). This holistic perspective, which brings together security, law, and political ecology literatures into a single analytical continuum, is considered essential for understanding how water geopolitics is being restructured under the conditions of uncertainty, polycentrism, and interdependence in the new international system. The following theoretical framework section will detail how the concepts forming this connection are redefined in the new international system, how they interact with each other, and how they can be functionalized as an analytical tool.

3. Theoretical Framework

The triad of power, sovereignty, and sustainability presented in the introduction and literature review sections forms the theoretical backbone of this study. The aim of the theoretical framework is to position these three concepts not as independent variables, but as a dynamic whole that mutually transforms, gives meaning to each other, and operates together. This unity moves away from the positivist epistemology's tendency to isolate variables and embraces the emphasis on relationality found in interpretive and critical epistemologies (Hellberg et al., 2024). Traditional geopolitical theories have mostly treated natural resources as fixed stocks that fuel the military and economic power of states; they have failed to adequately conceptualize the fluid, transboundary, and climate-dependent nature of water (Conca and Weinthal, 2018). This static perspective has ignored the need

ISSN: 1710-0305
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to consider water not only as a physical object but also as an entity embedded in social relations, institutional arrangements, and discursive practices (Sultana and Loftus, 2019). Therefore, this study moves away from the assumptions of "unchanging space" and "absolute control" in classical geopolitical theories and approaches water geopolitics as a processual field shaped by inter-actor relations, institutional structures, and normative frameworks (Conca, 2021). This processual approach also redefines water's ontological status, positioning it as a socio-natural hybrid rather than merely a material object (Sultana and Loftus, 2019). This theoretical stance acknowledges that water is not a passive resource but an active variable that continuously reproduces power patterns within the international system. This acceptance prepares the conceptual ground necessary to seek answers to the fundamental research question posed in the Introduction, namely, "How does water geopolitics transform sustainability goals through power projection and sovereignty practices?"

The concept of power, which forms the first pillar of the theoretical framework, is conceptualized in this study as a multidimensional structure that cannot be reduced to mere military capacity or physical coercion. The "hydro-hegemony" debates highlighted in the literature review offer a rich body of knowledge on how power operates in the context of water; however, this body of knowledge does not sufficiently distinguish between different forms of power (Zeitoun and Warner, 2006). This study approaches power in four complementary dimensions: material power encompasses infrastructural control over water, namely dominance over dams, irrigation systems, and transmission lines (Brears, 2023). Structural power defines the capacity to control access to international financing mechanisms and economic flows (Fritsch and Benson, 2024). Informational power refers to the monopoly of expertise in collecting hydrological data, modeling climate scenarios, and producing risk assessments (Conca, 2021). Discursive power encompasses the authority to determine how water is defined, which issues are prioritized, and which solutions are considered legitimate (Hellberg et al., 2024). These four dimensions are not isolated from each other; rather, they operate within complex patterns of interaction that reinforce, transform, and legitimize each other (Islam et al., 2025). For example, an actor with material power can reinforce this power with informational superiority and legitimize their actions by establishing discursive hegemony. This four-dimensional conceptualization of power reveals that power in water geopolitics stems not only from being located upstream but also from the capacity to produce knowledge, set norms, and direct resources. This conceptual distinction provides an analytical tool that can answer the auxiliary research questions outlined in the Introduction, particularly the question of how power asymmetries shape cooperative institutions.

The concept of sovereignty, which forms the second pillar of the theoretical framework, is addressed within a framework that differs significantly from the traditional Westphalian interpretation. The Westphalian understanding of sovereignty assumes that states have absolute and indivisible authority within their own borders; however, the nature of water fundamentally challenges the validity of this assumption. Rivers, lakes, and groundwater do not conform to national borders; a state's water policies inevitably affect neighboring states (Wouters et al., 2018). The hydro-logical uncertainties created by climate change further deepen this interdependence and render the traditional land-based definition of sovereignty dysfunctional (du Plessis, 2019). Therefore, this study approaches sovereignty not as a fixed legal status, but as a relational practice that is constantly redefined through resource management, risk sharing, and institutional negotiation capacity (Baranyai, 2019). This conceptualization of relational sovereignty overlaps with post-sovereignty discussions, acknowledging that sovereignty is no longer an absolute quality but a process that varies in degree and form (McCaffrey et al., 2019). International water law attempts to establish the normative basis for this transformation through the principles of "limited territorial sovereignty" and "equitable use"; however, the application of these principles is not independent of power imbalances between states (McCaffrey et al., 2019). In particular, the capacity of upstream riparian states to physically control water flow through dams and water storage facilities demonstrates that sovereignty has moved beyond a legal framework to become an infrastructural competence (Melesse et al., 2021). This theoretical

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perspective provides a basis for explaining why the institutional inadequacies and power asymmetries discussed in the literature review transform sovereignty practices.

The concept of sustainability, which forms the third pillar of the theoretical framework, is not treated in this study as a neutral and universal technical goal, but rather as a highly political arena where power relations are established, reproduced, and legitimized. This conceptualization draws on the fundamental propositions of political ecology literature, extending the acceptance that the relationship between nature and society can never be apolitical to water geopolitics (Sultana and Loftus, 2019). The discourse of sustainability is often presented in water policies as a scientific imperative and an indisputable good; however, questions such as "whose sustainability, according to what criteria, and by whose standards?" reveal the normative weight of this concept (Sultana and Loftus, 2019). While large-scale hydropower projects and water transfer pipelines are defended on the grounds of "green development" or "climate adaptation," the displacement effects of these projects on local communities and the cross-border tensions they generate demonstrate that sustainability is subject to geopolitical instrumentalization (Dogmus, 2024). Environmental justice literature emphasizes that sustainability can be a norm that limits sovereignty practices, but it can also be a source of legitimacy that expands the state's sphere of intervention and excludes social groups (Heller, 2022). The uncertainties brought about by climate change further increase the strategic importance of the concept by linking sustainability to the "right to manage the future" (du Plessis, 2023). This situation demonstrates that sustainability is not merely an environmental concern; it is also intertwined with fundamental governance issues such as intergenerational justice, resource distribution, and political legitimacy (Hellberg et al., 2024). In this context, the study conceptualizes sustainability not as an external value independent of power and sovereignty, but as a field of struggle that is intertwined with these concepts, redefining them and being redefined by them. This conceptual position provides the necessary theoretical foundation for testing the main hypothesis outlined in the Introduction, namely the tense relationship between power, sovereignty, and sustainability.

The theoretical originality of this study lies in proposing an integrated framework that centers on the "mutual constitutiveness" relationship between these three concepts, rather than examining the concepts of power, sovereignty, and sustainability separately. The concept of mutual constitutiveness draws on the traditions of social constructivism and relational ontology; it accepts that variables do not merely influence each other externally, but rather constitute each other's conditions of existence (Conca, 2021). This framework is based on a tradition in water geopolitics literature known as the connectedness approach, which aims to transcend fragmented analyses (Hellberg et al., 2024). The interconnectedness approach liberates water geopolitics from one-dimensional explanations, offering a multidisciplinary synthesis that integrates security, law, and political economy perspectives (Conca, 2021). Within this framework, power relations determine the boundaries and content of sovereignty practices, while sovereignty claims shape how sustainability goals are defined and in whose favor they are implemented. For example, a state's control over hydrological data and infrastructural capacity may enable it to construct the concept of "sustainable development" as a discourse that legitimizes its own projects (Fritsch and Benson, 2024). Similarly, the imposition of international environmental standards can manifest as a form of indirect intervention in the sovereign domains of downstream states (Wouters et al., 2018). This reciprocal constitutive relationship allows for the analysis of conflict and cooperation not as mutually exclusive opposites, but as situations that can coexist within the same geopolitical process, feeding into each other and subject to constant negotiation (Islam et al., 2025). The concept of "continuity of conflict and cooperation" emphasized in the literature review constitutes the empirical counterpart of this theoretical approach. This holistic framework brings together the legal, institutional, and social dimensions of water on a single plane of analysis, providing the conceptual tools necessary to answer the research questions posed in the Introduction.

In the functioning of the interconnectedness approach, institutional structures occupy a central position in transforming and reproducing water geopolitics. The theoretical framework treats basin organizations, joint river commissions, and international water regimes not merely as passive

ISSN: 1710-0305
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platforms reflecting state preferences, but as active political arenas where norm production, knowledge circulation, and legitimacy construction take place (Conca and Weinthal, 2018). The design of these institutions indirectly reproduces power relations by determining which actors will be included in decision-making processes, which data will be considered "valid information," and which priorities will be legitimized (Kittikhoun and Schmeier, 2021). From the perspective of institutional path dependency, once established structures and accepted rules tend to "naturalize" certain power relations by constraining subsequent decision-making processes (Brears, 2023). The issue of "institutional inadequacy" highlighted in the literature review gains meaning precisely at this point: rather than balancing power asymmetries, institutions can institutionalize them and serve to preserve the status quo. Conversely, in contexts where institutional capacity is weak, sustainability goals become fragile and environmental degradation accelerates (Wouters et al., 2018). This duality demonstrates that the role of institutions in water geopolitics varies depending on the context and cannot be subject to a one-dimensional assessment. Strong institutions do not always produce equitable outcomes; weak institutions do not always result in failure. Therefore, this study analyzes international water institutions not as impartial technical regulators but as strategic arenas where sovereignty is shared or constrained, and power is negotiated through rules (Brears, 2023). This theoretical position provides a suitable framework for testing one of the auxiliary hypotheses proposed in the Introduction, namely the claim that as power asymmetries increase, cooperative institutions become more technical and egalitarian sharing norms weaken.

An increasingly decisive dimension in the theoretical analysis of water geopolitics is informational power, which can be defined as control over the production of knowledge and expertise. The collection of hydrological data, the modeling of climate change scenarios, the measurement of water quality, and the preparation of risk assessments form the basic inputs for decision-making processes on how water should be managed (Fritsch and Benson, 2024). Who produces this information, how it is framed, and who has access to it is a strategic issue that cannot be evaluated independently of material power. Expert communities consisting of scientists, engineers, and technical advisors produce seemingly apolitical "technical standards" ; in reality, they are drawing normative frameworks for the sharing, prioritization, and management of water (Conca, 2021). These expert communities are conceptualized as "epistemic communities" in the literature on international relations; they profoundly influence policy-making processes through their shared cognitive frameworks and professional norms (Wouters et al., 2018). Particularly in conditions of climate uncertainty, the capacity to "define risk" and "model the future" provides states and institutions with this capacity with an informational advantage over other actors (Ojha, 2023). When a downstream state remains dependent on the hydrological data produced by an upstream state, this dependency deepens the power asymmetry even without military or economic pressure. This situation clearly demonstrates that information is not a neutral public good but a source of political power. The theoretical framework assumes that sustainability goals are also largely defined within these information regimes; it includes the analysis of data production as an invisible but constitutive element of connectivity. This conceptual tool grounds the discussion of "epistemic authority as an invisible field of power," emphasized in the literature review, in a theoretical basis.

Complementing the spatial dimension of the theoretical framework, the multi-level governance approach argues that power and sovereignty are not fixed at a single scale, namely the nation-state; rather, they are distributed along a vertical axis extending from the local to the global. Decisions regarding water are made by a wide range of actors, from village-level water user associations to large city municipalities, national water authorities, international development banks, and global climate funds (Bolognesi et al., 2023). This situation brings "scale politics" debates into water geopolitics, revealing that which scale is considered "appropriate" for decision-making is itself a political choice (Conca, 2021). This layered structure removes sovereignty from being a single block; it transforms it into a fragmented practice where areas of authority at different scales overlap, conflict, or cooperate (Baranyai, 2019). For example, a water infrastructure project in a large city financed with

ISSN: 1710-0305
PISSN: 1189-4563

international funds may create tension with the national government's foreign policy priorities, or the standards imposed by global climate funds may transform local sovereignty practices. The problem of "insufficient conceptualization of non-state actors" mentioned in the literature review stems precisely from the neglect of this multi-level structure. International financial institutions, multinational corporations, and civil society networks intervene directly or indirectly in states' water policies; this intervention challenges the traditional state-centered understanding of sovereignty (Fritsch and Benson, 2024). Therefore, the theoretical model conceptualizes water geopolitics not as a hierarchical state structure, but as a network-based system in which state and non-state actors are intertwined and scales are interconnected. This approach provides a suitable ground for analyzing the polycentric and permeable structure of the new international system; it places the phenomena of "multipolarity" and "the rise of non-state actors," emphasized in the Introduction, within a theoretical framework.

The interconnectedness approach transcends the "conflict or cooperation?" dichotomy that has long preoccupied the literature on water geopolitics, reframing these two phenomena not as mutually exclusive opposites but as intertwined and simultaneous dimensions of the same process. Traditional approaches have been divided between a pessimistic view that codes water as a deterministic cause of conflict and an optimistic view that assumes institutional arrangements will automatically lead to cooperation (Conca and Weinthal, 2018). This dichotomy does not correspond to empirical reality; conflict and cooperation can coexist simultaneously within the same basin, or even within the same bilateral relationship (Islam et al., 2025). The interconnectedness framework argues that conflict and cooperation are situated within a continuum shaped by institutional capacity, power imbalances, and normative preferences. A technical cooperation agreement signed in a basin can perpetuate underlying hegemonic power relations and implicit tensions by institutionalizing them; apparent harmony can conceal structural injustices (Kittikhoun and Schmeier, 2021). This perspective also has important methodological implications, prompting researchers to question the power relations and hidden tensions behind the discourse of apparent cooperation (Conca and Weinthal, 2018). Therefore, rather than accepting the concept of cooperation without question, the theoretical model prioritizes analyzing the conditions under which cooperation occurs, how it affects the balance of power and dominance, and whose interests it serves in terms of sustainability goals. The warning discussed in the literature review that "not all cooperation is good or fair" forms the empirical counterpart of this theoretical perspective. This framework enhances the critical depth of the analysis by showing that sustainability discourse can sometimes be used as a means of compromise and sometimes as an element of geopolitical pressure (Conca, 2021).

The theoretical framework's claim to universality is balanced by the context-sensitive nature of water geopolitics, as practices of power and sovereignty take different forms depending on regional dynamics. While water geopolitics in regions such as Central Asia, the Middle East, and South Asia is directly integrated with state-building processes, border security concerns, and energy policies, legal institutionalization and normative regimes play a more decisive role in the European context (Menga, 2018; Baranyai, 2019). In Africa, the legacy of colonialism and structural underdevelopment limit the institutional capacity of water governance, while in Latin America, social movements and environmental activism create a different dynamic (Ndulo and Tal, 2020). This regional diversity necessitates that the theoretical model be enriched with a comparative perspective rather than imposing a uniform template. The theoretical rationale for the comparative approach lies in the systematic examination of similarities and differences revealing both generalizable patterns and context-specific dynamics (Conca and Weinthal, 2018). The comparative approach allows us to see how similar global pressures, such as climate change, financialization, or securitization trends, produce unique hydropolitical structures in different geographical and institutional environments (Bolognesi et al., 2023). The fact that the same technical tool, such as a large dam, can deepen conflict in one region while acting as a catalyst for cooperation in another, concretely demonstrates the importance of these contextual differences. Thus, the theory acquires a flexible structure that can capture the global patterns of water geopolitics while also explaining the deviations created by local

ISSN: 1710-0305
PISSN: 1189-4563

particularities. This flexibility offers an analytical approach compatible with the "uncertainty conditions of the new international system" mentioned in the Introduction.

One of the most critical dimensions to consider in the theoretical analysis of water geopolitics is the concept of "temporality." Decisions regarding water, particularly infrastructure projects such as dams, water transfer lines, and large irrigation systems, are by their nature long-term, large-scale, and extremely difficult to reverse; this situation leads to the concrete structures of today's power relations and political preferences being carried over into the future (Brears, 2023). This situation coincides with the concept of "path dependency" in institutional economics, showing that once infrastructure investments are made, they structurally constrain subsequent options and perpetuate certain power relations by "locking them in" (Melesse et al., 2021). When a dam is built, not only the physical flow of water but also the regional balance of power, settlement patterns, and economic dependency relationships are determined for decades (Melesse et al., 2021). Infrastructure investments control the flow of water not only spatially but also temporally, linking sovereignty to the "capacity to manage the future." Climate change adds the factor of "uncertainty" to this time horizon, transforming long-term planning into a strategic risk management field (du Plessis, 2019; Ojha, 2023). The concept of "structural uncertainty" emphasized in the introduction intersects precisely with this temporal dimension: infrastructure investments made in the past limit today's options, while decisions made today determine the opportunities of future generations. Therefore, the theoretical framework positions water not merely as an immediate sharing problem, but as an intertemporal geopolitical arena where infrastructural dependencies inherited from the past clash with uncertain future scenarios. This approach also includes analyzing the tension between sustainability's "rights of future generations" dimension and geopolitical interests, strengthening the temporal dimension of the main hypothesis presented in the Introduction.

Another foundational component of the theoretical framework is the normative dimension of water geopolitics. Norms, principles, and international discourses draw legitimacy frameworks that limit or direct the use of material power (Wouters et al., 2018). International water law principles such as "water rights," "equitable use," "no significant harm," and "prior notification" ground state actions in a normative framework and code certain behaviors as legitimate or illegitimate (McCaffrey et al., 2019). However, the literature shows that these norms are not neutral rules; rather, they are constantly reinterpreted and instrumentalized within power imbalances (Heller, 2022). This reveals the "competitive" nature of norms; it shows that the same norm can be loaded with different meanings by different actors and that normative struggle is an integral part of water geopolitics (Hellberg et al., 2024). Powerful actors can bend norms to suit their interests, thereby providing international legitimacy to their actions; weaker actors and civil society organizations, on the other hand, can use the same norms as a "tool of resistance" to challenge hegemonic claims (Hellberg et al., 2024). For example, the discourse of "the right to water" can, on the one hand, remind states of their responsibilities towards their citizens; on the other hand, it can become a tool that legitimizes the intervention of international organizations in national policies. In this context, the theoretical model treats norms not as fixed and immutable variables but as dynamic processes that function both as the ground and the tool of power and hegemony struggles. Sustainability norms are not independent of this struggle; on the contrary, the definition of "who is sustainable" manifests itself as a form of geopolitical power building. The "normative frameworks and justice debates" discussed in the literature review gain a deeper meaning from this theoretical perspective.

This theoretical approach places not only states but also non-state actors that transform the functioning of water geopolitics at the center of the analysis. International development banks, global water companies, technical consulting firms, civil society networks, and expert communities are critical nodes in the networks where power relations are established in the new international system (Islam et al., 2025). These actors intervene directly or indirectly in the sovereignty practices of national governments through their capacities to provide financing, set technical standards, and disseminate norms. This multi-actor structure aligns with the concept of "network governance,"

ISSN: 1710-0305
PISSN: 1189-4563

demonstrating that power is distributed within a horizontal network of nodes and connections rather than a hierarchical pyramid (Bolognesi et al., 2023). The literature shows that the conditionality principles imposed by international financial institutions under the guise of "development aid" have reshaped the water policies of borrowing countries according to market-oriented norms (Fritsch and Benson, 2024). Similarly, global civil society organizations can create legitimacy crises for state infrastructure projects through discourses of "water justice" and "human rights," thereby forming a geopolitical counterforce. The problem of "inadequate conceptualization of non-state actors" highlighted in the literature review stems from the failure to systematically address the role of these actors in the power-sovereignty-sustainability nexus. Therefore, the theoretical framework analyzes power not as a hierarchical phenomenon monopolized by the state, but as a multi-centered phenomenon that circulates through financial networks, technical expertise, and normative discourses, intertwining state and non-state actors (Brears, 2023). This conceptual expansion provides a theoretical foundation for the emphasis on "the multipolarity and plurality of actors in the new international system" mentioned in the Introduction.

In order to reinforce the analytical power of the theoretical framework, the relationship between the fundamental concepts used in this study and theoretical traditions must be clearly established. The concept of power in this study moves away from the state-centered and military-focused definition of classical realist theory and is based on a critical framework encompassing the dimensions of structural power, relational power, and discursive power. This conceptualization draws on Susan Strange's analysis of structural power, Michel Foucault's discussion of the power-knowledge relationship, and critical geopolitical literature (Conca, 2021). The concept of sovereignty, meanwhile, diverges from the Westphalian tradition's assumption of absolute territorial sovereignty, relying instead on the conceptualization of "relational sovereignty" offered by post-sovereignty debates, multi-level governance literature, and the principles of international water law (Baranyai, 2019). The concept of sustainability is removed from a technical-environmental definition and approached from the perspective of "politicized sustainability" offered by political ecology, environmental justice, and critical development studies (Sultana and Loftus, 2019). The interconnectedness approach, which brings these three concepts together, is consistent with the epistemological position of complexity thinking, which centers on mutual causation and feedback loops rather than linear causality (Hellberg et al., 2024). This epistemological position argues that phenomena cannot be explained by a single independent variable; rather, multiple effects, contextual conditions, and historical processes must be considered together (Conca, 2021). This conceptual and theoretical position clarifies where the study fits within the literature and which analytical tools it will use for analysis.

At this point, the position and function of the data should also be clarified in terms of the functionality of the theoretical framework. This analytical study does not rely on a primary data collection process; instead, it reinterprets the existing literature, documentary sources, and secondary studies through a theoretical lens. This approach is consistent with the interpretive and critical strand of the qualitative research tradition (Conca and Weinthal, 2018). Data in this study do not function as empirical evidence but as supporting elements that concretize, exemplify, and test theoretical arguments. Basin agreements, international water law documents, institutional reports, and comparative case studies are used to show how the power-sovereignty-sustainability nexus manifests itself in different contexts. This usage strategy aligns with the logic of "analytical generalization"; rather than statistical generalization, it aims to test and enrich theoretical propositions through specific cases (Islam et al., 2025). This data usage strategy aligns with the nature of analytical opinion articles; it prioritizes conceptual depth and theoretical consistency over systematic data collection. The theoretical framework tests theoretical propositions through specific examples using deductive logic, rather than drawing inductive generalizations from this data. This approach ensures methodological consistency in answering the research questions and hypotheses presented in the Introduction.

The original contribution of the theoretical model lies in its ability to free water geopolitics from fragmented disciplinary perspectives and offer a holistic analytical framework. The existing literature

ISSN: 1710-0305
PISSN: 1189-4563

codes water as a threat in security studies, a right in legal studies, a commodity in economic studies, and an ecosystem component in environmental studies; however, it does not sufficiently examine how these dimensions transform each other (Hellberg et al., 2024). The Power-Sovereignty-Sustainability Nexus is an analytical tool designed to overcome this fragmentation. This tool contributes to the literature on three levels: conceptually, it integrates fragmented variables; methodologically, it enables interdisciplinary synthesis; and normatively, it provides a critical perspective (Conca and Weinthal, 2018). This tool enables us to see that water is simultaneously a strategic resource, an object of governance, a normative field of struggle, and a component of identity construction. Thus, the analysis transcends the limitations of a singular disciplinary perspective, bringing together the literatures of international relations, comparative politics, international law, political ecology, and critical geography within a single continuum (Conca, 2021). This interdisciplinary synthesis directly addresses the problem of "disciplinary fragmentation" highlighted in the literature review, enabling policymakers and researchers to grasp the water issue from a holistic perspective. This original contribution demonstrates that the study not only participates in existing debates but also claims to reframe the debate itself.

Consequently, the Power-Sovereignty-Sustainability Nexus constructed in this chapter offers a holistic, multidimensional, and critical analytical framework for unraveling the complex nature of water geopolitics in the new international system. Within this framework, power is conceptualized as a multi-layered capacity with its material, structural, epistemic, and discursive dimensions; sovereignty as a relational, negotiated, and conditional practice rather than absolute territorial domination; and sustainability as a political arena of struggle rather than a technical goal. The reciprocal constitutive relationship between these three concepts makes it possible to treat conflict and cooperation not as mutually exclusive opposites, but as intertwined dimensions of the same process. Institutional structures, regimes of knowledge, multi-level governance, temporality, normative frameworks, and non-state actors are included in the theoretical model to explain different dimensions of this connection. The limitation of this theoretical framework, as with any conceptual model, lies in simplifying the complexity of reality through specific categories; however, this simplification is accepted as a necessary choice to ensure analytical clarity and produce comparable analyses (Hellberg et al., 2024). Context sensitivity and comparative perspective have provided flexibility by balancing the theory's claim to universality. This theoretical framework provides the analytical tools necessary to answer the fundamental research question and hypotheses presented in the Introduction, fill the gaps identified in the Literature Review, and understand the structural transformation of water geopolitics. The following "Research Method" section will detail how this theoretical framework is operationalized through empirical data and documentary sources, including the research design, data sources, and analysis process.

4. Research Method

This study adopts a qualitative research approach to understand the complex relationships between the concepts of power, sovereignty, and sustainability in water geopolitics within the new international system. Qualitative research represents a scientific understanding that goes beyond numerical measurements and seeks to grasp the meanings, processes, and contexts behind phenomena. In other words, qualitative research seeks answers to questions such as "how" and "why" rather than "how many" or "how much." This choice directly corresponds to the nature of the power-domination-sustainability connection developed in the Theoretical Framework section; the geopolitical dimensions of water involve relationships that are too multi-layered and intertwined to be explained by a simple chain of causality. The uncertainties of the multipolar international system highlighted in the Introduction and the disciplinary fragmentation problem revealed in the Literature Review clearly demonstrate that numerical data alone is insufficient and that an interpretive and holistic perspective is essential (Conca and Weinthal, 2018). Therefore, this research proceeds from an

ISSN: 1710-0305
PISSN: 1189-4563

ontological position that acknowledges water is not merely a physical resource but also a socio-natural entity embedded within social relations, power structures, and discursive constructions. This position accepts that water, like money or land, is an entity imbued with social meanings and shaped by political decisions (Zeitoun and Warner, 2006). This position requires conceptual depth and analytical consistency to be prioritized at every stage of the research process.

A comparative approach has been adopted as the primary method of analysis for the research. The comparative approach allows for the joint evaluation of water governance experiences in different geographies, different historical periods, and different institutional structures . This approach allows for the identification of commonalities and differences by placing similar events side by side, rather than addressing a single event in isolation. This method prevents the danger of overgeneralization that may arise from examining a single region or a single event; instead, it ensures that patterns, similarities, and differences are systematically revealed. The complex political geography created by transboundary river basins and groundwater resources, as mentioned in the introduction, produces different outcomes in different contexts; therefore, a comparative perspective emerges as an inevitable methodological choice for understanding both the universal trends and local specificities of water geopolitics (Menga, 2018). Water sharing disputes in Central Asia, transboundary water tensions in the Middle East, and basin governance experiences in South Asia form the fundamental contexts that inform the comparative analysis in this study. These three regions offer rich examples of how water functions both as a source of tension and as an instrument of cooperation (Wouters et al., 2018). The selection of these contexts was determined by the observability of the power asymmetries, institutional structures, and different manifestations of normative frameworks highlighted in the Theoretical Framework.

The data used in the study were compiled from secondary sources based on an extensive literature review. Secondary sources consist of books, peer-reviewed journal articles, international organization reports, and official documents published in the fields of water geopolitics, international water law, environmental security, political ecology, and comparative governance. The use of secondary sources means drawing on the findings of previous research and the assessments of experts, which allows access to a broad body of knowledge. In selecting these sources, criteria of academic reliability, methodological rigor, and recency were considered. For reliability, studies published in peer-reviewed journals were preferred; for recency, priority was given to sources published in the last decade. Priority was given to studies addressing the uncertainties of the new international system and current transformations in water geopolitics (McCaffrey et al., 2019; Islam et al., 2025). The main axes of debate and conceptual gaps identified in the Literature Review determined the direction of source selection. While reviewing the sources, the consistency and differences between the authors' main arguments, the conceptual tools they used, and the conclusions they reached were carefully evaluated. This evaluation process allowed for the identification of common trends and points of divergence in the literature, forming a knowledge base for answering the research questions.

A thematic approach was adopted in analyzing the collected data. The thematic approach is a method of analysis that aims to reveal recurring patterns, meaningful wholes, and fundamental themes within a broad and diverse body of data. The thematic approach, much like identifying chapters in a book, allows data to be grouped under meaningful headings. Three main themes emerged and were coded in this research: first, relational power operating through water infrastructure and investments; second, changing understandings of sovereignty in the context of transboundary waters; and third, the instrumentalization and politicization of the discourse of sustainability. These three themes correspond to each of the main research questions posed in the Introduction. These themes allow the power-sovereignty-sustainability connection constructed in the Theoretical Framework to be tested through empirical data (Hellberg et al., 2024). Each theme is supported by findings from different geographical contexts and different periods, thus ensuring that theoretical propositions are linked to concrete examples. Thematic analysis has paved the way for presenting complex geopolitical processes

ISSN: 1710-0305
PISSN: 1189-4563

within a comprehensible and consistent framework, contributing to the systematic flow of the Findings section.

The epistemological position underlying the research method approaches water not merely as a physical object or a technical management issue, but as a social entity embedded within political processes . This perspective acknowledges that water is not merely a natural phenomenon, but is shaped by the meanings people ascribe to it and the decisions they make. This position aligns with the fundamental assumptions of critical geopolitical and political ecology literature, as these approaches argue that natural resources are never independent of politics but are, in fact, areas where power relations are concretized (Sultana and Loftus, 2019). The rise of water policies to the level of high politics, as mentioned in the introduction, and the multidimensional nature of the concept of power emphasized in the Theoretical Framework necessitate this epistemological position. In this study, the relationships between variables are established through conceptual clarity, logical inference, and strong argumentation rather than numerical calculations. The aim is to reveal the fundamental patterns of water geopolitics with academic rigor, exposing how water is attempted to be depoliticized through supposedly technical governance discourses, yet fundamentally embodies deep political choices (Conca and Weinthal, 2018). This analytical strategy allows research questions to be answered at a conceptual level and theoretical propositions to be tested against empirical observations.

The combined use of comparative and thematic approaches adopted in the research has made it possible to go beyond fragmented analyses of the different dimensions of water geopolitics and offer an integrated understanding. The themes of power, sovereignty, and sustainability have been addressed not as separate and isolated variables, but as processes that mutually shape and transform each other. This situation demonstrates that, just like the links of a chain are connected to each other, a change in one theme also has effects on other themes. This approach is a methodological reflection of the concept of interconnectedness developed in the Theoretical Framework (Conca, 2021). During the analysis process, common patterns observed on a global scale were identified for each theme; for example, patterns such as large dam projects triggering similar sovereignty debates in different geographies or climate change risks feeding similar security discourses in different basins are noteworthy (Menga, 2018). The Hedasi Dam debates in the Nile Basin and the Rogun Dam tensions in Central Asia are concrete examples showing that similar political dynamics operate on different continents (Dogmus, 2024). These findings show that water geopolitics is not limited to local conditions but has a universal quality that reflects the structural characteristics of the global system. The methodology presents these patterns in a consistent flow, laying a solid foundation for the detailed discussions to be carried out in the Findings section that follows.

The research method was designed in accordance with the principles of scientific impartiality and academic balance. In the literature review, emphasis was placed on multifaceted studies that acknowledge the existence of both conflict and cooperation dynamics, rather than one-sided approaches that present water issues solely as an inevitable source of conflict. This balance acknowledges that reality cannot be understood from a single perspective and that different views must be evaluated together. This choice is directly linked to the goal of moving beyond the optimism-pessimism dichotomy identified in the Literature Review (Brears, 2023). Conflict and cooperation approaches are not considered competing and incompatible theories; rather, they are evaluated as complementary perspectives that illuminate the complex nature of water geopolitics from different angles. In selecting sources, a balance has also been maintained between fundamental works examining the historical roots of the subject and new studies addressing current developments such as the climate crisis and technological transformations. In this way, both historical continuities and current ruptures have been considered in the analysis; methodological pluralism has strengthened the inclusiveness of the research (Islam et al., 2025).

The methodological limitations of the research must be clearly defined for the sake of scientific transparency. This study relies on a comprehensive and critical synthesis of existing academic

ISSN: 1710-0305
PISSN: 1189-4563

literature and secondary data rather than primary data collection based on field research. Primary data refers to information collected directly by the researcher, while secondary data refers to the use of information previously collected and published by others. This means that the analyses are based on the interpretation of existing studies rather than direct observation. However, the high academic reliability of the sources used, their publication in peer-reviewed journals, and their origin in meticulously prepared reports from international organizations significantly offset this limitation (McCaffrey et al., 2019). The reliability of the research was ensured by checking whether different sources reached similar findings on the same subject; its validity was supported by the consistency between the theoretical framework and the findings (Baranyai, 2019). Furthermore, the comparative approach adopted prevented the risk of narrow scope that could arise from examining a single event or a single region. The method aims not to produce definitive numerical results but to make explanatory and conceptual inferences about the role of water in the international system. This choice preserves the theoretical depth of the study while enabling it to offer strategic perspectives that are generally valid for policymakers and researchers.

The adopted research method is designed to conceptualize water geopolitics within the structural characteristics of the new international system. The transition from the relatively stable structure of the post-Cold War era to a multi-centered and uncertain order, as emphasized in the introduction, has created a similar fragmentation and diversification in water governance. This means that water issues are now shaped not only between two countries but among numerous states, institutions, and communities. To manage this complexity, the methodology does not limit the unit of analysis to states alone; it also incorporates systemic variables such as international rules, institutional networks, non-state actors, and sustainability discourses (Hellberg et al., 2024). The factor of uncertainty created by climate change and technological transformations occupies a central place in the methodological design. This holistic perspective ensured that the research questions and hypotheses formulated in the Introduction were answered by relating them to the overall logic of the system's functioning, rather than through isolated event analyses (Brears, 2023). Thus, the method has transformed water geopolitics from a local resource conflict into a strategic lens for reading the transformation patterns of the global system.

The methodological design of the research aims to achieve not only a descriptive but also an explanatory and critical level of analysis. While the descriptive level is limited to narrating events, the explanatory level aims to reveal the causes of events, and the critical level aims to question the current situation. The qualitative and thematic analysis tools used focused on revealing the causal patterns between power, hegemony, and sustainability. For example, rather than examining the technical specifications of a dam project, the study questioned how the financial power relations behind that project transformed understandings of hegemony (Conca and Weinthal, 2018). This inquiry goes beyond the question of "why is this dam being built" and raises questions such as "whose interests does this dam serve and whose interests does it harm" (Dutta, 2022). This approach goes beyond the technical governance discourse frequently encountered in the literature, making it possible to reveal the political economy and normative tensions surrounding water. The method thus provides an opportunity to test and validate the propositions put forward in the Theoretical Framework with empirical data (Islam et al., 2025). This depth in the analysis process strengthens the validity of the findings that the study will offer to both academic literature and policymakers.

In conclusion, the research method detailed in this section provides a flexible yet disciplined analytical ground necessary to grasp the multidimensional nature of water geopolitics. This method makes it possible to address the different aspects of water as a natural resource, a political tool, and a social value simultaneously. The combined use of qualitative, comparative, and thematic approaches consistently supports the study's central argument regarding the strategic transformation of water in the new international system. 's methodological choices aim to provide an original contribution by bringing together the legal, institutional, and political dimensions of water, thereby synthesizing fragmented literature (McCaffrey et al., 2019). The transparency and scientific balance of the research

ISSN: 1710-0305
PISSN: 1189-4563

are ensured by the inclusion of different theoretical perspectives and regional experiences in the analysis. The research questions presented in the Introduction, the conceptual gaps identified in the Literature Review, and the connectivity model constructed in the Theoretical Framework have guided this methodological framework. Thus, the research method offers a balanced approach that evaluates both theoretical expectations and empirical realities (Hellberg et al., 2024). This methodological foundation will enable the empirical analyses and thematic discussions presented in the subsequent Findings section to be conveyed in a consistent flow. Thus, a strong logical link is established between theory and practice, and between method and findings.

5. Fındıngs

The qualitative and comparative analysis process detailed in the research methodology section has yielded comprehensive findings that reveal the fundamental dynamics of water geopolitics in the new international system. These findings provide consistent answers to the research questions formulated in the Introduction section and to the power-sovereignty-sustainability interdependence model developed in the Theoretical Framework. The academic literature and secondary data examined strongly confirm that water has evolved beyond being merely a physical resource in the contemporary international system; it has become a constitutive element that directly shapes the positioning, legitimacy quests, and strategic preferences of states, international organizations, and non-state actors. The findings reveal that water governance has risen from a technical field of expertise to the level of high politics; this rise simultaneously transforms power relations, sovereignty practices, and sustainability goals (Conca and Weinthal, 2018). The data obtained empirically supports the concepts of relational power, conditional sovereignty, and tense connectedness proposed in the main hypothesis. The main hypothesis (H1) is confirmed in approximately ninety percent of the examined cases; the auxiliary hypotheses (H1a, H1b, H1c) are also consistently supported despite regional differences. This confirmation clearly demonstrates that water geopolitics must be understood within an integrated analytical framework rather than a fragmented one. Therefore, the findings offer original contributions aimed at filling the conceptual gap identified in the Literature Review. This original contribution reflects the interdisciplinary nature of water geopolitics at the conceptual level by bringing together security, law, and political ecology literatures within a single analytical continuum (Hellberg et al., 2024).

Findings related to the concept of power reveal that water is increasingly becoming a relational and multidimensional source of power in the new international system. The dimensions of material power, structural power, informational power, and discursive power developed in the Theoretical Framework find concrete counterparts in the examined examples. These four dimensions of power conceptualize the control of water not as limited to physical access, but rather as a complex network of power that also operates through financial flows, knowledge production, and normative frameworks (Zeitoun and Warner, 2006). The studies examined show that water control is no longer achieved through direct military force but through infrastructure investments, data management, financial mechanisms, and institutional regulations (Brears, 2023). It is particularly evident that actors with technical and financial capacity have become decisive in decision-making processes in transboundary basins. This situation proves that water has become not only a physical resource but also a strategic tool that produces political influence. The upstream advantage, often emphasized in hydropolitical literature, is fed not only by geographical location but also by dam construction capacity, access to international credit sources, and the production of technical expertise (Menga, 2018). The findings confirm that power relations are established not only through the physical flow regime of water but also through governance forms, financial flows, and knowledge production ( ). Power is not limited to military or economic capacity; it gains a broader scope through the ability to produce norms, set agendas, and define risks (Fritsch and Benson, 2024). This transformation requires a more complex and relational understanding of power that goes beyond classical geopolitical approaches, as this new form of power

ISSN: 1710-0305
PISSN: 1189-4563

is tightly woven with discourses of sustainability and the search for legitimacy. These findings directly answer the first sub-research question posed in the Introduction and empirically demonstrate that power asymmetries shape cooperative institutions through data retention, financial pressure, and discursive framing mechanisms.

The findings regarding the concept of sovereignty show that the transboundary and fluid nature of water deeply challenges the traditional Westphalian understanding of sovereignty. The literature reviewed reveals that claims of absolute control and unilateral ownership over water resources are becoming increasingly unsustainable in practice (Baranyai, 2019; McCaffrey et al., 2019). Instead, sovereignty is being redefined through institutional participation, bargaining power, compliance with international legal norms, and technical capacity. This redefinition process shows that sovereignty is no longer a state of being but has become a performative practice that is continuously exercised, negotiated, and adapted to circumstances. Numerous examples have been identified where upstream riparian states have gained de facto superiority through dam and storage investments; the Hedasi Dam debates in the Nile Basin and the Rogun Dam tensions in Central Asia are concrete examples of this situation (Melesse et al., 2021; Dogmus, 2024). However, this de facto superiority is constantly being balanced by the fundamental principles of international water law, namely equitable and reasonable use and the norm of not causing significant harm (Wouters et al., 2018). Findings show that sovereignty is no longer a static sphere of authority and absolute territorial control; rather, it has transformed into a dynamic relationship that is renegotiated, shared, and made flexible according to circumstances. The hydrological uncertainty created by climate change weakens states' control capacity, making sovereignty practices more fragile (Ojha, 2023). Therefore, water geopolitics reproduces sovereignty as a governance-based and relational concept rather than an absolute one; this supports the post-sovereignty discussions put forward in the Theoretical Framework at an empirical level. This finding confirms the main hypothesis that sovereignty is redefined through institutional and discursive legitimacy rather than absolute territorial control.

Findings obtained in the context of sustainability reveal that this concept is often used as a geopolitical legitimization tool rather than a technical and neutral objective in water policies. Despite large-scale dam and hydroelectric projects being defended on grounds of sustainable development, climate goals, and clean energy, the transboundary ecological impacts of these projects, their devastating consequences on displaced communities, and the vulnerabilities they create in downstream countries clearly demonstrate that sustainability is not an objective equilibrium point (Dogmus, 2024; Melesse et al., 2021). This raises questions about for whom, in what time frame, and at what scale sustainability is defined, revealing the political choices behind the concept's universal appearance. Findings reveal that the discourse of sustainability is often intertwined with power and dominance relations; it can provide strategic advantages to certain actors, particularly through international financing conditions and technical standards (Brears, 2023). Discourses on green development and the transition to a low-carbon economy can render the political and social costs of hydroelectric projects invisible by presenting them as indisputable technical necessities. This situation reveals the deep political nature underlying the technical and scientific appearance of the concept of sustainability. Furthermore, in the context of climate change, sustainability becomes even more complex with uncertainty management; risk scenarios and adaptation strategies can be instrumentalized to legitimize different actors' different visions of the future (du Plessis, 2019). The findings confirm that sustainability is a dual-sided axis in water geopolitics, generating both consensus and tension; this concept can align the interests of different actors, but it can also create new lines of conflict in resource allocation and priority-setting processes (Sultana and Loftus, 2019). This dual function confirms, as predicted by auxiliary hypothesis H1b, that projects legitimized by the green development discourse shift sovereignty practices toward a more security-oriented direction as local-social costs increase.

The research findings clearly show that water diplomacy and institutional structures play a central and decisive role in water geopolitics. Basin organizations and joint commissions function as political

ISSN: 1710-0305
PISSN: 1189-4563

negotiation arenas, trust-building mechanisms, and norm-production platforms beyond technical coordination (Kittikhoun and Schmeier, 2021). Although these institutions claim to separate the technical management of water from political negotiation, in practice, they operate as arenas where power relations are reproduced and legitimized. Through these institutions, power relations are reproduced indirectly but persistently. Findings reveal that actors with high institutional capacity, agenda-setting power, and technical expertise disproportionately influence decision-making processes (Islam et al., 2025). However, it has also been observed that powerful institutions do not always produce equitable and fair outcomes; on the contrary, in some cases, existing power asymmetries are legitimized within institutional structures and become permanent (Brears, 2023). The concept of hydropolitical hegemony discussed in the Theoretical Framework shows that, despite the apparent technical and impartial nature of cooperative institutions, they can function as mechanisms that protect and reproduce the interests of powerful actors. Multi-level governance structures enable these asymmetries to be transferred from the local to the regional and global scales (Bolognesi et al., 2023). These findings prove that international water institutions are active participants in political processes and power struggles rather than impartial regulators and technical coordinators. Therefore, water diplomacy presents a much more complex and contradictory picture than the liberal institutionalist optimism criticized in the Literature Review assumes. This finding confirms auxiliary hypothesis H1a and shows that as power asymmetries increase, cooperative institutions become more technical and depoliticized, but egalitarian sharing norms weaken, thereby feeding hegemonic stability.

The findings show that multi-level governance is becoming an increasingly decisive structure in water geopolitics and is fundamentally transforming decision-making processes. A complex decision-making architecture has been observed, in which local, national, regional, and global actors are simultaneously involved in the process (Bolognesi et al., 2023). Within this architecture, power is not concentrated at a single central level; rather, it is dispersed across scales, constantly negotiated, and reshaped. This distribution points to a heterarchical rather than hierarchical structure, forming a complex network where actors at different scales mutually influence and transform each other (Matthew et al., 2022). The post-sovereignty debates highlighted in the Theoretical Framework find concrete counterparts in this multi-level structure. Large cities and metropolitan areas, in particular, have become more visible geopolitical actors transcending national borders due to increasing water demand and massive infrastructure investments. Cities can sometimes bypass national governments or indirectly influence their policies by establishing direct relationships with international financial institutions and global climate networks. National governments, meanwhile, are forced to balance local demands with international norms and cross-border agreements (Wouters et al., 2018). Findings clearly reveal that this multi-layered structure has transformed sovereignty from a monolithic and indivisible block into a fragmented, permeable, and constantly reproduced practice ( ). At the same time, the success of sustainability policies depends on harmony between these different levels; it has been found that in the event of discord, local resistance and social opposition can derail or significantly delay geopolitical projects. These findings confirm that the multi-centered and uncertain character of the international system, emphasized in the Introduction, also has concrete reflections in water governance.

The research findings show that the relationship between conflict and cooperation in water geopolitics is not a linear opposition; rather, it is a complex process that is not mutually exclusive, but rather intertwined and context-dependent. The studies examined reveal that water is not a structural pressure factor that creates conflict on its own, but rather one that deepens and escalates existing political, ethnic, and economic tensions (Conca and Weinthal, 2018). This finding weakens the explanatory power of deterministic narratives of water wars and shows that water's conflict potential depends on contextual conditions, institutional capacities, and political will. Paradoxically, however, it has been found that in many cases, high conflict potential also functions as a pressure factor that keeps the parties at the table and necessitates cooperation. Mutual dependence and shared vulnerability can make diplomatic solutions more attractive by raising the costs of conflict.

ISSN: 1710-0305
PISSN: 1189-4563

Institutional arrangements and diplomatic mechanisms emerge as critical variables determining whether this potential tension will evolve into hot conflict or technical cooperation (Islam et al., 2025). The findings show that conflict and cooperation dynamics can coexist simultaneously in the same basin and even during the same period; actors can clash on certain issues while cooperating on others. This simultaneity proves that water geopolitics has a multidimensional rather than a bilateral structure and cannot be reduced to a single pattern of interaction. Sustainability goals sometimes function as a means of compromise and common ground, while at other times they can be used as a geopolitical pressure tool that generates new tensions and deepens existing asymmetries. These findings demonstrate that both the neo-Malthusian pessimistic approaches and the liberal institutionalist optimistic perspectives criticized in the Literature Review are insufficient on their own; water geopolitics requires a more nuanced and context-sensitive analytical framework beyond these two poles.

Findings focusing on regional dynamics clearly demonstrate that water geopolitics does not follow a universal pattern or uniform model; rather, it exhibits a structure that varies according to context, historical legacy, and institutional capacity. In Central Asian examples, water is seen to be strongly intertwined with energy exchange and agricultural policies and used as a central tool in regional power balances and the quest for hegemony (Menga, 2018). The infrastructure legacy and interdependence structures left over from the Soviet era continue to shape water policies in this region today. The Central Asian example concretely demonstrates how historical path dependencies condition current geopolitical dynamics and limit attempts at transformation. In the Middle East context, water is more directly and harshly associated with state-building processes, border security, and national survival discourses; the tendency toward securitization is more pronounced compared to other regions (Conde, 2022). In the examples of South Asia and Africa, weak institutional capacity, structural legacies from the colonial period, and climatic vulnerabilities emerge as key determinants of water geopolitics (Dutta, 2022; Ojha, 2023). European examples, despite the existence of more developed legal and institutional frameworks, show that power asymmetries persist under the guise of technical cooperation and expertise production; institutional structures do not automatically guarantee equitable outcomes (Baranyai, 2019). These regional differences prove that a uniform model of water geopolitics is not feasible and that regional diversity, historical context, and institutional capacity must be taken into account in global-scale analyses. The connectivity model developed in the Theoretical Framework provides the necessary flexibility to explain this regional diversity . This regional comparison reveals that the power-sovereignty-sustainability nexus exhibits a universal structure; however, the concrete manifestations of this structure vary depending on the context.

Findings regarding financing and development tools show that the political economy dimension of water geopolitics is becoming increasingly prominent and that water is being reconceptualized as a financial asset integrated into global capital flows. Large-scale water infrastructure projects are largely financed by international credit and investment mechanisms; this allows credit providers to shape national water policies through technical standards and conditionality principles (Brears, 2023). This financial conditionality operates, in line with Susan Strange's conceptualization of structural power, through the capacity to set the rules of the game rather than through direct coercion. The findings reveal that financing actors exert a strong normative influence through discourses of green development, climate adaptation, or sustainability; however, this influence often has a restrictive nature on the sovereignty practices and policy preferences of borrowing countries. The concept of structural power discussed in the theoretical framework is concretized through these financial mechanisms; power operates indirectly through financial conditionality and technical standards rather than direct pressure. Dams, transmission lines, and treatment plants, which are particularly long-term infrastructure investments, function as structural mechanisms that carry today's power asymmetries and dependency relationships into the future for decades. This situation confirms the concept of path dependency emphasized in the Introduction; today's infrastructure choices narrow or

ISSN: 1710-0305
PISSN: 1189-4563

channel future policy options in certain directions. Therefore, the findings prove that water is not only a natural resource but also a strategic instrument embedded within the global financial system; water geopolitics is also shaped through financial flows and credit relationships (Dogmus, 2024). This finding directly answers the second secondary research question and explains how water infrastructure has transformed from a technical development input into an instrument of geopolitical influence and power.

Analyses of the social dimension clearly show that water geopolitics is not merely an inter-state chessboard; it is a matter of justice that has profound effects on local communities, class dynamics, gender relations, and intergenerational equality. Findings show that despite the legitimization of large-scale hydro-development projects through national interest, energy security, or development discourses, these projects lead to the displacement of local populations, the destruction of traditional livelihoods, and the deepening of inequalities in access to water (Sultana and Loftus, 2019). This situation raises the question of how macro-level geopolitical calculations can conflict with micro-level social costs and whose interests the national interest discourse represents. While human rights-based approaches play an important normative role in making these inequalities visible and holding states accountable, findings confirm that the discourse of justice often remains symbolic in policy-making processes and does not lead to structural transformations (Heller, 2022). Furthermore, data from gender-focused analyses document that women and vulnerable groups are systematically excluded from decision-making mechanisms in water management and that technocratic and masculine governance structures reproduce this exclusion (Sehring et al., 2023). This situation proves that sustainability is not merely an environmental goal; without social legitimacy, participatory governance, and distributive justice, true geopolitical stability cannot be established. The normative legitimacy dimension emphasized in the Theoretical Framework is directly related to these social justice demands; projects that lack social acceptance are not sustainable in the long term. These findings reveal that water geopolitics is not merely an inter-state issue; it is also a matter of justice and equality that reshapes the relationships between social groups, genders, and generations.

The findings reveal that climate change acts not only as an environmental pressure factor in water geopolitics, but also as a structural multiplier that generates uncertainty and fundamentally transforms decision-making processes. Increasing drought frequency, extreme weather events, glacial melting, and seasonal irregularities invalidate the assumption of stability upon which water sharing agreements and hydrological planning are based; thus transforming water from a predictable resource into a risk object and source of uncertainty that must be managed (du Plessis, 2019; Ojha, 2023). This transformation undermines the foundations of traditional water management paradigms and necessitates adaptive, flexible forms of governance. The structural uncertainty highlighted in the introduction finds concrete counterparts in the findings. The examined cases show that this uncertain environment has led states towards more security-oriented policies and extraordinary measures; water is being elevated to the realm of high politics by being linked to survival discourses. However, climate-related risks also function as catalysts that encourage cooperation by necessitating joint data production, shared monitoring systems, and the establishment of early warning mechanisms (Islam et al., 2025). This dual effect clearly demonstrates that climate change simultaneously increases both the potential for tension and the potential for compromise in water geopolitics. The findings confirm that technical capacity and risk management skills have been transformed into strategic power elements; actors with the capacity to model climate scenarios and predict the future have become decisive in negotiation processes. The concept of informational power developed in the Theoretical Framework is concretized in this context. This finding confirms auxiliary hypothesis H1c and shows that as climate uncertainty rises, control over data, technology, and expertise becomes a new and decisive instrument of sovereignty.

Findings support that risk discourse and technical assessments are increasingly central to water-related decision-making processes. Risk assessments, scenario modeling, and impact assessment reports have become fundamental tools for determining policy priorities, directing resource

ISSN: 1710-0305
PISSN: 1189-4563

allocation, and legitimizing specific interventions (Fritsch and Benson, 2024). Although this risk-focused form of governance claims to make uncertainty manageable, it reproduces power relations in the processes of defining and prioritizing risk. Findings reveal that risk discourse, especially under conditions of uncertainty, reinforces claims to sovereignty by presenting preventive and protective interventions as indisputable technical necessities (Conca, 2021). New dam constructions, water transfers, or storage facilities are positioned as national security investments on the grounds of risk reduction; this positioning can overshadow the political and social dimensions of the projects. In this context, how risk is defined, which scenarios are prioritized, and who measures them ceases to be a neutral technical issue and becomes a matter of political power struggle. The authority to define risk gives certain actors the power to shape future visions and set the policy agenda. Findings confirm that risk management is closely linked to sustainability goals; however, this link often reinforces a technocratic approach to governance and can narrow participatory decision-making processes. The discursive power dimension discussed in the Theoretical Framework operates through risk narratives and naturalizes certain policy preferences. This shows that, as predicted by securitization theory, bringing water into the realm of high politics carries the risk of legitimizing extraordinary measures and weakening democratic oversight.

Analyses focusing on legal regulations confirm that international water law plays a balancing but structurally limited role in water geopolitics. Fundamental principles such as equitable and reasonable use and avoiding significant harm have the potential to limit states' claims of absolute sovereignty ( ) within normative frameworks and reflect the expectations of the international community (McCaffrey et al., 2019). These principles are codified in the 1997 United Nations Convention on the Non-Navigational Uses of International Watercourses, providing a normative framework in the field of transboundary waters. However, findings reveal that the applicability and binding nature of these norms largely depend on power asymmetries, institutional capacities, and political will. Numerous examples have been identified where powerful actors can interpret legal norms in their own interests, use ambiguous language to their advantage, or delay implementation (Wouters et al., 2018). This situation shows that, rather than being a neutral regulator and automatic solution mechanism in the geopolitics of law, it functions as a negotiating arena where the power struggle continues. Legal norms do not eliminate conflict; however, they transform the form and language of conflict. This transformation reduces the likelihood of violent outcomes and encourages the search for compromise by shifting the conflict from the military to the legal and diplomatic spheres. Nevertheless, the findings clearly show that the law is not entirely ineffective; international water law constitutes an important source of rhetorical and diplomatic resistance against sovereignty violations, particularly for weaker actors, civil society organizations, and transboundary advocacy networks. While legal frameworks do not entirely determine the behavior of powerful actors, they can serve as a deterrent by creating legitimacy costs and generating international public pressure.

Findings related to non-state actors clearly demonstrate that the traditional state-centric structure of water geopolitics has evolved into a multi-actor, complex, and network-based structure. International development banks, global water companies, technical consulting firms, research institutions, and transboundary civil society networks play active and transformative roles in shaping water policies (Islam et al., 2025). This multiplicity of actors demonstrates that water governance is no longer merely a matter of inter-state diplomacy; rather, it is shaped by the interaction of numerous actors representing different interests, resources, and sources of legitimacy. Findings reveal that international financial institutions, in particular, can impose certain governance norms and standards on national water policies through the loans, technical assistance, and capacity-building programs they provide, thereby indirectly but effectively transforming sovereignty practices (Fritsch and Benson, 2024). The concept of structural power discussed in the theoretical framework is concretized through the influence of these non-state actors. On the other hand, it has been observed that civil society organizations question the legitimacy of large-scale projects with their demands for water justice, participatory governance, and environmental protection, organize local resistance, and shape

ISSN: 1710-0305
PISSN: 1189-4563

international public opinion (Sultana and Loftus, 2019). This multi-layered and multi-actor structure demonstrates that power is not concentrated in a single center; rather, it is distributed among actors of different scales and qualities, constantly negotiated and reshaped. The polycentric character of the new international system, emphasized in the introduction, finds concrete counterparts in water governance through this multiplicity of actors. This finding reveals that state-centric analyses fall short in grasping the complex dynamics of water geopolitics and highlights the necessity of multi-actor approaches.

Findings support that mechanisms for information and data sharing play a critical role in building trust in water geopolitics. Shared databases, shared monitoring systems, and coordinated hydrological measurements contribute significantly to reducing uncertainties, dispelling suspicions between parties, and creating the necessary environment of trust for cooperation (Kittikhoun and Schmeier, 2021). These mechanisms demonstrate that technical cooperation is both a prerequisite and a product of political trust-building, revealing the reciprocal constitutive relationship between information sharing and diplomatic relations. However, the design, operation, and accessibility of these mechanisms are not independent of power relations. The findings show that actors who control data production and access gain a strategic advantage in negotiation processes; information functions as a strategic resource used in geopolitical bargaining rather than as a neutral public good (Conca and Weinthal, 2018). The concept of informational power developed in the Theoretical Framework is concretized through these data asymmetries. The concealment, selective sharing, or different interpretation of hydrological data can directly affect negotiation processes. Furthermore, it has been found that there is a direct relationship between the transparency of data sharing and institutional trust; that lack of trust limits data flow, thereby weakening the potential for cooperation, while data sharing fosters trust, creating a positive cycle. These findings clearly demonstrate that technical cooperation in water diplomacy cannot be separated from political trust; information sharing is both a sign of trust and a tool for building trust. This reciprocal relationship reveals the dialectical link between informational power and institutional trust and exposes the political dynamics behind the technical appearance of water diplomacy.

Findings focusing on infrastructure investments show that the geopolitical effects of water infrastructure are not limited to physical water control and flow regulation; these structures emerge as structural elements that shape decision-making processes for decades and create path dependencies that are difficult to reverse (Melesse et al., 2021). This path dependency reveals that infrastructure is not merely a technical structure; it is also a material instrument of power that embodies specific power relations, forms of resource allocation, and future possibilities. Dams, transmission lines, storage facilities, and treatment infrastructure fundamentally alter the spatial and temporal distribution of water, reconfiguring power relations and perpetuating existing asymmetries. The material dimension of power emphasized in the introduction is embodied through this infrastructural control. The findings reveal that infrastructure investments are generally legitimized by discourses of national development, energy security, and modernization; however, the transboundary effects of these investments create new vulnerabilities, dependencies, and security concerns for neighboring actors (Conca and Weinthal, 2018). Large dams built by upstream riparian states directly affect the water security of downstream riparian countries; this situation transforms technical investment decisions into sources of geopolitical tension. Furthermore, it has been found that even hydroelectric projects presented as being consistent with sustainability goals can generate different geopolitical tensions depending on the context and manner of implementation (Dogmus, 2024). These findings clearly confirm that infrastructure is not only a technical engineering issue but also a political instrument of power and a practice of sovereignty. The concept of relational power discussed in the theoretical framework explains this indirect but lasting mechanism of influence operating through infrastructure.

Findings on the relationship between energy and water reveal that hydropower has gained a central position in water geopolitics and that water has been re-securitized through the discourse of energy

ISSN: 1710-0305
PISSN: 1189-4563

security. Hydropower projects are presented as strategic investments in the transition to a low-carbon economy, clean energy sources, and tools for achieving climate goals (Biswas and Tortajada, 2021). This discourse highlights the environmental benefits of hydropower while potentially downplaying its costs, such as the degradation of river ecosystems, loss of biodiversity, and displacement of local communities. However, these projects can create serious geopolitical tensions in transboundary basins by altering river flow regimes, controlling water timing, and disrupting ecological cycles. The findings show that energy policies cannot be considered independently of water policies; these two areas are increasingly intertwined and require an integrated approach. Numerous examples have been identified where upstream riparian states use dams not only for electricity generation but also as a strategic leverage tool over downstream riparians (Brears, 2023). Control over the timing and quantity of water flow can serve as a political leverage beyond energy production. This situation clearly demonstrates how sustainability discourse and clean energy goals can become intertwined with the pursuit of geopolitical hegemony. Therefore, the findings confirm that the energy-water nexus transforms water from merely an environmental resource into a multi-sectoral national security issue and a strategic tool. The interconnectedness model developed in the Theoretical Framework provides the necessary analytical framework to understand the complexity of these cross-sectoral relationships. This energy-water nexus empirically confirms the strategic importance of the water-energy-food nexus in water geopolitics, as highlighted in the Literature Review.

Findings support that the relationship between food security and water geopolitics is becoming increasingly visible, strategic, and multidimensional. Agricultural production continues to be the largest user of water on a global scale; this situation directly links water allocation decisions to food supply, price stability, and social welfare (Brouwer, 2022). Considering that approximately seventy percent of global water consumption is for agricultural purposes, the decisive impact of water allocation decisions on food security is more clearly understood. Findings reveal that analyses based on the concept of virtual water trade show that countries experiencing water scarcity close their water deficits through food imports; however, this makes them more dependent on global supply chains, climate conditions, and the policies of exporting countries. This dependency extends water geopolitics beyond national borders and embeds it within global trade relations. Virtual water trade refers to the indirect transfer of water through the trade of water-intensive products rather than the physical transport of water, thereby redistributing the global water footprint. The intense pressure that export-oriented industrial agriculture places on local water resources simultaneously triggers debates on food sovereignty and concerns about sustainability (Sultana and Loftus, 2019). It has been found that the discourse of food security is instrumentalized to legitimize the allocation of water to agriculture, even if it is inefficient, creating conflicts with urban, industrial, and environmental demands. The findings show that water allocation decisions are not based solely on technical efficiency calculations; rather, social priorities, political preferences, and power relations shape these decisions. Thus, water geopolitics emerges as a power field that operates through the management of basic life needs and directly affects social legitimacy.

Findings related to technology use and digitalization reveal that a new layer of digital power has emerged in water geopolitics, transforming traditional power hierarchies. Remote sensing, satellite imaging, big data analytics, and AI-powered modeling tools are increasingly being used in water management (Liang et al., 2024). While these digital tools offer revolutionary possibilities for monitoring and managing water resources, they also create a new power gap between those with technological capacity and those without. These technologies facilitate real-time monitoring of water resources, early prediction of crises, and more effective resource management. However, findings show that actors with technological capacity, data processing infrastructure, and expert human resources gain a clear strategic advantage at the negotiating table. Asymmetries in access to data and the capacity to interpret it create a new hierarchy where those with knowledge set the rules (Fritsch and Benson, 2024). The concept of informational power developed in the Theoretical Framework takes on a new dimension in the context of this digital transformation. Furthermore, it has been

ISSN: 1710-0305
PISSN: 1189-4563

observed that technological solutions, such as smart irrigation systems or desalination plants, tend to overshadow the political and social dimensions of water, presenting the issue as purely an engineering problem. This technological optimism can render structural inequalities and power asymmetries invisible. The findings confirm that technology is not a neutral and universal solution; rather, it is a political instrument that can deepen geopolitical inequalities or reproduce them depending on the context. This finding reveals the limitations of technological determinism in water geopolitics and shows that technology cannot be evaluated independently of its social and political context.

This finding is supported by evidence that rapid urbanization and the rise of large cities have spatially rescaled water geopolitics. Large cities and metropolitan areas create enormous water demand with their concentrated populations, expanding industrial zones, and increasing consumption patterns; this demand necessitates water transfers from distant basins beyond city limits, large-scale infrastructure investments, and interregional resource transfers (Bolognesi et al., 2023). This spatial expansion increases the ecological footprint of cities and transforms watersheds into the hinterland of urban consumption. This situation makes cities decisive geopolitical actors in national and regional water policies. Findings reveal that large cities can sometimes bypass national governments or indirectly influence their policies by establishing direct relationships with international financial institutions, global climate networks, and technical consulting firms. The intense pressure that urban demands exert on rural areas, agricultural regions, and ecosystems shifts sustainability debates toward center-periphery tensions and spatial justice issues (du Plessis, 2019). Questions about who will use the water, which regions will be prioritized, and who will make sacrifices become subjects of social and political conflict. This issue of spatial justice reveals how geographical inequalities in water distribution intersect with and reinforce social inequalities. Consequently, the findings clearly confirm that water geopolitics is now shaped not only within state borders and international relations, but also along the urban-rural axis, in interregional relations, and within global urban networks. The multi-centered and multi-scalar structure emphasized in the introduction takes on a concrete dimension with the rise of cities.

The findings show that sovereignty claims in water geopolitics are increasingly being established through rhetorical tools and that legitimacy building has become a strategic priority. States legitimize their rights and control claims over water resources not only through legal texts and diplomatic negotiations, but also through powerful narratives such as national development, food security, energy independence, and sustainability (Wouters et al., 2018). These narratives make certain policies acceptable to the public and serve strategic functions aimed at dampening opposition. These discourses allow national interests to be presented as indisputable technical necessities, inevitable modernization efforts, or goals consistent with universal values. Particularly in large-scale infrastructure projects, it has been found that discourses such as national survival, intergenerational responsibility, or the transition to green energy are strategically used to soften cross-border reactions, dampen local opposition, and secure international legitimacy (Menga, 2018). The concept of discursive power developed in the Theoretical Framework finds concrete counterparts in these findings. The findings confirm that discursive hegemony can be an effective instrument of power even when material capacity is limited; that power has not only a physical and economic dimension but also a narrative one (Conca, 2021). Discourses can naturalize certain policies, rendering alternatives invisible; they provide the power to set the agenda by determining which questions will be asked and which solutions can be considered. Thus, sovereignty ceases to be merely an authority exercised within borders; it emerges as a dynamic phenomenon that is constantly reproduced through the complex interaction between discourses, practices, and international relations. This finding reveals that discursive power is not independent of material power; on the contrary, both forms of power mutually support and legitimize each other.

The research findings reveal that the issue of justice and inequality in water geopolitics is becoming increasingly visible and central, going beyond technical governance debates. Inequalities in access to and use of water constitute a structural problem area, both at the national level in the form of rural-

ISSN: 1710-0305
PISSN: 1189-4563

urban, industrial-agricultural, and interregional differences, and at the international level in the form of asymmetries between North-South, upstream-downstream, and developed-developing countries (Sultana and Loftus, 2019). This multi-layered structure of inequality shows that water justice is not just a matter of access; it also involves participation in decision-making processes, recognition, and representation. The findings clearly show that the benefits and costs of large-scale hydro-political projects are not distributed equally among different segments of society; this situation creates new geopolitical fault lines between social groups, regions, and states. While human rights-based approaches play an important role in making these inequalities visible, creating international normative pressure, and forcing states to be accountable, the findings confirm that the impact of the justice discourse on policy-making processes varies significantly depending on the context, political will, and the power of civil society (Heller, 2022). Furthermore, gender-focused analyses document that the masculine and technocratic structure of decision-making mechanisms in water governance systematically excludes women, local communities, and vulnerable groups, and that this exclusion reproduces inequalities (Sehring et al., 2023). These data prove that sustainability is not merely an environmental balance or a technical goal; without social legitimacy, participatory governance, and distributive justice, true lasting stability cannot be achieved. This finding highlights the normative dimension of water geopolitics and emphasizes the risk that technical governance approaches overlook issues of justice.

Findings focusing on regional cooperation mechanisms clearly show that these mechanisms present both significant opportunities and serious structural limitations in water geopolitics. Joint basin management initiatives, river commissions, and regional water organizations offer significant gains in terms of technical coordination, data sharing, confidence-building measures, and joint capacity building (Kittikhoun and Schmeier, 2021). These institutions play an important coordination role in transboundary water management and provide the necessary platforms to maintain dialogue between the parties. They facilitate communication between parties, establish a common language and conceptual frameworks, and act as buffer mechanisms that prevent conflicts from escalating. However, the effectiveness, sustainability, and fairness of these mechanisms largely depend on the balance of power between parties, political will, and external conditions. Findings reveal that unequal power relations and hydropolitical hegemonies shape cooperation processes and institutional designs; powerful actors can determine rules, procedures, and priorities in their favor (Islam et al., 2025). In some cases, it has been found that processes under the name of cooperation, rather than reducing tensions, legitimize and institutionalize existing asymmetries, making them permanent. The concept of hydropolitical hegemony discussed in the Theoretical Framework is empirically supported by these findings. This situation demonstrates that cooperation does not automatically produce positive, egalitarian, and sustainable outcomes; it must be evaluated according to context, design, and power distribution. The liberal institutionalist optimism criticized in the Literature Review should be subject to a more nuanced assessment in light of these findings. This critical assessment reveals that focusing on the content, form, and outcomes of cooperation offers more meaningful analyses than focusing solely on its existence.

Overall, the findings clearly demonstrate that water geopolitics in the new international system has a polycentric, uncertain, dynamic, and constantly changing structure. The relationships between power, sovereignty, and sustainability operate not through fixed patterns, linear causality, or universal models, but through processes that are constantly being redefined, negotiated, and transformed (Hellberg et al., 2024). This dynamic and transformative structure demonstrates that water geopolitics is not a static structure but an ever-evolving process, emphasizing that analyses must take this fluidity into account. This redefinition process is shaped by the complex interactions of states, international organizations, financial institutions, corporations, cities, civil society, and local communities. Findings reveal that classical state-centric, hierarchical, and static analyses fall short in grasping and explaining this complexity; instead, network-based, multi-actor, multi-scalar, and relational approaches offer more explanatory and inclusive results (Brears, 2023). The

ISSN: 1710-0305
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interconnectedness model developed in the Theoretical Framework provides the necessary analytical flexibility to understand this complex structure. Furthermore, it has been confirmed that the uncertainty and risk factor caused by climate change has become a permanent and structural feature of water geopolitics, rather than a temporary or periodic one. Under these conditions, flexible, adaptable, and learning forms of governance are seen to be gaining importance over rigid and long-term planning. The structural uncertainty highlighted in the introduction has found concrete counterparts in the findings and supports the study's fundamental assumptions. This overall assessment validates the empirical level of the study's theoretical framework and demonstrates the explanatory power of the power-sovereignty-sustainability interconnection model.

In conclusion, the research findings empirically confirm that the power-dominance-sustainability interconnection model developed in this study and presented in detail in the Theoretical Framework provides an analytically robust, consistent, and explanatory framework. The case studies examined, regional comparisons, and literature data clearly show that these three dimensions cannot be treated as independent variables; rather, they are part of a dynamic cycle in which they mutually transform, condition, and reproduce each other. Power relations limit or expand sovereignty practices; sovereignty practices, in turn, shape how sustainability goals are defined, by whom, and in whose favor (Conca and Weinthal, 2018). Sustainability discourses both legitimize power relations and prepare the ground for new claims to sovereignty. This reciprocal constitutive relationship demonstrates that water geopolitics cannot be reduced to a single variable and that a holistic approach is imperative. The findings reveal that this reciprocal interaction is the fundamental dynamic of water geopolitics and has the capacity to integrate fragmented analyses in the literature, such as approaches focused solely on security, law, or the environment. This empirical validation has enabled the study to produce systematic, consistent, and in-depth answers to the research questions and hypotheses formulated in the Introduction section. The concepts of relational power, conditional sovereignty, and tense connectedness proposed in the main hypothesis are strongly supported by the findings. The auxiliary hypotheses have also been consistently validated despite regional differences, demonstrating that the theoretical model remains valid in different contexts. In the next section, Discussion, these findings will be interpreted in relation to broader debates in the literature, theoretical contributions will be clarified, and policy-level implications will be evaluated.

6. Discussion

The findings of this study confirm that water geopolitics has evolved into an area of structural transformation that is too complex to be reduced to mere resource scarcity or regional tensions in the new international system. The thematic patterns presented in the findings section clearly show that water has become a multidimensional source of power operating through infrastructure capacity, financial access, and knowledge production mechanisms. This multidimensional transformation fundamentally challenges the static space and absolute power assumptions of classical geopolitical theories; it requires new analytical tools to grasp the interdependencies created by the fluid and transboundary nature of water (Hellberg et al., 2024). This transformation highlights the analytical limitations of traditional approaches that largely treat water as a direct military threat or a conflict element stemming from scarcity (Conca and Weinthal, 2018). State behavior in transboundary basins is now shaped more by institutional design capacity, technical expertise, and access to international financing networks than by the use of military force. This observation reveals that the concept of power in the context of water geopolitics cannot be limited to material capacity alone; it must be understood in conjunction with its structural, relational, and governance dimensions (Brears, 2023). It has been determined that sovereignty practices are not immune to this transformation, having evolved from a claim of absolute territorial control to a dynamic quality of managing uncertainties and directing decision-making processes (Baranyai, 2019). This finding proves that sovereignty is not a fixed and indivisible authority as envisaged by the Westphalian tradition; on the contrary, it is a

ISSN: 1710-0305
PISSN: 1189-4563

relational practice that is constantly renegotiated due to climatic uncertainties and transboundary dependencies (Wouters et al., 2018). Therefore, the findings remove water from its passive status as a natural resource in the international system and position it as an active strategic variable that determines states' positions in the global power hierarchy.

A comparative analysis of the findings revealed by the research reinforces the explanatory power of the power-domination-sustainability connection that forms the theoretical backbone of the study. In particular, the legitimization of large-scale hydroelectric investments and water transfer projects through environmental discourse strongly supports the assumptions put forward by political economy literature (Dogmus, 2024). The transboundary impacts of these projects and the displacement pressure they create on local communities concretize the fact that sustainability is not a universal and impartial technical goal. Indeed, critical hydropolitical literature emphasizes that the content of the concept of sustainability is redefined in specific historical and geographical contexts in line with the interests of dominant actors, and that this redefinition process itself is a practice of power (Conca, 2021). On the contrary, the data obtained shows that the discourse of sustainability has been transformed into a tool of legitimacy that reinforces the claims of sovereignty of dominant actors in certain contexts. This finding aligns with the critical warnings in environmental justice literature that sustainability cannot be abstracted from power relations (Sultana and Loftus, 2019). Furthermore, it has been observed that water diplomacy institutions, rather than addressing power imbalances, perpetuate them through technical procedures (Kittikhoun and Schmeier, 2021). This observation calls into question the transformative potential attributed to cooperation mechanisms by liberal institutionalist approaches and reveals that institutions are not neutral mediators but rather structures that reflect and reproduce existing power relations (Islam et al., 2025). This situation demonstrates that cooperation mechanisms do not automatically produce equitable outcomes; rather, they can normalize structural inequalities, offering a critical intervention to the optimistic normative assumptions in the literature.

The findings provide concrete evidence of the profound transformation of the concept of sovereignty in the context of water geopolitics. The de facto superiority in control over water flow patterns gained by upstream states through dams and storage facilities clearly demonstrates how sovereignty is being rebuilt in practice. This hydro-hegemonic structure reveals how the principle of formal equality, as envisaged by international law, can become dysfunctional in the face of material power imbalances on the ground (Menga, 2018). This observation confirms that the principles of reasonable and equitable use emphasized in international water law literature are limited in practice by material power relations (McCaffrey et al., 2019). The research results reveal that legal frameworks alone cannot produce fair outcomes; however, when supported by institutional, technical, and financial capacity, they can become an effective means of negotiation. This finding is consistent with analyses that highlight the gap between normative regulations and field practices (Wouters et al., 2018). In this context, sovereignty is defined not merely as a legal status, but rather as the competence to manage water flow and associated risks. The uncertainty created by climate change transforms this competence into one of the fundamental indicators of state legitimacy (Ojha, 2023). This transformation shows that sovereignty is no longer measured solely by authority over land, but also by the capacity to understand, model, and manage the hydrological cycle (du Plessis, 2019). Thus, sovereignty is shifting from being a static right in water geopolitics to becoming a dynamic process that is constantly negotiated and reconstituted.

The findings reveal that knowledge, data, and technical expertise are increasingly becoming a decisive source of power in water geopolitics. Hydrological measurements, risk assessments, climate scenarios, and modeling studies are emerging as key tools that guide policy-making processes and present specific preferences under the guise of technical necessity. This form of epistemic power concretizes Foucault's analysis of the power-knowledge relationship in the context of water governance; it proves that knowledge is not a neutral public good, but rather that the conditions of its production and circulation are determined by power relations (Conca and Weinthal, 2018). This situation concretizes

ISSN: 1710-0305
PISSN: 1189-4563

and deepens the concept of epistemic power discussed in the literature (Fritsch and Benson, 2024). The conditions of knowledge production, ownership structure, and forms of circulation determine which risks are prioritized, which projects are considered legitimate, and which policies are defined as sustainable. Research findings show that actors with technical capacity and data production infrastructure gain a distinct strategic advantage in these processes. This advantage often conceals its political nature under the rhetoric of scientific impartiality (Conca and Weinthal, 2018). Thus, power is constructed not only through concrete infrastructure such as dams or canals, but also through normative and cognitive frameworks. International consulting firms, technical expert networks, and global water partnerships emerge as key actors in this epistemic power field, indirectly shaping national sovereignty practices by defining sustainability standards and best practices (Brears, 2023). This situation reveals that water geopolitics must be understood not merely as a field of hydraulic engineering, but also as a complex knowledge order.

The findings discussed in this phase of the debate clearly show that water geopolitics exhibits a structure too complex to be reduced to a conflict-cooperation dichotomy. The research results prove that conflict and cooperation are, in most cases, intertwined within the same process and are not mutually exclusive opposites. This finding subjects both the neo-Malthusian narrative of water wars in the literature and liberal optimistic approaches that assume water will automatically generate cooperation to critical scrutiny (Hellberg et al., 2024). This observation contradicts early approaches that treated water as a decisive cause of conflict (Conca and Weinthal, 2018). While institutional arrangements and diplomatic mechanisms can manage tensions, they can also perpetuate power imbalances (Islam et al., 2025). Therefore, cooperation does not produce normatively positive and equitable outcomes in all circumstances. The findings clearly reflect this dual nature of multi-level governance structures. The concept of hydro-hegemony provides an important analytical tool in this context, revealing the underlying asymmetric power relations behind seemingly cooperative institutional arrangements (Kittikhoun and Schmeier, 2021). This necessitates a critical reassessment of water diplomacy. This dimension of the debate confirms that water geopolitics is a multi-layered field of analysis reflecting the complex and contradictory structure of the new international system. This understanding makes it possible to go beyond the one-dimensional explanations frequently encountered in the literature and to grasp the constitutive role of water in global politics in a more holistic manner.

The findings of the research reveal that multi-centered power structures are becoming prominent in water geopolitics and that these structures reflect one of the fundamental characteristics of the new international system. Today, power is dispersed across different scales and geographies rather than concentrated around a single dominant actor. This dispersion necessitates that decisions regarding water management be made through multi-actor negotiations (Brears, 2023). This multi-centered structure is a reflection in the field of water geopolitics of a new international system that differs from the bipolar order of the post-Cold War era and in which the dominance of a single hegemonic power has diminished (Conca, 2021). The data obtained shows that regional actors and medium-sized states, in particular, have gained a more effective and visible position in water policies. This increased visibility challenges traditional center-periphery distinctions and questions established assumptions about the global distribution of power. Discussions of multipolarity prominent in the literature find concrete counterparts in the field of water geopolitics (Hellberg et al., 2024). In this context, water has become a strategic indicator through which global power shifts and systemic transformations can be traced. In particular, the growing interest and investments of rising powers in transboundary water projects constitute one of the concrete manifestations of this multi-centered structure (Dogmus, 2024). This dimension of the debate confirms that water offers a unique analytical window for understanding the distribution of power in the new international system and supports arguments of structural transformation in the international relations literature. Thus, water geopolitics is evolving from being merely an environmental subfield into a foundational research area reflecting the fundamental dynamics of global politics.

ISSN: 1710-0305
PISSN: 1189-4563

Another critical finding revealed by the research is that water geopolitics is shaped through interactions across scales. There is a close and reciprocal connection between local water use decisions, national development goals, and international norms (Bolognesi et al., 2023). This situation demonstrates that water cannot be addressed solely as an inter-state issue; local, national, and global scales must be evaluated together. Multi-level governance theory provides a powerful analytical framework for understanding these interactions between scales; however, it reminds us that power imbalances between scales and vertical coordination problems must not be overlooked (Baranyai, 2019). Cities, basin management units, and regional organizations are increasingly becoming more effective and decisive actors in water policies. This multi-layered structure requires redefining sovereignty as a fragmented and negotiable practice (Baranyai, 2019). Research findings reveal that mismatches between scales create serious problems in water governance; however, they also open up new opportunities for cooperation. This tension between scales is particularly evident in the conflict between central governments' claims to national sovereignty and local communities' demands for participation (Sultana and Loftus, 2019). The discussion shows that multi-level governance produces both opportunities and tensions; this finding directly aligns with the theoretical framework of the study. The interaction of actors at different scales increases the complexity of water geopolitics while also paving the way for innovative solutions.

The study's findings clearly demonstrate that the political economy dimension cannot be ignored in water geopolitics and that this dimension is becoming increasingly decisive. Infrastructure projects and financing mechanisms have risen to become key determinants of how and by whom water is managed (Brears, 2023). This financialization process accelerates the transformation of water from a public good to a commodity with market value; this transformation, in turn, produces new inequalities and exclusion mechanisms in access to water (Heller, 2022). The findings show that credit providers and international investors exert normative influence through the discourse of sustainability. This influence often leads to the reshaping of national priorities and the external determination of policy preferences (Dogmus, 2024). Studies in the literature that highlight the tension between development policies and environmental goals are consistent with these findings (Sultana and Loftus, 2019). The discussion concretizes how the increased economic value of water has direct geopolitical consequences. These consequences demonstrate that water is treated not only as a natural resource but also as a financialized asset. Thus, water geopolitics becomes more strongly intertwined with global capitalist dynamics, reinforcing the critical orientation of the study. Neoliberal restructuring processes lead to the spread of privatization, commercialization, and market-based tools in water governance, which in turn weakens democratic accountability and public oversight mechanisms (Conca and Weinthal, 2018). While the financialization process carries the risk of weakening the democratic oversight of water governance, it also brings new actors and interest groups into this field.

Another important issue that needs to be discussed in light of the findings is the increasing role of risk and uncertainty management in water geopolitics. Climate change reduces the predictability of water, bringing risk-based approaches to the fore (du Plessis, 2019). The increase in hydrological variability predicted by climate models invalidates the static assumptions on which traditional water planning approaches are based; this, in turn, transforms decision-making capacity under conditions of uncertainty into a new strategic advantage (Ojha, 2023). Research findings show that risk discourse functions as a powerful legitimizing tool in policymaking. This paves the way for preventive and protective policies to be more readily accepted despite their political costs (Conca, 2021). However, how risk is defined and measured is not a technical process independent of power relations (Fritsch and Benson, 2024). The debate reveals that risk management is not merely a technical activity but rather constitutes a political arena regarding which threats should be prioritized. In this context, risk is positioned at the intersection of sovereignty and sustainability debates; the capacity to manage uncertainty is becoming a new indicator of sovereignty. Risk discourse is also closely linked to securitization processes; framing water as a security threat can pave the way for the legitimization of

ISSN: 1710-0305
PISSN: 1189-4563

extraordinary measures and centralized control mechanisms (Menga, 2018). Findings show that uncertainty has become a permanent structural feature of water geopolitics, rather than a temporary problem. This situation increases the importance of flexible and adaptable governance models and highlights the limitations of rigid planning approaches.

The findings of this study necessitate a reassessment of the role of the legal framework in water geopolitics. Although international water law provides a normative basis and a common language for negotiation, in practice it remains subject to the influence of power imbalances (McCaffrey et al., 2019). Fundamental legal documents such as the 1997 United Nations Convention on the Non-Navigational Uses of International Watercourses codify the principles of reasonable use and non-prejudice; however, the interpretation and application of these principles vary according to the power capacities of the contracting states (Wouters et al., 2018). Research findings reveal that law alone cannot prevent conflicts or guarantee equitable sharing; however, it makes tensions manageable by providing a common reference point between parties. This demonstrates that law is a limited but indispensable tool (Wouters et al., 2018). The discussion emphasizes that the impact of legal norms weakens when they are not supported by strong institutional capacity and political will. Nevertheless, the law serves as an important discursive and diplomatic resource for relatively weak actors and civil society to resist dominant projects. The recognition of the right to water as a human right stands out as an important normative development in this context; however, the implementation of this right still faces serious obstacles (Heller, 2022). Findings prove that law is not an absolute solution in water geopolitics; rather, it operates as another arena where power struggles persist. The normative framework, in this context, assumes both a restrictive and an enabling function; it both constrains and legitimizes the strategic choices of actors.

The findings of this study show that the social dimension in water geopolitics has long remained in the shadow of state-centered analyses; however, it is increasingly becoming a central issue of legitimacy in the new international system. The approach to water policies through large-scale infrastructure and security-oriented frameworks often renders the experiences and grievances of local communities invisible (Sultana and Loftus, 2019). Political ecology literature emphasizes that this invisibility is not accidental; rather, it is a structural outcome of dominant development discourses and technocratic governance approaches (Conca, 2021). Research findings demonstrate that inequalities in water access are not only related to technical inadequacies but also to deliberate political choices. This situation highlights the importance of environmental justice literature's critical contributions to water geopolitics (Heller, 2022). The debate reveals that sustainability goals cannot be achieved without considering the social justice dimension; otherwise, projects may encounter local resistance and fail. The experiences of displacement and dispossession created by large-scale dam projects constitute concrete examples of this social resistance; the organization of affected communities and the establishment of international solidarity networks carry the potential for a bottom-up counter-hegemony (Dogmus, 2024). The findings confirm that water geopolitics is not only an inter-state issue but also a matter of inter-community justice, showing that tensions become more persistent in contexts where participatory mechanisms are limited. The exclusion of local knowledge and experience from policy processes creates legitimacy gaps and jeopardizes the long-term sustainability of projects. Therefore, the social dimension must be considered an integral component of water geopolitics analyses.

The gender perspective is particularly important in the discussion section. Research findings show that women and vulnerable groups are underrepresented in decision-making processes in water governance, yet they bear the disproportionate burden of water scarcity and pollution (Sehring et al., 2023). The feminist political ecology perspective reveals that this disproportionate burden is a result of gender roles and patriarchal structures; the collection, transportation, and domestic use of water largely rely on women's invisible labor (Sultana and Loftus, 2019). This lack of representation directly undermines the effectiveness and social inclusiveness of water policies. Feminist political ecology approaches in the literature assess this situation as a reflection of structural inequalities and a

ISSN: 1710-0305
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technically focused engineering culture. The debate reveals that ignoring the gender dimension leaves definitions of water security and development incomplete and undermines sustainability goals. Furthermore, gender-based analyses make visible how water is intertwined with daily life practices and livelihood strategies, bringing geopolitical analysis together with the micro level. The emphasis on the link between gender equality and access to water within the framework of the United Nations Sustainable Development Goals is an important step in bringing this perspective to the global policy agenda (Heller, 2022). Findings demonstrate that this perspective has high explanatory power in water geopolitics and is essential for the democratization of the field. The gender lens makes visible that water governance is not only a technical issue but also a social and political one, strengthening inclusivity in policy design.

The findings of the discussion reaffirm the decisive role of regional differences and context in water geopolitics. In regions such as Central Asia, the Middle East, and South Asia, water is directly linked to national security, state capacity, and energy-food policies ( ); whereas in the European context, legal procedures and institutional frameworks are more prominent (Menga, 2018; Baranyai, 2019). This regional differentiation reveals how historical legacies, post-colonial border demarcations, levels of institutional capacity, and power asymmetries shape water geopolitics (Islam et al., 2025). These differences clearly demonstrate the limited applicability of universal policy prescriptions and uniform institutional models on a global scale. Research findings reveal that similar technical tools can produce entirely different political outcomes within different power balances and historical legacies. For example, river commissions or data-sharing protocols can strengthen cooperation in one region while reinforcing existing inequalities in another. In Central Asia, infrastructure dependencies inherited from the Soviet era and water-energy trade-off arrangements constitute a concrete example of this regional specificity; this legacy structurally determines today's hydropolitical relations (Menga, 2018). The discussion emphasizes that context-sensitive analyses are indispensable for the water geopolitics literature and that regional power balances directly shape the functioning of cooperation mechanisms (Islam et al., 2025). This reinforces the importance of the comparative approach adopted in this study and demonstrates that water geopolitics must be understood through multiple regional patterns rather than singular narratives.

The discussion of the findings clearly reveals the tension between normative discourses and actual practices in water geopolitics. Principles such as sustainability, cooperation, equity, and participation are strongly emphasized in international policy documents and treaty texts (Wouters et al., 2018). Despite this normative richness, the gap between discourse and practice constitutes one of the fundamental structural problems of international water governance; this gap stems from the capacity of powerful actors to interpret and instrumentalize the normative framework in line with their own interests (Conca, 2021). However, research findings show that the implementation of these norms in the field is largely filtered through power relations and national interests. The debate reveals that norms function not as impartial universal principles, but rather as tools that actors use to secure their own legitimacy and constantly negotiate (Conca and Weinthal, 2018). This necessitates a critical evaluation of normative approaches. Findings concretize that norms can take on different meanings depending on the context; for example, sustainability can mean conservation in one basin and intensive infrastructure construction in another. This normative flexibility, while enabling adaptation to different contexts, also paves the way for powerful actors to fill the concepts with their own interests (Hellberg et al., 2024). The discussion emphasizes that the normative framework creates a limited but important basis of legitimacy in water geopolitics; however, it is not an autonomous mechanism operating independently of power and sovereignty. In this context, norms serve both a restrictive and an enabling function.

One of the most critical findings highlighted in the discussion section of this study is the analytical value of the developed power-sovereignty-sustainability nexus. The research findings clearly demonstrate that these three dimensions mutually shape each other and that one cannot be understood without the other. This mutually constitutive relationship demonstrates that reductionist

ISSN: 1710-0305
PISSN: 1189-4563

and single-variable explanations fall short in grasping the complexity of water geopolitics, highlighting the necessity of a holistic and relational analytical framework (Conca and Weinthal, 2018). Fragmented approaches in the literature, whether security-focused or law-focused frameworks, often overlook this dynamic interaction (Hellberg et al., 2024). The discussion reveals that the connectivity approach has the capacity to fill this gap and anchor complex relationships within a holistic framework ( ). The polycentric and uncertain structure of the new international system, in particular, renders such flexible and integrative frameworks more meaningful and functional. Research findings show that the interconnectedness approach both synthesizes the literature at the theoretical level and explains different cases at the empirical level. This analytical framework goes beyond sectoral approaches such as the water-energy-food nexus, offering a more comprehensive conceptualization that centers power relations, sovereignty practices, and normative struggles (Brears, 2023). This is considered one of the study's original contributions to the literature and provides a solid foundation for future analyses of water geopolitics. The interconnectedness framework rescues water geopolitics from being reduced to singular variables and opens the door to a multidimensional understanding.

The findings of this study show that policy-making processes in water geopolitics are becoming increasingly technical; however, this technicalization does not eliminate the political content, but rather obscures it. Technical language, engineering solutions, and expert jargon can serve to present choices that are essentially highly political as indisputable necessities (Fritsch and Benson, 2024). This depoliticization process weakens democratic negotiation and accountability mechanisms, leading to political choices being relegated to the realm of technical expertise and thus escaping public scrutiny (Conca, 2021). Questions such as who will have access to water, which risks are acceptable, and which projects should be prioritized are stripped of their political nature under the guise of technical calculations. The debate reveals that the assumption that technical tools and data are neutral is problematic. Complex climate models and risk assessments, in particular, have the power to determine which policy options are presented as logical or inevitable (Conca, 2021). This can undermine democratic accountability and transparency in decision-making processes. Technical consulting firms and international networks of experts emerge as key actors in this technocratic governance structure; the knowledge and standards they produce indirectly shape national policies (Brears, 2023). Research findings demonstrate that technocracy is closely linked to practices of sovereignty; political power is indirectly reproduced through technical expertise and data control. The discussion emphasizes that this process creates a new form of technocratic power in the water geopolitics and that it must be critically monitored. While technification is presented as an apparently apolitical process, it actually serves a strategic function that reinforces specific interests and power relations.

The findings of the discussion show that the long-term time horizon and temporal dimension play at least as central a role as the spatial dimension in water geopolitics. Dams, water transfer lines, and signed institutional agreements are decisions that have effects lasting for decades and create path dependency (Melesse et al., 2021). This infrastructural legacy materializes current power relations and carries them into the future; decisions made today structurally limit the options of future generations (Conca and Weinthal, 2018). This leads to the transfer of current power imbalances into the future and their becoming structural. The debate reveals that this temporal dimension is often neglected in analyses of sovereignty and sustainability; however, it has gained vital importance with climate change. Climate uncertainty makes it difficult to predict future water availability; the capacity to manage and model the future is emerging as a new area of geopolitical advantage (du Plessis, 2019). In this context, strategic foresight capacity is not merely a technical skill; it is also an instrument of power that legitimizes today's political choices and establishes certain narratives about the future as dominant (Ojha, 2023). In this context, strategic foresight and scenario generation become tools that legitimize today's political choices. The research findings confirm that water geopolitics is a temporal sphere of power that shapes not only the present moment but also the options of future generations.

ISSN: 1710-0305
PISSN: 1189-4563

The irreversible effects of decisions taken increase the strategic importance of temporality in water governance and bring intergenerational justice debates to the fore.

The discussion section of this study reevaluates the growing influence of non-state actors in water geopolitics to a degree that challenges classical international relations theories. The research findings show that international development banks, global water companies, technical consulting firms, and civil society networks significantly shape water policies (Islam et al., 2025). These non-state actors create an intermediate space that challenges traditional definitions of sovereignty; rather than direct territorial control, they exert indirect influence through their capacity to produce norms, circulate knowledge, and provide financing (Kittikhoun and Schmeier, 2021). Although these actors do not possess direct sovereignty, they can create an indirect sovereign effect through their capacity to provide financing, set technical standards, and produce knowledge. The discussion reveals that this situation transforms water governance into a more complex and network-based structure, but also one that is more problematic in terms of accountability (Brears, 2023). The private sector's growing interest in water infrastructure investments and the proliferation of public-private partnership models constitute one concrete manifestation of this pluralization of actors; however, the problems these models create in terms of democratic oversight and public interest require critical evaluation (Sultana and Loftus, 2019). Although processes involving non-state actors provide flexibility, it has been observed that this flexibility does not always produce equitable outcomes; on the contrary, it can lead to technocratic decisions escaping political oversight. Thus, water geopolitics has evolved from an inter-state chessboard into a multi-actor arena of interaction. This transformation necessitates a rethinking of analytical tools and reveals the limitations of state-centric assumptions.

The findings of the discussion clearly reveal the urban dimension in water geopolitics and the rise of large cities as new geopolitical actors. Due to their dense populations and enormous infrastructure requirements, large cities generate water demands that transcend national borders, transforming cities into strategic units capable of influencing national and regional water policies (Bolognesi et al., 2023). With more than half of the global population now living in cities and urbanization rates accelerating, urban water security has become one of the most critical items on the national and international policy agenda (Brears, 2023). The debate highlights the pressure that the pursuit of urban water security exerts on rural areas and ecosystems and the resulting center-periphery tensions. Furthermore, the ability of cities to establish direct relationships with international climate networks and financial institutions, bypassing central governments, is transforming sovereignty practices from the bottom up (Sultana and Loftus, 2019). Inter-city networks such as the C40 Climate Leadership Group provide concrete examples of this paradiplomacy phenomenon; cities can undertake international commitments on climate and water policies independently of national governments (Bolognesi et al., 2023). This phenomenon of paradiplomacy challenges the boundaries of the classical understanding of sovereignty and constitutes a concrete manifestation of multi-level governance. The research findings confirm that water geopolitics is being spatially rescaled and that cities have assumed a decisive position in this new hierarchy. Urbanization dynamics stand out as one of the key factors that will shape the future of water geopolitics.

The findings presented in the discussion section of this study show that the tension between justice, sustainability, and power in water geopolitics is structural and persistent. While the discourse of sustainability in policy documents generally focuses on environmental and technical goals, it tends to relegate social inequalities and the dimension of justice in water distribution to the background (Heller, 2022). The environmental justice perspective criticizes this situation as the depoliticization of sustainability and its reduction to a technical issue; the " " proposes a critical approach that questions for whom and under what conditions sustainability is valid (Sultana and Loftus, 2019). The debate reveals that this unjust approach to sustainability creates serious legitimacy crises and social resistance in terms of policy outcomes. Research findings prove that hydropolitical projects that disregard the dimension of justice do not ensure stability in the long term; on the contrary, local grievances can turn into transboundary security issues. The water justice movement and global

ISSN: 1710-0305
PISSN: 1189-4563

campaigns for the recognition of access to water as a human right constitute the concrete political expressions of this demand for justice (Heller, 2022). In this context, water geopolitics is not only a matter of resource management but also of building social peace. The discussion emphasizes that integrating justice-based approaches into water policies is essential to mitigate power imbalances and make sustainability realistic. The principles of human rights, participation, and fairness form the core components of this integration and strengthen the normative foundations of water governance.

The findings of this study's discussion show that water geopolitics is shaped by normative uncertainties in the new international system. Concepts such as sustainability, cooperation, and justice, despite being widely used in international texts, exhibit a flexible structure that varies in content depending on the context (Wouters et al., 2018). This conceptual flexibility facilitates compromise in international negotiations; at the same time, it allows powerful actors to interpret and instrumentalize these concepts in line with their own interests (McCaffrey et al., 2019). The debate reveals that this normative uncertainty creates a strategic maneuvering space for powerful actors, with the concepts being filled in according to power relations. Research findings demonstrate that norms function not as universal and fixed principles, but as negotiated and reproduced instruments (Conca and Weinthal, 2018). This reinforces the political nature of the normative framework and makes the enforceability of law dependent on institutional capacity and power balances. The fundamental principles of international water law—reasonable use, non-prejudice, and the duty to cooperate—constitute concrete examples of this normative uncertainty; the interpretation of these principles varies significantly according to the power capacities of the states involved (Wouters et al., 2018). The debate clearly demonstrates that normative discourse does not create a neutral ground in water geopolitics; thus, norms become an inseparable and controversial part of sovereignty and power relations. Normative uncertainty provides flexibility on the one hand, while harboring risks of inconsistency and unpredictability on the other. This dual nature constitutes one of the key factors increasing the complexity of water governance.

The conclusions reached in the discussion section show that water geopolitics necessitates adaptive governance approaches. Rapid changes caused by climate change and demographic pressures are reducing the effectiveness of fixed and rigid management models (du Plessis, 2019). The adaptive governance approach, by focusing on the capacity to learn, experiment, and adapt in conditions of uncertainty, offers an alternative to the static assumptions of traditional planning approaches (Brears, 2023). Research findings reveal that flexible institutional structures and feedback mechanisms are more successful in coping with uncertainty. However, the debate highlights that adaptability does not always equate to inclusivity; flexibility can sometimes be instrumentalized as a means of avoiding accountability (Brears, 2023). Technocratic governance structures can weaken democratic oversight mechanisms under the rhetoric of flexibility; when not balanced by principles of participation and transparency, this can generate new inequalities and forms of exclusion (Conca, 2021). This situation necessitates a critical evaluation of adaptive governance. Research findings reveal that flexibility not supported by participation and transparency mechanisms can generate new inequalities, emphasizing that adaptability must be addressed alongside normative and institutional frameworks . While adaptive governance is an effective tool in conditions of uncertainty, it has the potential to create legitimacy issues when not balanced with democratic oversight mechanisms. Therefore, the balance between flexibility and accountability constitutes one of the fundamental tensions in water governance.

The discussion findings of this study indicate that policy transfer and learning processes are becoming increasingly important in water geopolitics. Regional experiences and best practices are frequently shared through international platforms and basin organizations (Kittikhoun and Schmeier, 2021). While these policy transfer processes contribute to the spread of global water governance norms, they also carry the risk of imposing certain models and approaches based on the assumption of their universal validity (Islam et al., 2025). However, research findings reveal that these transfers do not produce the same positive outcomes in every context; policy transfer often occurs within power

ISSN: 1710-0305
PISSN: 1189-4563

relations (Islam et al., 2025). The experiences of powerful actors or donor organizations are often presented as universal models, which can lead to the neglect of local conditions and specificities. Donor-driven policy transfer can create serious failures and incompatibilities in practice when it does not take into account the institutional capacities and local knowledge systems of recipient countries (Menga, 2018). Research findings show that context-sensitive and mutual learning processes produce more sustainable results. The discussion highlights the limitations of one-way policy transfer in water geopolitics, redefining learning as a critical and interactive process. Policy learning should be strengthened by approaches that acknowledge the value of local knowledge and experience and conceptualize transfer as a horizontal rather than hierarchical relationship. This perspective highlights pluralism and contextual sensitivity in water governance.

Overall, the findings of the discussion show that water geopolitics has become an area of structural transformation in the new international system. The relationships between power, sovereignty, and sustainability have become so complex and intertwined that they cannot be explained by fixed patterns (Hellberg et al., 2024). This complexity reveals the limitations of single-discipline approaches and reductionist explanations; it requires water geopolitics to be positioned at the intersection of different fields such as international relations, environmental studies, political ecology, and development studies (Conca and Weinthal, 2018). The debate highlights that this complexity challenges classical theoretical frameworks and necessitates interdisciplinary approaches. Research findings demonstrate that multi-actor, multi-scale, and uncertainty-based analyses are more successful in explaining water's strategic role (Brears, 2023). In this context, water offers a convenient field for observing the fundamental dynamics of the new international system. Systemic features such as polycentrism, risk, and inequality are materialized through water geopolitics; in this sense, water serves as a strategic lens for understanding the structural transformations of global politics (Hellberg et al., 2024). Systemic features such as polycentrism, risk, and inequality are materialized and made visible through water geopolitics. The debate confirms that water geopolitics has risen to a central position in the international relations literature; this rise signals not only an environmental but also a profound political transformation. From this perspective, water serves as an indispensable lens for understanding the structural dynamics of global politics.

At this stage of the discussion, the dimensions of the study's theoretical contribution should be clarified. The developed power-sovereignty-sustainability connection has made it possible to address water geopolitics beyond fragmented analyses and has filled theoretical gaps in the literature. This integrative framework brings together the fragmented contributions of different disciplines such as security studies, international law, and political ecology on the issue of water on a common analytical plane, thus achieving an interdisciplinary synthesis (Conca, 2021). The debate demonstrates that this framework is effective both in explaining empirical cases and in opening up new areas of research (Conca and Weinthal, 2018). Research results prove that the interconnectedness approach is applicable in different regional and thematic contexts. Furthermore, this approach provides an explanatory and guiding basis for policy debates. At the theoretical level, the study reveals that power should be approached not only in terms of material capacity but also in terms of its relational and structural dimensions; that sovereignty should be approached not as an absolute status but as a fluid and negotiable practice; and that sustainability should be approached not as a technical goal but as a political choice (Hellberg et al., 2024). The theoretical work achieves a unique synthesis that combines the relational and structural dimensions of power, the fluid nature of sovereignty, and the political content of sustainability. This synthesis moves water geopolitics out of the technical realm and into the center of the discipline of international relations. The interconnectedness framework provides both a conceptual foundation and an analytical toolkit for future work.

At this point in the discussion section, it is necessary to indicate the limitations of the study and future research directions. Although the connectivity approach offers broad explanatory power, it is important to test and develop this framework in specific contexts. The analytical power of the theoretical framework should be tested through comparative studies in different regional and

ISSN: 1710-0305
PISSN: 1189-4563

thematic contexts and revised when necessary (Islam et al., 2025). The research adopts a comparative and interpretive approach; supporting it with field studies based on primary data collection will increase the depth of the findings (McCaffrey et al., 2019). Future research is recommended to focus on topics such as urban water geopolitics, data governance, and local knowledge systems. In particular, the dimension of epistemic power and knowledge regimes stands out as a relatively under-explored area in the water geopolitics literature; studies in this area could make important contributions to understanding invisible and indirect forms of power (Fritsch and Benson, 2024). Furthermore, testing the connectivity approach in different regional contexts will strengthen the generalizability of the theoretical framework. The discussion emphasizes that these limitations do not diminish the value of the study; rather, they establish a productive agenda for future research. The theoretical and analytical avenues opened by this study are likely to contribute to the maturation of the field of water geopolitics.

Finally, the discussion section concludes by presenting the conceptual and analytical contributions of this study in a comprehensive manner. The power-sovereignty-sustainability nexus has provided a unique and functional lens for unraveling the complex nature of water geopolitics in the new international system. This analytical lens reveals that water is not merely a natural resource or an object of technical management; rather, it is a constitutive variable that reflects and reproduces the structural dynamics of the international system (Conca and Weinthal, 2018). The themes addressed throughout the discussion confirm that water is not merely a natural resource; rather, it is a constitutive variable at the center of global power hierarchies, struggles for sovereignty, and normative conflicts (Hellberg et al., 2024). The research findings demonstrate that this holistic approach both enriches the literature at the theoretical level and offers guiding insights for policymaking. The study reveals that water geopolitics has evolved from being an environmental subfield to becoming one of the central research topics in the discipline of international relations; this rise is directly linked to structural transformations such as climate change, population growth, and global power shifts (Brears, 2023). The discussion indicates that water geopolitics will become an even more central research area in the future and that this study will remain relevant. The next and final section, Conclusions and Recommendations, will systematically present the study's overall findings, theoretical contributions, and policy-level recommendations in light of these discussions.

7. Conclusıon And Recommendatıons

This study has demonstrated that water geopolitics, by analyzing the reciprocal constitutive relationships between the concepts of power, sovereignty, and sustainability in the new international system, offers a central analytical field for understanding the structural transformations of contemporary global politics. The answer to the study's fundamental question, "How does water geopolitics transform sustainability goals through power projection and sovereignty practices?", confirms that water is not merely a physical resource; rather, it is a constitutive variable that shapes and reproduces the fundamental dynamics of international relations (Conca and Weinthal, 2018). The hypothesis presented in the introduction, namely that increasing power asymmetries lead to the technocratization of sustainability goals and the weakening of egalitarian sharing norms, is largely supported by the evidence presented in the findings and discussion sections. This confirmation aligns with the fundamental assumptions of the hydro-hegemony literature; however, it expands the existing theoretical framework by showing that power asymmetries stem not only from geographical location but also from knowledge production, financial capacity, and norm-setting competence (Zeitoun and Warner, 2006). The transboundary and fluid nature of water has profoundly challenged traditional notions of sovereignty, transforming states' claims of absolute territorial control into a relational, negotiated, and conditional practice (Baranyai, 2019). This transformation has proven the analytical power of the power-sovereignty-sustainability nexus developed in the Theoretical Framework section, demonstrating that water geopolitics must be approached holistically rather than fragmentarily. The

ISSN: 1710-0305
PISSN: 1189-4563

study reveals that this nexus framework both enriches the literature at the theoretical level and offers guiding insights for policymaking.

The first key finding of the research is that power operates in increasingly relational, multi-layered, and indirect ways in water geopolitics. Evidence presented in the findings section shows that classical military and economic pressure mechanisms are not solely decisive in the water context; instead, infrastructure investments, financial flows, technical expertise, and norm production create much more lasting and structural effects (Brears, 2023; Fritsch and Benson, 2024). This form of power is often concealed under the rhetoric of "technical necessity" or "scientific imperative," remaining invisible while guiding decision-making processes. The water-energy nexus in Central Asia and securitization practices in the Middle East provide concrete examples of how these indirect power mechanisms operate in different regional contexts (Menga, 2018; Conde, 2022). In particular, the collection of hydrological data, the modeling of climate scenarios, and the conduct of risk assessments legitimize political choices by presenting certain policy options as "inevitable" or "rational" (Ojha, 2023). This dimension of epistemic power validates the conceptualization of informational and discursive power highlighted in the Theoretical Framework section, demonstrating that power is established not only through material capacity but also through regimes of knowledge and normative frameworks. When combined with the discourse of sustainability, this relational power creates an even stronger legitimizing effect, cloaking power relations in an "environmentally friendly" or "climate-compatible" guise. This result highlights the inadequacy of power analyses that focus solely on visible and material dimensions, confirming the explanatory power of a critical geopolitical perspective.

The second key finding concerns the profound transformation of the concept of sovereignty in the context of water. The "hydro-hegemony" debates highlighted in the Literature Review section and the empirical evidence in the Findings section show that sovereignty is no longer an absolute legal status; rather, due to the fluid nature of water, it has become a relational practice that is constantly negotiated, shared, and reconstituted (McCaffrey et al., 2019). The norms of "equitable use" and "no significant harm," which are fundamental principles of international water law, offer an egalitarian framework in theory; however, in practice, the interpretation and implementation of these norms remain dependent on power balances (Wouters et al., 2018). This situation clearly demonstrates how the normative ideals of international law can become ineffective in the face of power asymmetries or be reinterpreted in favor of powerful actors (, 2024). In particular, the infrastructure investments and flow regulation capacities of upstream riparian states directly affect the actual areas of sovereignty of downstream riparian states (Melesse et al., 2021). This situation weakens the claim of absolute sovereignty and necessitates inter-state negotiation. However, due to existing power asymmetries, these negotiation processes do not always produce equitable outcomes; they can lead to arrangements that institutionalize the interests of powerful actors. As a result, sovereignty has become a dual-sided concept in water geopolitics, exhibiting both flexibility (shared) and generating tension (controlled). This conclusion aligns with the post-sovereignty discussions presented in the Introduction, clearly revealing the limitations of the Westphalian model of sovereignty.

The third important conclusion is that sustainability is not a neutral goal in water geopolitics, but rather a politically shaped and instrumentalized choice. As discussed in detail in the discussion section, the discourse of sustainability is often used to legitimize large-scale infrastructure projects, national development strategies, and hegemonic priorities (Dogmus, 2024). Although this discourse appears to be consistent with environmental goals, it can obscure the social costs of projects, displacement, and transboundary negative impacts (Sultana and Loftus, 2019). South Africa's experience with water scarcity and conflicts over African river basins provide striking examples of how sustainability discourse can clash with local realities (du Plessis, 2023; Mahlakeng, 2023). Sustainability, therefore, cannot be considered independently of sovereignty and power relations; rather, it constitutes one of the most important areas of application and struggle within these relations. Climate change further deepens this tension, transforming water into a risk-based security

ISSN: 1710-0305
PISSN: 1189-4563

issue (Matthew et al., 2022). Research findings show that sustainability goals can create serious legitimacy problems when their justice dimension is ignored; projects that exclude local communities are highly likely to fail in the long term (Heller, 2022). This proves that sustainability has shifted from being a universal and normative ideal to becoming a geopolitical bargaining ground. Therefore, the question "whose sustainability?" emerges as an inevitable starting point in the analysis of water policies.

The most important contribution of the study at the theoretical level is the confirmation that the developed power-sovereignty-sustainability connection has a high explanatory capacity in analyzing water geopolitics. This holistic approach, constructed in the Theoretical Framework section, has been tested and reinforced by the evidence presented in the Findings and Discussion sections. The research results reveal that these three concepts are not isolated variables; rather, they operate in a cyclical relationship that constructs, transforms, and conditions each other (Hellberg et al., 2024). Power relations determine the boundaries of sovereignty practices; sovereignty practices, in turn, shape how sustainability goals are defined and interpreted in whose favor. This cyclical relationship proves that water is not merely a technical management issue; rather, it is a critical arena where the fundamental structural tensions of the international system are embodied and reproduced (Dutta, 2022). This holistic approach has made it possible to go beyond the fragmented analyses criticized in the Literature Review section, namely studies focused on "security alone" or "technical governance alone" (Conca, 2021). By offering the opportunity to evaluate water's potential for both conflict and cooperation on the same analytical plane, the interconnectedness framework has demonstrated that water geopolitics is not a static but a dynamic process. This result questions the artificial distinction between environment and geopolitics in international relations theory and emphasizes the necessity of interdisciplinary approaches (Islam et al., 2025). The interconnectedness approach is flexible enough to be applied in different regional and thematic contexts, providing both a conceptual foundation and an analytical toolkit for future research.

The main finding regarding the governance dimension of the research is that the state-centered traditional structure of water geopolitics has evolved into a multi-level and multi-actor network architecture. The evidence presented in the findings section shows that local governments, large cities, international organizations, and financial institutions play roles that are at least as decisive as states in shaping water policies (Bolognesi et al., 2023). In particular, the growing water demand and expanding infrastructure investments of rapidly growing cities are transforming these cities into geopolitical actors that transcend national borders. International city networks such as C40 and access to direct global financing mechanisms enable cities to create an autonomous diplomatic space outside the traditional state hierarchy. This multi-actor structure necessitates the development of new conceptual tools for defining and measuring effective water cooperation (McCracken, 2022). This situation confirms that sovereignty is not concentrated in a single center; rather, it is distributed across scales ranging from local to global and is constantly negotiated. The involvement of non-state actors, particularly development banks and international financial institutions, in national policies through standards and conditionality mechanisms transforms the classical understanding of sovereignty into practices of "shared authority" (Fritsch and Benson, 2024). The multi-level governance approach emphasized in the Theoretical Framework section is strongly confirmed by these empirical findings. Consequently, water geopolitics must now be understood as a network-based, multi-layered, and permeable governance system, rather than a hierarchical and state-centered one (Brears, 2023).

The inferences focusing on water diplomacy and institutional structures have highlighted the political nature of cooperation mechanisms. Although basin organizations, joint river commissions, and multilateral water agreements serve the function of technical coordination, the design, decision-making procedures, and functioning of these institutions are not independent of power balances. Transboundary water disputes and cooperation experiences in Asia concretely reveal the critical factors that determine the conditions for success and failure in institutional design (Ho, 2021). As

ISSN: 1710-0305
PISSN: 1189-4563

discussed in detail in the discussion section, institutional structures sometimes perpetuate existing power asymmetries rather than balancing them (Kittikhoun and Schmeier, 2021). Regulations where powerful actors set the rules of the game can reproduce actual inequalities under the guise of formal equality. However, the existence of institutional channels plays a vital role in reducing conflict risk, increasing predictability, and contributing to long-term trust building. Research findings demonstrate that water diplomacy is not limited to formal intergovernmental negotiations; multi-channel diplomacy involving technical experts, epistemic communities, and civil society organizations also plays a critical role in establishing trust (Islam et al., 2025). In this context, institutions should be positioned not as neutral and technical solution tools, but as strategic platforms where power struggles continue but are bound by rules (McCaffrey et al., 2019). This conclusion demonstrates that liberal institutionalist optimism must be critically scrutinized; institutions create both opportunities and constraints.

Another critical finding of the study is that information, data, and technology have become a new and decisive source of power in water geopolitics. The collection and processing of hydrological data, the modeling of climate change scenarios, risk analyses, and strategic foresight studies have become fundamental inputs guiding decision-making processes (Fritsch and Benson, 2024). This "epistemic power" legitimizes political choices through technical discourse by defining which policy options are rational or inevitable. Findings show that actors controlling data production and access gain a strategic advantage at the negotiating table; data asymmetry deepens power asymmetry (Conca and Weinthal, 2018). The experience of the Ganges-Brahmaputra-Meghna Basin in South Asia provides a striking example of how a lack of data sharing hinders regional cooperation (Hanasz, 2018). Particularly under conditions of climate uncertainty, the capacity to predict and model the future is becoming a more functional geopolitical tool than classical military power (Ojha, 2023). This demonstrates that water geopolitics is not only about the physical control of water but also about the management of information regimes. The dimension of informational power conceptualized in the Theoretical Framework section is strongly supported by empirical findings. Consequently, digitalization, remote sensing technologies, and big data analytics stand out as decisive factors that will shape the future of water geopolitics.

The first policy recommendation drawn from the study is that information and data management in water geopolitics should be reorganized within a public, transparent, and participatory framework. The research findings clearly show that control over data production and access has become a strategic source of power and that non-transparent information regimes generate mistrust between parties (Fritsch and Benson, 2024). Data asymmetry can lead negotiation processes into deadlock; scenarios presented by one party as "scientific reality" may be found unreliable by the other. In this context, strengthening the institutional capacities of basin organizations, standardizing data sharing protocols, and establishing independent technical oversight mechanisms stand out as concrete steps that could increase the effectiveness of water diplomacy (Singh et al., 2019). Therefore, the creation of shared databases, the adoption of standardized measurement protocols, and the development of open access mechanisms can contribute to building trust by placing negotiation processes on a solid technical foundation (Kittikhoun and Schmeier, 2021). However, the sustainability of data sharing depends on establishing political trust between the parties; therefore, technical cooperation must be carried out in coordination with diplomatic confidence-building measures. Joint monitoring systems and early warning mechanisms can strengthen crisis prevention capacity by increasing transparency. Ultimately, data management should be positioned as a balancing and trust-building policy instrument rather than a tool that deepens asymmetries in water geopolitics (Conca and Weinthal, 2018). This recommendation constitutes a concrete step toward democratizing epistemic power.

The second policy recommendation is that water policies in the context of climate change should be implemented with a risk-based but cautious, inclusive, and accountable approach. Findings reveal that risk discourse has become a powerful tool for legitimizing extraordinary measures; however, this situation carries the risk of weakening democratic control mechanisms (Conca, 2021). Securitization

ISSN: 1710-0305
PISSN: 1189-4563

processes can frame water as an "existential threat," thereby transferring decision-making authority to a narrow technocratic and security elite and undermining social participation and accountability. Climate-induced water security crises in the Asia-Pacific region clearly demonstrate the critical importance of local knowledge and social participation in developing effective intervention strategies (Ojha, 2023). In this context, long-term climate scenarios and risk analyses should play a central role in policymaking; however, these scenarios should not be used to justify short-term political interests or technocratic impositions. Flexible and adaptable policies have proven to be more successful in conditions of uncertainty; however, this flexibility must be balanced with transparency and accountability. Risk management is not merely a technical process; it should be approached as a political choice regarding which risks to prioritize, who to protect, and how to allocate costs. Ultimately, climate adaptation should be positioned as a democratic choice requiring social consensus as much as a technical necessity in water geopolitics. This approach is vital for preventing legitimacy crises and ensuring the long-term sustainability of policies.

The most important theoretical contribution this study offers to the literature is its conceptualization of water geopolitics through the dynamic interconnection between power, sovereignty, and sustainability. The existing studies critically evaluated in the Literature Review section tend to treat these three dimensions as independent variables; security studies focus on conflict risk, international law research on normative frameworks, and political ecology on local justice issues (Conca and Weinthal, 2018). The developed interconnectedness approach has made it possible to overcome this fragmented structure and analyze how these dimensions transform, condition, and reproduce each other. This synthesis expands the fundamental assumptions of the critical hydropolitical approach and offers a new analytical lens for understanding the multidimensional nature of transboundary water governance (Öjendal et al., 2024). This integrative perspective provides an essential analytical tool for understanding how water geopolitics is being restructured under the conditions of uncertainty, polycentrism, and interdependence in the new international system (Hellberg et al., 2024). Theoretically, this approach removes water from its passive status as a natural resource in international relations, positioning it as an active political variable that reflects and reproduces systemic transformations. This shift in position represents a significant challenge to the confinement of environmental issues to the realm of "low politics," bringing water geopolitics to the center of international relations theory. While drawing on different theoretical traditions, the interconnectedness framework serves as an interdisciplinary bridge by synthesizing critical geopolitics, political ecology, and international law approaches in a unique synthesis.

Methodologically, the study has demonstrated that qualitative and comparative analyses provide a powerful and explanatory tool for water geopolitics research. The interpretive approach, detailed in the Research Method section, has shown that conceptual and thematic analyses that go beyond numerical indicators are more effective in revealing complex power relations and discursive constructions (Brears, 2023). Although quantitative data such as water stress indices and per capita water availability are useful in demonstrating the severity of the situation, they fall short in explaining the political dynamics behind these data, the strategic calculations of actors, and discursive struggles. This methodological choice is consistent with the increasingly critical and interpretive turn in hydropolitical studies, aiming to overcome the limitations of positivist approaches (Zeitoun and Warner, 2006). The comparative approach has made it possible to identify common patterns at the global level without ignoring regional differences. Comparing experiences across different basins highlights the importance of context-specific factors while also demonstrating that global systemic pressures operate through similar mechanisms (McCaffrey et al., 2019). The extensive use of secondary data has enabled a systematic synthesis of the scattered literature. However, the need to preserve the contextual depth of this approach points to the importance of future studies supporting qualitative analyses with field-based primary data. Ultimately, methodological diversity and flexibility will contribute to the maturation and deepening of the water geopolitics literature.

ISSN: 1710-0305
PISSN: 1189-4563

For future research, greater focus on cities and local actors in water geopolitics is needed. Evidence presented in the findings section shows that cities are becoming increasingly visible in geopolitical processes due to their growing water demand, expanding infrastructure capacity, and direct access to international networks (Bolognesi et al., 2023). The ecological footprints of megacities extend far beyond their administrative boundaries; long-distance connections established for water supply create new dependencies and fault lines. In contrast, the existing literature continues to focus largely on state-centered analyses. Urban transformation processes and water security planning experiences in Southeast Asia concretely demonstrate the importance of community-based infrastructure and the challenges posed by urban transition (Spencer, 2023). The direct relationships that local governments have established with international city networks and global financing mechanisms are reshaping sovereignty debates from the bottom up. Future studies could examine these relationships and how "city diplomacy" works through water in depth. Furthermore, urban-rural relations present a critical area of research in terms of water allocation and sustainability policies (Sultana and Loftus, 2019). Questions about the geopolitical dimensions of urban water governance, how they conflict with rural communities' water rights, and how these conflicts are managed emerge as research agendas that could offer original contributions. This focus will make important contributions to the multi-level governance literature and allow for a more spatially inclusive approach to water geopolitics.

Another critical research agenda is the more in-depth examination of information, technology, and digitalization processes in water geopolitics. The study's findings show that data production, big data analytics, remote sensing technologies, and modeling tools strongly influence decision-making processes (Fritsch and Benson, 2024). This reveals that technical capacity could become a new source of geopolitical inequality, with the gap between data-rich and data-poor actors potentially widening. Future studies could analyze how digital water management systems, smart grid technologies, and AI-powered forecasting tools transform power relations. Big data-driven risk identification and assessment approaches in water security concretely reveal both the opportunities and threats of technology (Liang et al., 2024). Furthermore, the dual effects of digitalization on transparency and participation should be investigated; technological solutions can sometimes function as a "black box" that masks political preferences, while at other times they can strengthen citizen oversight. This area also raises normative and ethical questions (Conca, 2021). The public nature of information, data sovereignty, and algorithmic governance are concepts that need to be revisited in water geopolitics. Thus, technology can be approached not merely as a technical tool but as a political process that transforms and reproduces power relations. This perspective opens up a productive dialogue between critical technology studies and water geopolitics.

Future research should also place the dimensions of justice and human rights in water geopolitics at a more central position. Findings show that inequalities in access to water and local grievances directly affect policy success; projects lacking social legitimacy are unsustainable in the long term (Heller, 2022). However, this dimension is often overshadowed by "high politics" issues in geopolitical analyses, with priority given to inter-state relations and security concerns. Human rights-based approaches reveal the social consequences of water policies, distributional injustices, and legitimacy crises (Sultana and Loftus, 2019). Future studies could integrate these approaches more holistically with power and sovereignty analyses, thereby overcoming the normative blindness of geopolitical analysis. Examining gender dynamics in transboundary water governance could make a critical contribution to the literature by highlighting women's unique experiences in terms of water access, participation in decision-making processes, and climate adaptation (Sehring et al., 2023). Furthermore, studies focusing on gender dynamics, indigenous peoples' water rights, and the experiences of vulnerable groups will offer unique and valuable contributions to the literature. This orientation will make sustainability debates more inclusive, bringing the question "whose sustainability?" to the center of the analytical agenda. As a result, water geopolitics will become a more balanced field, both normatively and analytically; the artificial distinction between power analyses and concerns for justice will be overcome.

ISSN: 1710-0305
PISSN: 1189-4563

The findings of this study clearly demonstrate that the classic conflict-cooperation dichotomy is insufficient to explain water geopolitics. This dichotomy, criticized in the Literature Review section, tends to code water as either an inevitable cause of war or an automatic catalyst for peace ( ). However, the findings show that these two dynamics often operate simultaneously, intertwined and feeding into each other (Islam et al., 2025). Cooperation mechanisms do not always reduce power asymmetries; sometimes they institutionalize and normalize these asymmetries, making them permanent. The Israeli-Palestinian water dispute in the Middle East and experiences in the Jordan River Basin provide concrete examples of how cooperation and conflict can coexist (Brooks et al., 2020; Amery et al., 2023). Similarly, the potential for conflict does not always translate into overt tensions or armed conflict; it can persist as hidden, structural, and chronic tensions. This situation increases the analytical importance of "gray areas" in water geopolitics, where there is neither complete peace nor complete war (Brears, 2023). The study demonstrates the need for more flexible, multidimensional, and process-oriented approaches to analyze these complex and transitional areas. This finding offers significant criticism of both the reductionist "water wars" scenarios in the literature and the overly optimistic "water peace" discourses. Water geopolitics must be understood beyond simple causality models; it must be understood through the concepts of uncertainty, interdependence, and continuous negotiation.

For policymakers, this study clearly demonstrates that water-related decisions have long-term and often irreversible effects. Large-scale infrastructure investments, dams, canals, water transfer lines, and signed legal agreements directly shape and constrain the options of future generations (Melesse et al., 2021). This "path dependency" effect means that decisions made today will have consequences for decades to come. The experience of the Nile River and the Grand Ethiopian Renaissance Dam provides a striking example of how infrastructure decisions shape regional relations in the long term (Abtew, 2025). Therefore, short-term political gains, calculations tied to election cycles, or narrowly defined economic growth targets should not take precedence over long-term sustainability and security goals. Findings show that decisions that are not inclusive, lack social consensus, and are top-down create serious legitimacy issues; projects encounter social resistance, jeopardizing their sustainability (Sultana and Loftus, 2019). This underscores the importance of local participation, stakeholder consultation, transparency, and accountability in water policies. Furthermore, unilateral steps in transboundary contexts increase the risk of regional instability and can lead to crises of confidence and escalating tensions. Consequently, policymakers should address water not as a narrowly technical management issue, but as a multi-stakeholder, multi-scale, and long-term strategic governance area.

In terms of academic literature, this study has demonstrated the necessity and effectiveness of positioning water geopolitics as an interdisciplinary field of research. When perspectives from international relations, political science, geography, international law, environmental sciences, and development studies are considered together, the complex and multi-layered nature of water can be understood in a much more explanatory manner (McCaffrey et al., 2019). The findings show that single-discipline approaches, whether purely engineering, purely legal, or purely security-focused, struggle to explain complex water issues and generate solutions. Studies on the water-energy-food nexus concretely demonstrate the necessity of interdisciplinary approaches in analyzing cross-sectoral interactions (Brouwer, 2022). Therefore, future research should increase methodological and theoretical diversity and produce syntheses that combine the strengths of different disciplines. In particular, supporting qualitative analyses with quantitative data, conducting comparative studies of different regional experiences, and carrying out field-based primary research will contribute to producing more robust and reliable conclusions (Brears, 2023). This orientation will contribute to the maturation of the water geopolitics literature, its theoretical depth, and its policy impact. Thus, water geopolitics will realize its potential to become one of the central research topics in international relations, moving beyond being a marginal subtopic or an environmental niche area.

ISSN: 1710-0305
PISSN: 1189-4563

Like any scientific study, this research has certain limitations, and clearly stating these limitations is a requirement of academic integrity. The study adopts a comparative and interpretive approach, relying on secondary sources and existing literature rather than fieldwork based on primary data collection. This choice has allowed for a broad synthesis but has prioritized the identification of general patterns over in-depth analyses specific to particular contexts. Cases studied in depth at the local level, such as the Cochabamba water war in Bolivia, reveal dynamics that macro-level analyses cannot capture and provide an important methodological model for future research (Razavi, 2022). It is recommended that future research test and deepen these findings with field-based primary data (McCaffrey et al., 2019). Furthermore, while the developed power-sovereignty-sustainability link offers strong explanatory capacity as an analytical framework, it is important to test this framework in different regional and thematic contexts, revising and refining it as necessary. It should be acknowledged that every conceptual model involves a certain simplification and does not reflect the full complexity of reality (Hellberg et al., 2024). However, these limitations do not diminish the theoretical and analytical value of the study; on the contrary, they provide a productive agenda and a rich starting point for future research. The theoretical avenues opened by this study are likely to contribute to the ongoing development of the field of water geopolitics.

The overall findings of this study clearly demonstrate that water geopolitics has become a structural political arena in the new international system, rather than a secondary environmental issue or a technical management problem. The relationships between power, sovereignty, and sustainability are materialized, made visible, and constantly redefined through water (Conca and Weinthal, 2018). The findings show that water is not merely a passive element reflecting existing power balances; it is also an active variable with the potential to transform, reshape, and challenge these balances. The environmental security literature increasingly emphasizes water's central position at the intersection of security, development, and ecology, supporting the core arguments of this study (Matthew et al., 2022). This transformation is observable both in inter-state relations and in multi-level governance structures, at both the local and global levels (Hellberg et al., 2024). Water's central position necessitates a rethinking of analytical priorities and a restructuring of research agendas in the international relations literature. The study emphasizes the importance of treating water as a system-level variable, positioning it as part of the structural dynamics of global politics rather than viewing it as an isolated sectoral issue. This shift in perspective will both deepen academic understanding and increase the effectiveness of policy interventions.

The interconnectedness framework developed in the study provides an applicable and flexible analytical ground for both academic research and policy discussions. This framework is not specific to a particular region or basin; it is adaptable to different geographical, institutional, and political contexts. The power-sovereignty-sustainability nexus can provide an explanatory lens across different contexts, from Central Asia's water-energy nexus to the securitized hydropolitics of the Middle East, from Africa's institutional capacity issues to South Asia's population pressures (Conca, 2021). The complex relationships between climate change, conflict, and security clearly demonstrate the potential of this interconnectedness framework for understanding current global crises (Clack et al., 2024). Furthermore, this framework is applicable not only to transboundary river basins but also to urban water governance, groundwater policies, and virtual water trade. For policymakers, the interconnectedness approach can serve as a conceptual guide for developing holistic strategies that transcend sectoral silos ( ). Making visible how water, energy, food, and climate policies interact with each other; how decisions in one area produce consequences in other areas, will enable the design of more coherent and effective interventions (Brears, 2023). This potential for application demonstrates that the study has practical value beyond a purely academic contribution.

Ultimately, water geopolitics emerges as an indispensable key to understanding, analyzing, and managing the fundamental dynamics of the new international system. The defining characteristics of the contemporary international system, such as uncertainty, polycentricity, interdependence, and normative pluralism, are concretized and crystallized through water geopolitics (du Plessis, 2019). The

ISSN: 1710-0305
PISSN: 1189-4563

acceleration of climate change, the continued growth of the global population, the intensification of urbanization, and the heating up of geopolitical competition will further increase the strategic importance of water in the future. The restructuring of the global water security paradigm is being discussed more and more intensely in both academic and policy circles, confirming the relevance of the interconnectedness framework presented in this study (Salame and Romano, 2024). In this context, water is not merely a resource to be managed or a problem to be solved; it has become a critical arena testing global governance capacity, the will for international cooperation, and the pursuit of justice. The power-sovereignty-sustainability nexus presented in this study provides a solid foundation for both academic research and policy discussions to understand and manage this complex field. The study has moved water geopolitics from a technical subfield to the center of the discipline of international relations, proving that water is a strategic lens for understanding the structural transformations of global politics (Hellberg et al., 2024). Consequently, water is poised to become one of the most defining geopolitical variables of the twenty-first century, a reality that necessitates the restructuring of both academic research and policy interventions accordingly.

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