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An Optimal National Security Strategy for Managing the Political and Geopolitical Challenges of the Water Crisis in West Asia

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Abstract

In recent decades, the water crisis in West Asia has evolved from a purely environmental issue into a complex security-related and geopolitical challenge, undermining national sovereignty, regional stability, and international relations. This study aims to analyze the strategic dimensions and political consequences of the water crisis and to propose a framework for sustainable cooperation in the management of transboundary water resources.

The central research questions are: What is the relationship between the water crisis and the redefinition of national security and regional order in West Asia? And what scenarios can be envisioned for the future of geopolitical relations among countries in the region?

mploying a descriptive–analytical approach, the study uses multi-criteria decision-making methods (AHP, ANP, TOPSIS) and scenario analysis based on Shell scenario-planning models and morphological analysis to explore the crisis from hydro-political, climatic, security, and institutional perspectives.

The findings reveal that, in the face of structurally ineffective international legal regimes and the instrumentalization of water diplomacy as a tool of geopolitical leverage, upstream countries are imposing hydro-hegemony on downstream states through dam construction and data control.

The research identifies the water crisis as a major driver of ethnic and sectarian fault lines, climate-induced migration, and geostrategic divergence. In this context, redefining water governance as a foundational element of national security and a source of soft power, alongside regional institution-building, technological advancement, multilayered diplomacy, and information transparency, is the only viable pathway to achieving sustainable water security.

The proposed model, based on multi-level governance, binding legal frameworks, and multilateral dispute-resolution mechanisms, offers a strategic blueprint for transitioning from conflict-prone hydro-hegemony to geostrategic cooperation.

Keywords: Security, West Asia, water crisis, environment, Iran.

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Introduction

Water scarcity is a global phenomenon; however, in the West Asia it transcends the realm of environmental concern and constitutes a critical political, security, and geopolitical challenge. The majority of water resources in the region are transboundary in nature, shared among several states whose political relations are often fragile. As a result, water scarcity directly affects national sovereignty, political stability, and patterns of regional interaction. The roots of this crisis lie in a combination of unequal water allocation, weak governance and management structures, rapid population growth, and rising demand. These pressures are further intensified by ecological degradation, industrial expansion, and the persistence of traditional agricultural practices that place heavy demands on limited water reserves (Mulholland, 2011, p. 1).

Empirical studies on regional water resources indicate that West Asian countries—particularly Arab states—are facing an increasingly acute wave of water shortages. Situated largely within the world's arid and semi-arid belt, the region receives an average annual rainfall of approximately 450 millimeters, a figure that has profound implications for food security and rural livelihoods, given that nearly 79 percent of agricultural land depends on rainfall for irrigation. Historically, rivers played a decisive role in sustaining human settlements and enabling economic activity. With the emergence of the modern state system and the institutionalization of political borders, however, water resources have gradually been politicized, transforming into strategic assets that influence national orientations and foreign policy behavior. Consequently, competition and tension over access to water are most pronounced in arid and low-rainfall regions. From a realist perspective, the water crisis is thus viewed as a potential foundation for future conflicts, particularly in a region where hydrological stress is intensifying. In this context, states with relatively greater access to water resources gain enhanced leverage within regional hydropolitics and geopolitics (Kaviani Rad, 2005, p. 28).

The growing salience of water scarcity has also contributed to a broader reconceptualization of security. Security is commonly defined as freedom from threats that endanger the existence and core values of individuals, societies, or states (Reveron et al., 2018, pp. 1–3). Since the 1960s, ecologists, biologists, and environmental activists have sought to alert both public opinion and policymakers to the destructive consequences of human intervention in natural systems. Today, it is widely acknowledged that environmental

degradation and climate change can constitute existential threats to human security and state stability (Daoudy, 2020, pp. 5–8). Within this framework, water security has emerged as an integral component of national security, linking environmental vulnerability to political order, social cohesion, and geopolitical competition.

The geopolitics of water focuses on the role of water in shaping interactions, cooperation, and conflict among communities, nations, and states at domestic, regional, and international levels (Hafez Nia, 2006, p. 102). Sovereignty over water resources represents one of the most complex geopolitical challenges, largely due to the fluid and mobile nature of water. Flowing through rivers and underground aquifers that frequently cross political borders, water resists confinement within territorial boundaries, thereby complicating legal regulation and political control. This characteristic renders water a uniquely sensitive issue in regions such as the West Asia, where interstate relations are already marked by asymmetries of power and deep-seated mistrust.

Despite the growing body of literature on hydropolitics, significant theoretical gaps persist. Although the study of political interactions over shared water resources has attracted increasing attention within international relations and security studies, hydropolitical analyses often remain insufficiently integrated with mainstream international relations theories. For instance, the concept of the hydropolitical cycle—describing stages of interaction among states over shared water—has rarely been systematically combined with theoretical traditions such as realism or liberalism. This lack of theoretical integration constrains the explanatory power of hydropolitical research with regard to power relations and security dynamics in the international system (Warner & Zawahri, 2023). Furthermore, much of the existing scholarship prioritizes material and physical dimensions of water scarcity while neglecting its discursive and normative aspects. Discourse analysis, however, demonstrates how narratives, framing, and meaning-making processes shape policy choices, patterns of cooperation, and the escalation or mitigation of conflict over transboundary water resources (Zeitoun & Mirumachi, 2008). Addressing these gaps is essential for developing a more comprehensive understanding of water as a strategic factor in West Asiaern security and geopolitics.

1. Research Methodology

This study employs a descriptive–analytical approach combined with a mixed-methods methodology (quantitative and qualitative) to assess

water security threats. The integration of multi-criteria decision-making (MCDM) models with scenario analysis enables a comprehensive and systematic evaluation of the factors shaping water security. The methodological framework incorporates analytical models such as the Analytic Hierarchy Process (AHP), the Analytic Network Process (ANP), and the Technique for Order of Preference by Similarity to Ideal Solution (TOPSIS) in order to prioritize and analyze water security threats. These methods are selected for their capacity to integrate quantitative and qualitative indicators and to generate robust and policy-relevant outputs (Saaty, 2008).

For future-oriented assessment, the study applies scenario analysis based on the Shell approach and Morphological Analysis. Data are drawn from two primary sources: (1) quantitative data, including hydropolitical, security, and environmental indicators obtained from reputable international databases such as the World Bank, AQUASTAT, and the United Nations; and (2) qualitative data collected through semi-structured interviews with experts in hydropolitics, international security, and water resource management, selected using the snowball sampling method.

2. Data Analysis Method

The collected data were initially processed using the AHP and ANP models through Expert Choice software to determine the relative importance of identified threats. Subsequently, the TOPSIS method was employed to produce the final ranking of water security threats. Scenario analysis was then conducted using Scenario Wizard software to identify potential water security scenarios based on key driving variables. To enhance the reliability and robustness of the findings, validation techniques—including consistency and reliability tests—were applied to the decision-making models. The inconsistency ratios for the AHP and ANP models were calculated and found to fall within the acceptable threshold (<0.1). In addition, the reliability of the qualitative interviews was assessed using the Kappa coefficient, which indicated a satisfactory level of agreement among experts. The application of these combined analytical methods enabled a comprehensive assessment of water security threats across political, economic, social, and environmental dimensions. The outcomes of this methodological approach can effectively inform water resource management policies and contribute to the mitigation of hydropolitical tensions.

3. Theoretical Framework of Hydropolitics in International Relations: Integrating Power, Security, and Global Governance

Water, as a vital natural resource, plays a central role in shaping international relations. In recent years, the combined pressures of population growth, climate change, and rapid urbanization have intensified competition over water resources, heightening the potential for conflict. In this context, hydropolitics emerges as a key analytical framework for examining the interplay of power, conflict, and cooperation surrounding water, linking these dynamics to broader issues of security and global governance.

The hydropolitical perspective underscores the geopolitical significance of water, highlighting how control over resources influences both interstate cooperation and conflict. Water security theory complements this approach by emphasizing the direct connection between water scarcity, political instability, and the emergence of international conflicts. Meanwhile, the theory of international regimes examines the role of treaties, organizations, and global governance frameworks in managing shared water resources and mitigating potential tensions.

The Middle East and North Africa (MENA) region, with its unique geographic and environmental constraints, has historically faced acute ecological challenges. Since 2007, these challenges have intensified, significantly shaping the political, economic, and social dynamics of states in the region (Demircillu, 2023). Access to water resources plays a decisive role in defining geopolitical power: upstream states often leverage control over transboundary rivers as a strategic tool to influence downstream nations, a dynamic that can escalate tensions and trigger interstate disputes (Wolf, 1998). Conversely, states with advanced water management and technological capabilities can enhance their diplomatic leverage through the export of water technologies and sustainable management practices.

Water crises in the region and beyond have far-reaching implications for both domestic and international security. Competition over scarce water resources can drive large-scale migration, exacerbate tensions, and potentially provoke future conflicts (Homer-Dixon, 2010). Climate change, characterized by rising temperatures and declining precipitation, further compounds these pressures, making water availability increasingly precarious. Recognizing this, the United Nations has identified climate change as a major global security threat, projecting that water-related crises will intensify, particularly in vulnerable regions such as Africa and

Southeast Asia.

International water regimes provide additional, though often limited, mechanisms for managing shared water resources. Treaties such as the 1997 UN Convention on the Law of Non-Navigational Uses of International Watercourses primarily establish guiding principles but lack robust enforcement and dispute-resolution mechanisms (Schwabach, 1998). Nonetheless, international organizations—including the World Bank and the Global Water Council—play a critical mediating role in water-related conflicts. By fostering cooperation and facilitating joint governance frameworks, these institutions help prevent "water wars" and promote the sustainable management of shared resources (World Bank, 2016).

Integrating the insights of hydropolitics, water security theory, and international regime analysis provides a comprehensive framework for understanding water-related conflicts. Hydropolitics elucidates how power dynamics over water shape interstate interactions, while water security theory highlights the implications of scarcity for human and national security. International regime theory, in turn, illuminates the role of treaties and multilateral cooperation in managing shared water challenges. Emerging discussions on "environmental warfare," including the deliberate weaponization of transboundary rivers, further underscore the security dimensions of water in contemporary international relations. As international legal frameworks increasingly emphasize environmental protection, the targeting of water resources in ways that threaten civilian populations has become a critical security concern (Sivanizad et al., 2022).

4. Geopolitical Dynamics of Water Resources in the West Asia

The geopolitical dynamics of water resources in West Asia encompass a complex interplay of political, economic, social, and environmental factors that shape access to, management of, and utilization patterns for freshwater resources. Given the region's chronic scarcity of freshwater and its geographical and climatic diversity, West Asia is among the most critical regions globally in terms of water security. Most countries in the region depend on shared rivers, such as the Tigris, Euphrates, and Nile, creating conditions for competition that can escalate into political or even military tensions. Climate change further exacerbates these challenges, with declining rainfall and rising temperatures intensifying water shortages and placing additional pressure on

already limited resources. Compounding these pressures, unsustainable water management practices, particularly in agriculture and industry, contribute to environmental degradation and declining water quality. Non-state actors—including armed groups and non-governmental organizations—also influence water management, affecting patterns of access and resource governance.

Transboundary rivers constitute both vital lifelines and sources of strategic tension in the region. The Nile River, stretching approximately 7,000 kilometers, provides nearly 90% of Egypt's freshwater and sustains around 95% of the country's population along its banks. Historically, the Nile has served as both a critical resource and a source of political and military contention (Livescience, 2018). Under British colonial oversight, the 1929 agreement granted Egypt dominant control over the river's waters, effectively institutionalizing its veto power over projects by other Nile Basin countries. This agreement, signed when Sudan and Egypt were considered a single entity, had lasting implications for regional water politics (Saeed, 1993). Following Sudan's independence in 1956, the 1959 agreement allocated 55 billion cubic meters of Nile water annually to Egypt, establishing a legal framework for water management. However, upstream countries, particularly Ethiopia, challenge the validity of this agreement, arguing that it infringes upon their sovereignty and restricts their right to utilize Nile resources. While Ethiopia's development and use of the Nile are recognized, the river remains existentially vital to Egypt, and any significant changes in Nile management could lead to depopulation of riverine areas within the next five years (Magdy, 2019).

Similarly, the Tigris and Euphrates rivers have been central to the environmental, economic, and social development of Mesopotamia (modern-day Iraq). Originating in southeastern Turkey, the Euphrates flows through Syria into Iraq, while the Tigris collects tributaries from Iran before joining the Euphrates to form the Shatt al-Arab, which ultimately discharges into the Persian Gulf. In recent decades, Turkey's Southeastern Anatolia Project (GAP)—comprising 22 dams and 19 hydroelectric plants—has enabled Turkey to control a substantial portion of these rivers, significantly reducing downstream water flow to Syria and Iraq. Estimates indicate that following implementation of GAP, approximately 90% of the Tigris and Euphrates waters are retained within Turkey, while Iraq and Syria experience reductions of 43% and 32%, respectively (Abujub, 2004, p. 1–5). These developments have intensified concerns over water security and environmental

stability across the region.

Beyond the immediate hydrological and environmental implications, water has become a strategic instrument of regional and international power. Control over water resources functions as a geopolitical lever that can reshape traditional power structures and influence interstate relations (Gleick, 2014). In the West Asia, Turkey's dam construction along the Tigris and Euphrates exemplifies the use of water as a tool of hegemony, advancing national interests and exerting leverage over Iraq and Syria. Likewise, Iran and Afghanistan have engaged in dam projects on the Helmand and Harirud rivers, generating disputes with downstream countries such as Pakistan and Turkmenistan. In this context, the governance of water resources emerges not merely as an environmental or economic issue but as a core dimension of regional strategy, security, and geopolitical competition.

Table (1): History of Water Management in the West Asia

Characteristics and Achievements	Water Management Developments	Historical Period
Construction of irrigation canals, drainage systems, and dams for agriculture and flood prevention in Mesopotamia	Water Management in Sumer and Babylon	Ancient Civilizations (5000 BCE to 3000 BCE)
Qanats in Iran for irrigating arid areas, advanced water control systems of the Nile in Egypt	Development of qanats (kariz) and management of the Nile River	The Persian and Egyptian Empires (550 BCE to 330 BCE)
Expansion of the qanat system in the Islamic world, scientific research in hydrology conducted by Muslim scholars	Advancements in water knowledge and technology	Islamic Era (650 AD to 1500 AD)
Construction of new dams and canals for water resource management in Iran and Anatolia	Water management in the Safavid and Ottoman Empires	Early Modern Period (1500 AD to 1800 AD)
Construction of the Aswan Dam in Egypt and large-scale water supply projects in colonial countries; increase in water projects after independence	Colonial and Nationalist Projects	Colonial and Post-Independence Era (1800 AD to 1950 AD)
Dam construction projects in Iran, Iraq, and Turkey; new	Population growth and water	Contemporary Era (1950 AD to Present)

Characteristics and Achievements	Water Management Developments	Historical Period
technologies such as water desalination and smart irrigation management; the impact of climate change and political conflicts on water resources.	crises	

Source: (Author)

5. Water Crisis as a Factor of Security and Geopolitical Instability

In recent decades, the water crisis has emerged as one of the most pressing security and geopolitical challenges at both regional and international levels. No longer merely an environmental issue, water has become central to geostrategic conflicts, as decreasing rainfall, growing consumption, inefficient management, and the impacts of climate change increasingly threaten water security and regional stability. The crisis affects not only economic and social conditions but also has the potential to activate ethnic conflicts, reinforce structural inequalities, and influence states' foreign policies, particularly in regions with shared rivers (Elhance, 1999, pp. 3–4). As a strategic concern, water scarcity has profound implications for national security and geopolitical stability worldwide. It is no longer simply a resource for human survival but a decisive factor shaping political, economic, and even military relations among states and regional actors. Rising global temperatures, overexploitation, pollution, and unsustainable management practices have contributed to increasingly limited and unequal access to freshwater, transforming water from a natural resource into a tool of political leverage, pressure, and potential conflict (Gleick, 2014, p. 331).

The security implications of the water crisis first manifest at the national and domestic levels. For instance, Turkey's dam construction programs under the GAP project on the Tigris and Euphrates rivers have significantly reduced water availability in Iraq and Syria, eliciting strong reactions from officials in those countries (Warner et al., 2017, p.16). Such unilateral actions disrupt regional geopolitical balances and elevate water security to a central concern in states' foreign policy agendas. While widespread military conflict over water has not yet occurred, it is increasingly highlighted in international security literature. The United Nations has repeatedly

warned that future conflicts are likely to arise not over fossil fuel resources, but over freshwater, particularly in regions such as the West Asia where access to water is historically uneven. Nevertheless, these challenges also present opportunities for "water diplomacy," enabling countries sharing transboundary resources to pursue integrated and equitable management through legal frameworks, multilateral agreements, and the application of modern scientific approaches.

Hydropolitics, a contemporary branch of geopolitics, studies political, legal, and strategic interactions surrounding water resources, especially those crossing national boundaries. With more than 260 rivers and aquifers shared by two or more states worldwide, the management and utilization of these resources are crucial determinants of regional relations (Zeitoun & Warner, 2006, p. 442). Analyses of basins such as the Tigris-Euphrates reveal that the absence of binding legal regimes, power asymmetries between upstream and downstream states, and the lack of transparent dispute-resolution mechanisms exacerbate conflicts over water. Conversely, enduring agreements like the Indus Waters Treaty (1960) between India and Pakistan demonstrate that crisis mitigation is possible through institutional development, confidence-building measures, and active diplomacy (Wolf, 1999, p. 251).

Hegemonic states can further shape regional and international water policies by leveraging political, economic, and military power. By controlling water resources, such states influence neighboring countries and project power regionally. In the Nile basin, Egypt, historically the dominant actor, has sought to maintain control over water resources, while upstream Ethiopia, through the construction of the Grand Ethiopian Renaissance Dam (GERD), aims to challenge this balance. Similarly, in the Tigris-Euphrates basin, Turkey, through its GAP project comprising 22 dams and 19 hydroelectric power plants, has enhanced its energy independence and increased geopolitical influence over Syria and Iraq. These cases illustrate the dynamics of hydro-hegemony, where upstream countries' geographic advantages and water infrastructure development can shift regional power relations.

Water scarcity and climate change also exacerbate ethnic and sectarian tensions. In regions where multiple ethnic or religious groups compete for limited water, the risk of conflict increases. In southern Iran, declining rainfall, recurrent droughts, and land subsidence—particularly in Khuzestan, Sistan and Baluchestan, and

Fars provinces—have led to population displacement, weakened agricultural livelihoods, and social and political unrest (Aliyi et al., 2014, pp. 87–89). Similarly, in Syria, farmer migration from the arid northeast to urban centers between 2006 and 2010 contributed to the intensification of political instability. Environmental security theory posits that such environmental stressors, including water scarcity, can generate multidimensional crises that exceed the capacity of weak or inefficient states to respond (Homer-Dixon, 2010).

Shared water resources also shape states' foreign policy strategies. Some countries, such as Kazakhstan and Kyrgyzstan, have achieved relative success in cooperation over the Aral Sea basin through joint water commissions. In contrast, disputes over the GERD among Egypt, Sudan, and Ethiopia illustrate the lack of consensus regarding sovereignty, security, and equitable utilization (Cascão & Nicol, 2016, pp. 2–3). States' responses to shared water challenges generally follow three strategic approaches: institutional convergence, conflictual divergence, and conditional balancing. Downstream countries facing scarcity often rely on water diplomacy, legal pressures, and regional coalitions. Accordingly, water is not merely a technical or environmental concern; it functions as a structural variable influencing modern foreign policy. Water security can either promote strategic convergence, when countries cooperate through international agreements for equitable management, or contribute to strategic divergence, when competition and unilateralism dominate (Zeitoun et al., 2020, p.15).

6. Inefficiency of Legal Regimes and Water Diplomacy in the West Asia

In West Asia, the inefficiency of legal regimes and water diplomacy constitutes a fundamental driver of geopolitical instability. Weaknesses in drafting and implementing binding treaties among states sharing water resources have fueled nationalist competition over scarce supplies. The Tigris–Euphrates river basin, one of the most critical water-stressed regions globally, remains without a comprehensive and enforceable legal framework among its riparian states. Despite decades of technical and temporary negotiations since the 1960s, no sustainable treaty has emerged, resulting in recurrent diplomatic tensions over water rights among Iraq, Turkey, and Syria. Moreover, the instrumentalization of water in political and military rivalries has transformed water diplomacy into a tool of coercion. While international principles, such as those articulated in the 1997 UN Convention on the Law of the Non-Navigational Uses

of International Watercourses, emphasize cooperation and equitable utilization, regional actors frequently prioritize geopolitical and security considerations. Turkey, for instance, has repeatedly pursued large-scale dam projects, such as the Southeastern Anatolia Project (GAP), without sufficient consultation with downstream neighbors, reducing water flows to Syria and Iraq (Selby, 2013, p. 17). Similarly, power asymmetries in water negotiations, as exemplified by the Israel–Palestine Joint Water Committee, where decision-making structures favor unequal consensus, have hindered executive action and perpetuated an unequal status quo. These patterns indicate that regional water diplomacy is compromised not only by the absence of binding legal frameworks but also by power imbalances, a lack of negotiation transparency, and the strategic use of water as a geopolitical lever. Consequently, addressing these inefficiencies requires revising regional policies and strengthening multilateral, enforceable legal mechanisms for water resource management.

The inability of international institutions to effectively manage water conflicts in West Asia further compounds the problem. Organizations such as the United Nations, the World Bank, and affiliated bodies often assume advisory and facilitative roles but lack the authority to enforce decisions amid deep-seated regional disputes (Zeitoun & Warner, 2006, p. 443). For example, despite international involvement in disputes over the Jordan River, political reluctance and the absence of binding enforcement tools have prevented sustainable resolutions. In the Tigris–Euphrates basin, the absence of a comprehensive agreement among Turkey, Syria, and Iraq has facilitated unilateral exploitation of resources and heightened tensions. Efforts by international organizations to establish cooperative frameworks have largely failed due to mutual mistrust and conflicting political agendas.

Conflicts of interest inherent in legal regimes governing shared rivers exacerbate these challenges. Upstream and downstream countries often interpret international principles such as equitable and reasonable utilization, and the obligation not to cause significant harm, divergently and inconsistently. This has encouraged states to prioritize national interests, intensifying disputes. The Tigris and Euphrates rivers, for instance, have long been arenas of contention: upstream Turkey asserts sovereignty over its natural resources and pursues projects like GAP, while downstream Syria and Iraq insist on adherence to principles of equitable and reasonable use (McCaffrey, 2007, pp. 211–213). The

absence of binding multilateral agreements has enabled unilateral practices (Salman & Uprety, 2021, p. 39), which in turn amplify hydro-political tensions and competition.

International arbitration and mediation mechanisms remain underutilized in the region, primarily due to states' reluctance to submit to external jurisdiction and concerns over sovereignty. Even when employed, these mechanisms often face legal complexities, high costs, and lengthy proceedings that limit their effectiveness. International law provides instruments such as the International Court of Justice and arbitration bodies under UNCITRAL that could resolve disputes; however, West Asian states' state-centric approaches and sensitivity toward sovereignty have hindered their acceptance (Yihdego, Rieu-Clarke & Cascão, 2016, p. 95). For instance, the 1994 Jordan–Israel peace treaty included provisions for arbitration mechanisms, yet in practice, disputes have rarely been referred to international bodies.

Comparative experiences from other regions underscore the importance of institutionalized cooperation, transparency, and enforceable guarantees in managing shared water resources. The International Commission for the Protection of the Danube River, for example, has successfully prevented widespread conflicts by engaging riparian states within a binding cooperative framework (Schmeier, 2013, pp. 122–123). Similarly, management of the Mekong River basin demonstrates that coordination among stakeholder countries through regional institutions can ensure mutual benefits and reduce disputes. These lessons are transferable to West Asia, provided that regional actors commit to multilateral, institutionalized cooperation and adhere to binding agreements.

7. Foresight on Water Security in West Asia

Water security in West Asia is increasingly poised to become a strategic cornerstone of both domestic and foreign policy in the coming decades. Historically confronted with water scarcity, the region now faces a multidimensional crisis driven by climate change, population growth, resource mismanagement, and intensifying geopolitical competition (National Intelligence Council, 2021, p. 76). Forecasts indicate that by 2040, countries across West Asia and North Africa will experience severe declines in per capita renewable water availability, threatening not only food security but also social stability and the political legitimacy of governments (Carnegie Endowment for International Peace, 2024, p. 5). Environmental and climatic stressors intersect with political

dynamics: upstream states, such as Turkey, exert unilateral control over transboundary rivers like the Tigris and Euphrates through massive dam projects, prompting protests and disputes from downstream countries, including Iraq and Syria. At the same time, regional and international institutions have largely failed to implement enforceable mechanisms for the sustainable management of shared water resources, leaving critical gaps in water diplomacy and legal frameworks that perpetuate chronic mistrust among states. Ongoing conflicts and political instability, particularly in Yemen and Syria, have further degraded water infrastructure, making access to clean water a pressing survival challenge (Kinninmont, 2022, p. 17). Meanwhile, the heavy reliance of some Gulf states on expensive desalination technologies has amplified their vulnerability to both geopolitical and energy-related disruptions.

Despite these risks, international experiences demonstrate that water security can follow a cooperative trajectory. The Danube Basin in Europe, encompassing fourteen countries, illustrates how institutionalization, data transparency, and dispute resolution mechanisms can transform water from a source of conflict into a platform for collaboration (DeStefano et al., 2020, p. 81). Adaptive application of such models could inform governance frameworks for the Nile, Jordan, or Tigris-Euphrates basins. Thus, water security in West Asia is not merely an environmental concern but a deeply geopolitical, security-related, and even civilizational issue, where neglecting proactive strategies could undermine human security and accelerate regional fragmentation.

In this turbulent context, water functions both as a vital resource and a geopolitical lever central to regional power competition. Given ongoing climate stress, institutional inefficiencies, and persistent geopolitical tensions, two scenarios emerge as particularly plausible. The first scenario envisions a shift toward water diplomacy and cooperative institutional arrangements, in which regional states recognize water's strategic importance for social survival and political stability and pursue joint mechanisms to manage transboundary resources. This scenario requires a transition from a hard-security mindset to a collective resource security approach, emphasizing confidence-building, data sharing, technical transparency, and institution-building (Zeitoun & Mirumachi, 2008, p. 300). International examples, such as the Singapore–Malaysia River Commission and the Senegal River Basin Development Organization, demonstrate that even historically adversarial states can cooperate under multi-layered governance with international

support (Sadoff & Grey, 2005, p. 14). In West Asia, a limited adaptation of this cooperative model has occurred in the Jordan River basin through Arab-Israeli negotiations, yet political mistrust and occupation of resource-rich territories have constrained its full implementation.

The second scenario, which appears more probable given current developments, frames water as a tool of geopolitical hegemony. Upstream countries, exemplified by Turkey's GAP project, have substantially reduced the natural flow of the Tigris and Euphrates without clear transboundary legal obligations (Warner et al., 2013, p. 72). Downstream states, particularly Iraq, now confront drying rivers, social instability, and climate-induced migration, outcomes directly shaped by upstream hydro-political decisions. In such contexts, water tensions may escalate into proxy or direct military conflicts, as observed in Syria, where ISIS exploited control over water resources as a strategic instrument for territorial dominance. Many researchers argue that rather than entering an era of "water peace," West Asia is increasingly moving toward "violent hydro-politics," a trend that—without cooperative regional and trans-regional strategies supported by international institutions—could produce prolonged interstate and intrastate conflicts across ethnic and local communities (Zeitoun et al., 2020, p. 450). Thus, the future trajectory of water security in West Asia lies between diplomacy and hydro-political confrontation, contingent on the political will of elites, engagement of international organizations, and pressures from civil society to shift from competitive to cooperative frameworks.

In the 21st century, technological advancement has emerged as a decisive factor in water geopolitics. Beyond optimizing consumption and resource protection, technological mastery functions as a strategic instrument for consolidating regional influence and reshaping power balances. Chronic water scarcity and interstate dependency on shared resources have elevated technological expertise in water management into a form of "geopolitical leverage." What was once confined to environmental or technical policy now constitutes a central consideration in national security calculations. Advanced technologies—including IoT-based monitoring systems, artificial intelligence for drought prediction, and satellite surveillance—enable unprecedented precision in tracking and controlling surface and groundwater resources. This concentration of expertise translates into significant political and economic bargaining power for technologically

equipped states. Israel, for instance, has leveraged investments in desalination and water recycling not only to reduce domestic dependence but also to strengthen regional diplomatic influence, exemplified by initiatives such as the “Peace Pipeline” from the Red Sea to the Dead Sea. Conversely, states lacking technological infrastructure face heightened environmental risks and geopolitical marginalization.

Control over emerging water technologies—including cloud seeding, energy generation from limited water resources, and smart water network management—thus operates as a “soft deterrence tool,” enhancing strategic agency in responding to climate challenges or diplomatic pressures. Similarly, technological advances in dam construction and transboundary resource management enable states to redefine regional orders. Turkey's GAP project, employing advanced hydropower and flood-control technologies, has consolidated Ankara's hydro-political dominance across the Tigris-Euphrates basin, prompting diplomatic responses from Iraq and Syria (Warner et al., 2017, p. 77). Consequently, future power dynamics in the regional water sector will hinge not only on the availability of water resources but also on the sophistication of their technological management. States with advanced capabilities can pursue foreign policy from a position of strength, while technologically lagging states risk structural marginalization. Technology has therefore evolved from a mere management tool into a central geopolitical variable capable of shaping regional competition, cooperation, or divergence.

Conclusion and Strategic Recommendations

The water crisis in West Asia represents far more than an environmental challenge; it is a multidimensional phenomenon with geopolitical, security, economic, and civilizational implications. The findings of this research indicate that, in the contemporary era, water resources function as a form of “geostrategic leverage,” enabling regional and extra-regional actors to exert influence through the control, diversion, or engineering of water flows, thereby reinforcing and consolidating power structures within the region. This dynamic has produced an “unequal water order,” in which countries with upstream positions or advanced technological capacities dominate access to vital resources, while downstream or less-developed states occupy subordinate positions. The crisis is reshaping the concept of national security, which has expanded beyond military defense to encompass the capacity to secure critical resources—including water,

food, and energy—against environmental and climatic shocks. Water scarcity can trigger cascading effects, such as agricultural decline, social unrest, climate-induced migration, rising poverty, ethnic tensions, and ultimately political instability. From this perspective, water scarcity is not only a threat to the socio-economic survival of states but also a catalyst for broader security crises. Scenario analysis in this study identifies two probable futures: one characterized by "water diplomacy and interactive governance" and the other by "hydropolitical isolation and hegemonic confrontation." The first scenario provides a pathway toward strategic convergence based on shared water interests, whereas the second exposes the region to structural instability, escalating conflicts, and weakened national sovereignties.

In this context, water governance must be redefined as a "geostrategic construct," extending beyond traditional concerns of equitable allocation or resource engineering. It functions simultaneously as a means of survival, a component of national identity, a source of soft and hard power, and a mechanism for shaping regional order. States that succeed in modern water governance are those that link "resource security" with "human security" and foster structural resilience through transparency, stakeholder participation, intergenerational equity, and the adoption of advanced technologies. Consequently, water governance should be integrated into national policy, defense strategy, regional diplomacy, and sustainable development planning. Strategic priorities include technological empowerment through investment in forecasting, monitoring, and intelligent management systems, such as satellites, artificial intelligence, and digital infrastructure. Social and political institution-building is equally vital, including the establishment of water councils at national and basin levels with the involvement of local stakeholders, academic elites, civil society, and representatives from marginalized regions. Alignment with foreign and defense policy is also essential, exemplified by the formulation of a "National Water Security Strategic Document" connected to regional and border policies, encompassing relations with neighboring countries such as Turkey, Afghanistan, and Iraq.

Given the complex hydro-political landscape of West Asia, multi-level and integrated strategic policies are critical. Recommendations include establishing a dedicated interstate organization to manage transboundary water resources, modeled on the Danube Commission and supervised by the United Nations; utilizing satellite data and advanced analytics to enhance

transparency and confidence-building in negotiations; and coordinating climate change mitigation with water governance through high-level policy frameworks, cross-sectoral cooperation, technology transfer, and financial support for geopolitically vulnerable states to prevent them from becoming hotspots of water-related security crises.

Building on comparative analyses and research findings, this study proposes a multi-level, participatory, and binding framework for shared water governance in West Asia. Key components of this framework include a synergistic regional organization comprising government representatives, NGOs, local communities, international organizations, and research institutions; a transparent data-driven platform for sharing information on water availability, precipitation, droughts, consumption, and resource quality using remote sensing and Internet of Things (IoT) technologies; a multilateral legal framework grounded in principles of equitable use, prevention of significant harm, and prior notification, consistent with the 1997 Convention; rapid crisis response mechanisms capable of addressing natural disasters, droughts, and potential water conflicts; and the promotion of water justice and social resilience through distributive justice indices, local participation mechanisms, and livelihood security programs for marginalized communities. Implementing such a comprehensive framework can foster a participatory regional order, reduce structural insecurity, strengthen state resilience against water crises, and provide a platform for transitioning from competition to cooperation in West Asia.

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