

Original Article

Navigating the Waters: A Hegemonic Stability Theory Analysis of the Grand Ethiopian Renaissance Dam and its Impact on Hydro-Politics in the Nile Basin

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Abstract: *The Grand Ethiopian Renaissance Dam (GERD) signifies a critical milestone in the intricate landscape of transboundary water management within the Nile Basin, inciting a contentious discourse among key stakeholders, notably Ethiopia, Egypt, and Sudan. Positioned as Ethiopia's ambitious endeavor to challenge Egypt's established hydro-hegemony, the GERD aims to fulfill developmental and strategic objectives, underscoring the need for a comprehensive examination of the hydro politics in the region. This review employs Hegemonic Stability Theory as a lens to delve into historical and legal facets of Nile water management, dissect the political and economic ramifications of the GERD for riparian states, and assess the potential for cooperation and conflict resolution within the Nile Basin.*

Drawing from the tenets of Hegemonic Stability Theory, a foundational framework in international relations, this analysis elucidates Egypt's role as the hydro-hegemon in the Nile Basin. The theory accentuates the significance of a dominant power supplying public goods to uphold international stability, a role historically assumed by Egypt through control over the majority of the Nile's water resources. Rooted in colonial-era agreements and diplomatic influence, Egypt has safeguarded its interests and maintained the uninterrupted flow of the Nile.

The GERD emerges as a formidable challenge to Egypt's hydro-hegemony, reflecting Ethiopia's aspirations to harness the Blue Nile's hydropower for its development. This ambition, however, contrasts sharply with Egypt's apprehensions regarding potential water scarcity and alterations in river dynamics. The GERD disrupts the established equilibrium, instigating uncertainty, particularly for downstream states like Egypt and Sudan, with far-reaching impacts on agriculture, industry, and livelihoods.

The consequences of this challenge extend beyond the immediate stakeholders. The GERD holds the potential to redefine norms of cooperation within the Nile Basin, transitioning from a historical backdrop of hydro-hegemony towards principles of equitable utilization and benefit-sharing. Resolving this complex scenario necessitates either a restoration of Egypt's power and legitimacy through addressing its concerns and compensating for adverse impacts or the establishment of a new order accommodating the interests of all riparian states. This juncture is pivotal, with the outcome determining the future stability and cooperation within the Nile Basin.

Keywords: *Grand Ethiopian Renaissance Dam (GERD), Nile Basin, Hydropolitics, Hegemonic Stability Theory.*

I. INTRODUCTION

The Grand Ethiopian Renaissance Dam (GERD) emerges as a pivotal and contentious endeavor in the annals of transboundary water management, embodying complex dynamics and geopolitical implications (Verhoeven 321). This colossal hydroelectric venture, situated on the Blue Nile, a primary tributary coursing through Sudan and Egypt en route to the Mediterranean Sea, stands as a symbol of Ethiopia's national pride and development aspirations, promising to illuminate the lives of millions through increased electricity generation and regional cooperation (Zeray and Aberra 54).

Nevertheless, the GERD has elicited vehement opposition from Egypt and Sudan, who apprehensively foresee potential reductions in their water supply, posing threats to their agricultural, industrial, and livelihood pursuits (Wheeler et al. 105). This dispute amplifies the intricacies of water politics in the Nile Basin, an environment already characterized by scarcity and uneven distribution among its eleven riparian states (Tvedt 1).



To unravel the hydropolitical dimensions of the GERD and the Nile Basin, this review adopts the analytical lens of Hegemonic Stability Theory (HST), an influential branch of international relations theory (Swain and Jägerskog 1). HST contends that the stability of the international system hinges on the presence and sustenance of a dominant power capable of furnishing public goods, including security, trade, and cooperation, to other states. The theory posits that the decline of a hegemon or the rise of a challenger can instigate instability and conflict, potentially reshaping the prevailing order (Yihdego and Rieu-Clarke 528).

In the Nile Basin context, HST facilitates an examination of Egypt's historical role as the hydro-hegemon and the potential ramifications of the GERD as a challenger to its dominance and vested interests (Cascao and Nicol 516). The central research question steering this review is: How can hegemonic stability theory elucidate the hydropolitics of the GERD and the Nile Basin? This review aims to achieve three key objectives: (1) summarize pertinent arguments and findings from academic literature on hydropolitics and the GERD; (2) explicate the fundamental assumptions and propositions of hegemonic stability theory and its applicability to the analysis of the GERD and the Nile Basin; and (3) apply the theoretical framework to the empirical case, dissecting key findings and implications.

Crucial terms and concepts integral to this review include hydropolitics, hegemonic stability theory, and hydro-hegemony. Hydropolitics is systematically explored as the study of interstate conflict and cooperation concerning transboundary water resources (Elhance 3). Hegemonic stability theory, as elucidated by Gilpin (144), postulates the necessity of a dominant power offering public goods to sustain international system stability. Hydro-hegemony involves the exertion of dominance over water resources by a potent state or entity, achieved through legal, political, and military means (Zeitoun and Warner 436). This scholarly exploration seeks to delve into the multifaceted dimensions of the GERD and the Nile Basin, unraveling the complexities through an academic and technical lens grounded in established theories and empirical analysis.

II. LITERATURE REVIEW

Waterbury was the first to coin the term hydropolitics, which he defined as the study of inter-state politics regarding the management of shared water resources. He applied this concept to the Nile Valley, where he analyzed the historical and contemporary conflicts and cooperation among the riparian states. He argued that the Nile water regime was characterized by a "hydro-hegemonic bargain" between Egypt and Sudan, which excluded the upstream countries from any significant use or development of the river. He also argued that the Nile water regime was influenced by the external factors, such as the British colonial rule, the Cold War, and the Arab-Israeli conflict.

Salman and Uprety provided a comprehensive and comparative analysis of the legal aspects of the transboundary water resources in South Asia, including the Indus, the Ganges-Brahmaputra, and the Mahakali rivers. They examined the legal principles and norms that govern the transboundary water resources, such as the principle of equitable and reasonable utilization, the principle of no significant harm, and the principle of prior notification and consultation. They also examined the legal instruments and institutions that have been established or proposed to manage the transboundary water resources, such as the Indus Waters Treaty, the Ganges Treaty, and the Mahakali Treaty. They also examined the legal disputes and challenges that have arisen or may arise in the transboundary water management, and the legal mechanisms and procedures that have been used or suggested to resolve them.

Tvedt edited a collection of essays that explored the historical and contemporary aspects of the Nile water management, from the perspectives of different disciplines and countries. The essays covered various topics, such as the colonial and post-colonial history of the Nile water regime, the legal and institutional framework of the Nile water management, the hydrological and environmental issues of the Nile water resources, the political and economic implications of the Nile water development, and the prospects and challenges of cooperation and conflict resolution in the Nile Basin. The essays also discussed the role and impact of the GERD on the Nile water management, and the responses and reactions of the riparian states to the project.

Yihdego and Rieu-Clarke explored the concept and application of fairness in international law, and how it could inform the cooperation and conflict resolution in the Nile Basin, particularly in relation to the GERD and the Blue Nile. They argued that fairness was a multifaceted and context-specific notion, which could be derived from various sources and principles of international law, such as the principle of equitable and reasonable utilization, the principle of no significant harm, the principle of good faith, and the principle of common interest. They also argued that fairness was a dynamic and evolving notion, which could be influenced by various factors and circumstances, such as the hydrological and environmental conditions, the socio-economic and developmental needs, and the political and legal realities. They also argued that fairness was a normative and

pragmatic notion, which could be achieved through various mechanisms and processes, such as the negotiation and consultation, the arbitration and adjudication, and the cooperation and coordination.

The second theme focuses on the political and economic implications of the GERD for the riparian states, and how they have influenced the positions and behaviors of the actors involved. The literature on this theme analyzes the motivations and objectives of Ethiopia in building the GERD, and the benefits and costs of the project for Ethiopia and the region. The literature on this theme also analyzes the concerns and interests of Egypt and Sudan in opposing or supporting the GERD, and the risks and opportunities of the project for their water security and development. The literature on this theme also analyzes the role and influence of other regional and international actors, such as the African Union, the United Nations, the World Bank, and the United States, on the hydropolitics of the GERD and the Nile Basin. Some of the key works on this theme are:

Verhoeven examined the political and economic drivers of the GERD dispute, and how they reflected the divergent visions and strategies of the political leadership in Ethiopia and Egypt. He argued that the GERD was a manifestation of Ethiopia's ambition to become a regional power and a developmental state, and a source of legitimacy and stability for its ruling elite. He also argued that the GERD was a challenge to Egypt's hydro-hegemony and its identity as a Nile Valley civilization, and a source of insecurity and vulnerability for its authoritarian regime. He also argued that the GERD dispute was influenced by the domestic and regional dynamics of both countries, such as the political transition and ethnic conflict in Ethiopia, and the political repression and economic crisis in Egypt.

Wheeler and his colleagues explored the cooperative filling approaches for the GERD, and how they could address the concerns and interests of the three countries involved. They used a hydrological model to simulate the impacts of different filling scenarios on the water availability and hydropower generation of the GERD, the High Aswan Dam, and the Roseires Dam. They found that the optimal filling strategy for the GERD was to fill the reservoir over a period of 4 to 7 years, depending on the hydrological conditions, and to release a minimum flow of 35 to 40 billion cubic meters per year to the downstream countries. They also found that the cooperative filling strategy could reduce the risk of drought and increase the benefits of the GERD for all the riparian states.

Zeray and Aberra discussed the opportunities and benefits of the GERD for the collaboration and development of the Eastern Nile Basin, comprising Ethiopia, Egypt, and Sudan. They argued that the GERD could enhance the water availability and quality, the hydropower production, the flood control, the irrigation potential, and the environmental protection of the Nile Basin. They also argued that the GERD could foster the regional integration and cooperation, the energy trade and security, the peace and stability, and the poverty reduction and growth of the Nile Basin. They also argued that the GERD could serve as a catalyst for the implementation of the CFA, which could provide a legal and institutional basis for the equitable and reasonable utilization of the Nile water resources.

Abdo and his colleagues assessed the impacts of the GERD on the downstream flow regimes and water resources development in the Eastern Nile River Basin, using a hydrological model and a water resources management model. They found that the GERD would have positive effects on the water availability and reliability, the hydropower generation, and the flood and drought mitigation of the downstream countries, especially Sudan. They also found that the GERD would have negative effects on the water quality and salinity, the sediment transport and deposition, and the aquatic ecosystems and biodiversity of the downstream countries, especially Egypt.

Gebreluel, Goitom. "The Grand Ethiopian Renaissance Dam and the Nile Basin: Implications for Transboundary Water Cooperation." *Earthscan Studies in Water Resource Management*, Routledge, 2019. Gebreluel examined the implications of the GERD for the transboundary water cooperation in the Nile Basin, using a political economy approach. He argued that the GERD was a game-changer that altered the power dynamics and incentives of the riparian states, and created new opportunities and challenges for the cooperation and conflict resolution in the Nile Basin. He also argued that the GERD required a paradigm shift from the zero-sum to the positive-sum thinking, and from the water-sharing to the benefit-sharing approach, in order to achieve a win-win outcome for all the riparian states.)

The third theme focuses on the prospects and challenges of cooperation and conflict resolution in the Nile Basin, and how they can be enhanced or hindered by the GERD and other factors. The literature on this theme evaluates the existing or proposed mechanisms and frameworks for the cooperation and conflict resolution in the Nile Basin, such as the NBI, the CFA, the Declaration of Principles, and the African Union-led mediation. The literature on this theme also identifies the factors and

conditions that facilitate or constrain the cooperation and conflict resolution in the Nile Basin, such as the trust and confidence, the leadership and dialogue, the benefit-sharing and compensation, and the third-party involvement and facilitation. The literature on this theme also provides some recommendations and suggestions for the improvement of the cooperation and conflict resolution in the Nile Basin, such as the technical and legal assistance, the confidence-building measures, the joint projects and programs, and the regional and international support. Some of the key works on this theme are:

Cascao and Nicol examined the impact of the GERD on the norms of cooperation in the Nile Basin, and how it challenged or reinforced the existing or emerging norms. They identified four norms of cooperation in the Nile Basin, namely: (1) the norm of hydro-hegemony, which was based on the historical and legal claims of Egypt and Sudan over the Nile water; (2) the norm of equitable and reasonable utilization, which was based on the principle of international water law and the CFA; (3) the norm of no significant harm, which was based on the principle of international water law and the Declaration of Principles; and (4) the norm of benefit-sharing, which was based on the concept of positive-sum outcomes and the NBI. They argued that the GERD represented a shift from the norm of hydro-hegemony to the norm of equitable and reasonable utilization, and a potential shift from the norm of no significant harm to the norm of benefit-sharing, depending on the outcomes and impacts of the project. They also argued that the GERD created an opportunity for the development of new norms of cooperation in the Nile Basin, based on the mutual trust, dialogue, and coordination among the riparian states.

Swain and Jägerskog analyzed the role and influence of the emerging powers, such as China, India, Brazil, and Turkey, on the trans-boundary water management in the Nile Basin, and how they affected the cooperation and conflict resolution among the riparian states. They argued that the emerging powers had different interests and strategies in the Nile Basin, ranging from the economic and diplomatic to the political and ideological. They also argued that the emerging powers had different impacts on the Nile Basin, depending on their level and mode of engagement, their relationship and alignment with the riparian states, and their contribution and commitment to the regional and international initiatives and institutions. They also argued that the emerging powers had both positive and negative effects on the Nile Basin, as they could provide alternative sources of finance, technology, and mediation, or create new sources of competition, tension, and polarization.

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Mohamed and his colleagues assessed the potential benefits and costs of the GERD for the riparian states, using a multi-criteria decision analysis and a system dynamics model. They found that the GERD could generate significant benefits for Ethiopia, Sudan, and Egypt, in terms of the hydropower production, the water availability, the flood and drought mitigation, and the regional integration and cooperation. They also found that the GERD could entail some costs for the downstream countries, in terms of the water quality and salinity, the sediment transport and deposition, and the aquatic ecosystems and biodiversity. They also suggested some measures and mechanisms to enhance the cooperation and benefit-sharing among the riparian states, such as the joint operation and management of the dam, the compensation and mitigation of the negative impacts, and the development of joint projects and programs.)

III. THEORETICAL FRAMEWORK

Hegemonic stability theory is a branch of international relations theory that posits that the stability of the international system depends on the existence and maintenance of a dominant power that can provide public goods, such as security, trade, and cooperation, to other states (Gilpin 144). According to this theory, the decline of a hegemon or the emergence of a challenger can lead to instability and conflict, as the existing order is challenged or replaced by a new one (Yihdego and Rieu-Clarke 528). Hegemonic stability theory has four main concepts and components: hegemony, stability, public goods, decline, and challenge. Hegemony is the domination and control of the international system by a single state or actor, through various legal, political, and military means (Zeitoun and Warner 436). Stability is the absence of war and disorder, and the presence of peace and cooperation, in the international system (Swain and Jägerskog 1). Public goods are the benefits and services that are provided by the hegemon to the other states in the international system, such as the maintenance of the international order and institutions, the provision of security and protection, and the promotion of trade and development (Keohane 1984, pp34). Decline is the loss of power and legitimacy of the hegemon, due to various internal and external factors, such as the economic and political crises, the social and cultural changes, and the rise of competitors and challengers (Gilpin 1981, p. 93). Challenge is the attempt or aspiration of a state or actor to challenge or replace the hegemon, by using or developing its own resources and capabilities, and by pursuing its own interests and goals (Yihdego and Rieu-Clarke 528). Hegemonic stability theory has been applied and validated in the historical and contemporary patterns of war and peace, order and disorder, and cooperation and competition in the international system, such as the rise and fall of the British and American hegemony, the emergence and collapse of the bipolar system, and the rise of China and other emerging powers (Webb and Krasner 1989, p. 183).

A. Application to the Nile Basin:

The Nile Basin is a subsystem of the international system, where eleven riparian states (Burundi, Democratic Republic of Congo, Egypt, Eritrea, Ethiopia, Kenya, Rwanda, South Sudan, Sudan, Tanzania, and Uganda) share the Nile River, the world's longest river, and its tributaries, such as the White Nile and the Blue Nile. The Nile Basin has a complex and asymmetric structure, where the riparian states have different levels of power, interests, and needs, and where the water resources are scarce and unevenly distributed. The Nile Basin is also influenced by various external actors and factors, such as the regional and international organizations, the emerging and developed powers, and the climate change and environmental issues, which affect the cooperation and conflict among the riparian states (Tvedt 2010, p. 1).

The hydro-hegemon of the Nile Basin is Egypt, which is the most downstream and populous country, and which depends on the Nile water for more than 90% of its water supply. Egypt has established and maintained its hydro-hegemony over the Nile water resources, by using various legal, political, and military means, such as the colonial-era treaties and agreements that granted Egypt and Sudan the majority of the Nile water and the veto power over any upstream projects, the diplomatic and economic pressure and influence on the upstream countries, and the military intervention and threat against any perceived or potential threats to its water security and interests. Egypt has also provided some public goods to the other riparian states, such as the maintenance of the Nile water regime, which ensures the regular and predictable flow of the Nile water, the provision of technical and financial assistance, such as the construction and operation of dams and irrigation systems, and the promotion of regional cooperation and integration, such as the establishment and participation in the NBI and the CFA (Cascao and Nicol 2017, p. 517).

The challenge to the hydro-hegemon of the Nile Basin is the GERD, which is a massive hydroelectric dam that Ethiopia is building on the Blue Nile, the main tributary of the Nile River, which contributes about 85% of the Nile water flow. The GERD represents the ambition and aspiration of Ethiopia, and the upstream countries in general, to use and develop their water resources, and to achieve their developmental and strategic goals, such as the generation of electricity for millions of their people and neighboring countries, the reduction of poverty and inequality, and the enhancement of their regional and international status and influence. The GERD poses a threat to Egypt's water security and interests, and affects the water availability and quality, and the agriculture, industry, and livelihoods of the downstream states, especially Egypt and Sudan, by altering the flow and timing of the Nile water, by reducing the water quantity and reliability, by increasing the water salinity and evaporation, by affecting the sediment transport and deposition, and by impacting the aquatic ecosystems and biodiversity (Verhoeven 2020, p. 322).

The challenge of the GERD has significant implications for the stability and cooperation of the Nile Basin, as it affects the existing order and interests of the hydro-hegemon, and creates uncertainty and insecurity for the downstream states. The challenge of the GERD represents a shift from the norm of hydro-hegemony to the norm of equitable and reasonable utilization,

and a potential shift from the norm of no significant harm to the norm of benefit-sharing, depending on the outcomes and impacts of the project. The challenge of the GERD also creates an opportunity for the development of new norms of cooperation in the Nile Basin, based on the mutual trust, dialogue, and coordination among the riparian states. The resolution of the dispute requires either the restoration of the hegemon's power and legitimacy, by addressing its concerns and interests, and by providing some compensation and mitigation for the negative impacts, or the emergence of a new order and leadership that can accommodate the interests and needs of all the riparian states, by reaching a comprehensive and binding agreement on the filling and operation of the GERD, and by exploring the opportunities and synergies of the project, such as the regional integration, energy trade, and environmental protection (Cascao and Nicol 2017, p. 531).

IV. ANALYSIS AND DISCUSSION

A. Analysis

The Nile Basin is a subsystem of the international system, where eleven riparian states (Burundi, Democratic Republic of Congo, Egypt, Eritrea, Ethiopia, Kenya, Rwanda, South Sudan, Sudan, Tanzania, and Uganda) share the Nile River, the world's longest river, and its tributaries, such as the White Nile and the Blue Nile. The Nile Basin has a complex and asymmetric structure, where the riparian states have different levels of power, interests, and needs, and where the water resources are scarce and unevenly distributed. The Nile Basin is also influenced by various external actors and factors, such as the regional and international organizations, the emerging and developed powers, and the climate change and environmental issues, which affect the cooperation and conflict among the riparian states.

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B. Discussion:

a) The main findings and implications of the analysis are as follows:

The hydro politics of the GERD and the Nile Basin can be explained by the theoretical framework of hegemonic stability theory, which can help to understand the historical and current role of Egypt as the hydro-hegemon of the Nile Basin, the

motivations and objectives of Ethiopia in building the GERD as a challenger to Egypt's hydro-hegemony, and the responses and reactions of Sudan and other riparian states to the GERD and its implications for their water security and interests.

The hydro politics of the GERD and the Nile Basin are influenced by various norms of cooperation, such as the norm of hydro-hegemony, the norm of equitable and reasonable utilization, the norm of no significant harm, and the norm of benefit-sharing, which reflect the different interests and positions of the riparian states, and which can facilitate or constrain the cooperation and conflict resolution in the Nile Basin.

The hydro politics of the GERD and the Nile Basin are influenced by various external actors and factors, such as the regional and international organizations, the emerging and developed powers, and the climate change and environmental issues, which affect the cooperation and conflict resolution among the riparian states, and which can provide some alternative sources of finance, technology, and mediation, or create new sources of competition, tension, and polarization.

These findings and implications answer the research question and objectives of the review article, by providing a comprehensive and critical analysis of the hydro politics of the GERD and the Nile Basin, using the theoretical framework of hegemonic stability theory. The findings and implications are consistent with the existing literature, which has also applied and validated hegemonic stability theory in the analysis of the hydro politics of the GERD and the Nile Basin.

V. CONCLUSION

This comprehensive review has scrutinized the intricate hydro politics of the Grand Ethiopian Renaissance Dam (GERD) and the Nile Basin through the lens of hegemonic stability theory, revealing key insights and laying the groundwork for future research and policy considerations.

Our analysis has illuminated the profound significance of the GERD, elucidating its role as a manifestation of Ethiopia's ambitions to challenge Egypt's historic hydro-hegemony and to realize its developmental and strategic aspirations. By embarking on the construction of the GERD, Ethiopia seeks to harness its water resources for sustainable electricity generation, poverty alleviation, and the bolstering of its regional and international standing. This ambitious endeavor has substantially disrupted the traditional balance of power in the Nile Basin, thereby challenging Egypt's established position as the hydro-hegemon in the region.

The implications of the GERD are far-reaching, particularly for the stability and cooperation within the Nile Basin. It introduces a complex dynamic of uncertainty and insecurity, most acutely felt by downstream states, notably Egypt and Sudan, whose water security and interests bear the brunt of this transformation.

A. Engaging in Constructive Dialogue:

The three riparian countries - Ethiopia, Egypt, and Sudan - should prioritize constructive dialogue and negotiation, underpinned by principles of mutual trust, respect, and benefit-sharing. This approach is essential for building consensus and trust among the parties.

B. Seeking Regional and International Assistance:

Collaboration with regional and international actors, such as the African Union, the United Nations, and the World Bank, can provide valuable facilitation and mediation support. Their involvement can help the countries reach a comprehensive and binding agreement on the filling and operation of the GERD and the broader management of Nile waters.

C. Exploring Opportunities and Synergies:

The GERD also presents opportunities for regional integration, energy trade, and environmental protection. Explorations into these potential benefits should be a key focus of future discussions among the riparian states.

In addition to these recommendations, further research is essential to deepen our understanding of the GERD's impacts and the broader hydro political landscape of the Nile Basin:

D. Impact Assessment:

Future research should investigate the GERD's effects on the hydrological, ecological, and socio-economic aspects of the Nile Basin. Utilizing various research methods and models will provide a holistic view of the dam's consequences.

E. Comparative Analysis:

Comparative studies should be undertaken to contrast the hydro politics of the GERD and the Nile Basin with other cases of trans-boundary water conflicts and cooperation. Employing diverse theoretical and analytical frameworks can offer valuable insights.

F. Role of External Factors:

Research should explore the role and influence of external actors and factors, including other upstream and downstream countries, the impact of climate change, and public opinion, on the hydro politics of the GERD and the wider Nile Basin. By addressing these recommendations and expanding the research agenda, scholars, policymakers, and stakeholders can better navigate the complexities of the GERD issue and advance cooperation and stability in the Nile Basin.

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