WATER SECURITY AND HYDROPOLITICS OF THE NILE RIVER: SOUTH SUDAN'S NATIONAL SECURITY IN THE 21ST CENTURY

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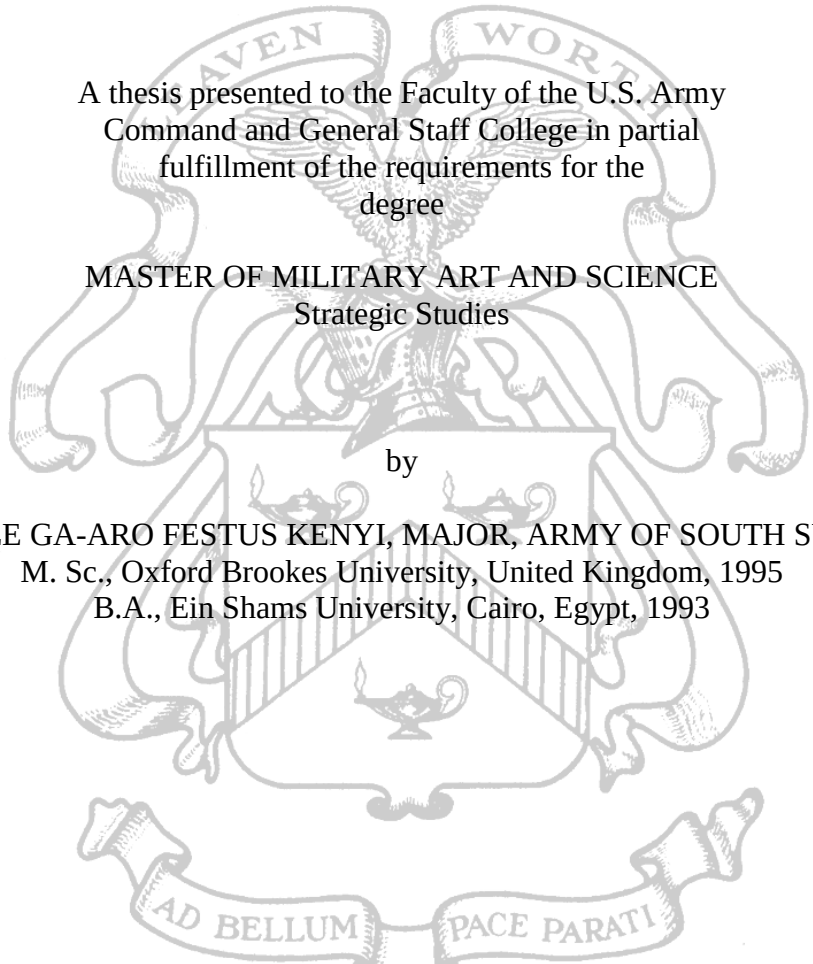

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14. ABSTRACT

The purpose of this study is to understand the extent to which current potential conflicts over the Nile River water will affect or impact on South Sudan's national security strategy after it became an independent state in July 2011. It also explores the existing legal framework within the Nile basin and level of cooperation amongst states. The study further explores threats and opportunities that exist within the Nile basin. The mixed research method is employed in the study. Both quantitative and qualitative research methods are used. Both present the best analytical tools. They help to compare, analyze, and evaluate data by using both primary and secondary sources.

One of the compelling findings of the study is that there has been significant decline in the flow of the Nile River, while the water demand is disturbingly high. The region experiences an extraordinary population growth, its population is expected to reach 600 million by 2050; therefore exacerbating the water problem**.**

This study recommends that joint management approach is the best option in the Nile basin. It also recommends that south Sudan should sign and enact national and international laws pertaining to water management issues, and conduct feasibility studies on water-related projects.

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The opinions and conclusions expressed herein are those of the student author and do not necessarily represent the views of the U.S. Army Command and General Staff College or any other governmental agency. (References to this study should include the foregoing statement.)

ABSTRACT

WATER SECURITY AND HYDROPOLITICS OF THE NILE RIVER: SOUTH SUDAN'S NATIONAL SECURITY IN THE 21ST CENTURY, by Major Ufulle Ga-aro Festus Kenyi, 134 pages.

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One of the compelling findings of the study is that there has been significant decline in the flow of the Nile River, while the water demand is disturbingly high. The region experiences an extraordinary population growth, its population is expected to reach 600 million by 2050; therefore exacerbating the water problem.

This study recommends that a joint management approach is the best option in the Nile basin. It also recommends that South Sudan should sign and enact national and international laws pertaining to water management issues, as a part of a comprehensive strategy focusing upon the Nile Water, and conduct feasibility studies on water-related projects.

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ACRONYMS

BCM	Billion Cubic Meters
FAO	Food Agriculture Organization
HA	Hactres
SPLA	Sudan People’s Liberation Army
SPLM	Sudan People’s Liberation Movement
UN	The United Nations
WB	World Bank

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CHAPTER 1

INTRODUCTION

Both the science and art of the Nile River have provided an interesting and provocative area of studies. Several studies have been conducted, including those by the Greek historian Herodotus who wrote that the Nile has been the lifeline of civilization in Egypt since the Stone Age.[1] The name 'Nile' comes from the Greek word 'Neilos', which means a valley or river valley. The ancient Egyptians called the river Ar or Aur (black); and the Greeks and Egyptians also gave the land its oldest name Kem or Kemi, which also translates into black.[2] Flowing from great East African Plateau lakes into Mediterranean Sea, it provided the perfect setting for the evolution of the civilizations that existed amongst the inhabitants of the Nile basin for many millennia.

The Nile Basin system is not only the largest but also the longest in the world. It occupies as area of 3 million square meters; and covers almost 10 percent of the African and 2.3 percent of the world's land surface.[3] It flows for about 6, 700 km from the Eastern African countries where its source originates, travelling through Uganda, South Sudan, and Sudan , before it pours its water into Mediterranean Sea in Egypt.

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[1]Jan Hultin, "The Nile: Source of Life, Source of Conflict," in *Hydropolitics Conflicts Over Water As A Development Constrains*, ed. Leif Ohlsson (London: Zed Books Ltd.,1995) 29; Arun P. Elhance, *Hydro-Politics in the 3rd World Conflict and Cooperation in International River Basins* (Washington, DC: United States Institute of Peace Press, 1999), 54.

[2]Hultin, 29-30

[3]Elias Ashebir, "The Politics of the Nile Basin" (Master's Thesis, University of Witwatersrand, Johannesburg, 2009).

While the Nile Basin is the longest trans-boundary international system, its annual water discharge is completely moderate compared to major river systems in the continent.[4] Table 1 shows the major international river systems in Africa and their annual water discharge rates. For example, the Volta River discharges about 390 billion cubic meters; the Zambezi River 390 BCM; the Niger River 180 BCM; while the Nile River discharges only 84 BCM.[5]

With one of the greatest histories of human civilization in the world, the Nile River has also been the source of conflict in the region. From the ancient times, Egyptian rulers have been concerned with the problem of securing an uninterrupted flow of the waters. History informs us that fear of the Nile basin's inhabitants, especially the Egyptians, has often centered around protecting livelihood in the event the Nile River stops flowing, or its direction of flow is diverted.[6] This fear has continued to live amongst different societies along the Nile, but in particular, Egypt. There is no country in the world that is so dependent on the water of only one single river, which is shared with more than eleven countries.[7] In the past, Egypt has used its political, military, economic and diplomatic power to control the flow of the Nile and has often threatened to use military force against any upstream countries which dare to divert or develop projects

[4]Ashok Swain, "Mission Not Yet Accomplished: Managing Water Resources in the Nile River Basin," *Journal of International Affairs* 61, no. 2 (Spring/Summer 2008): 202.

[5]Ibid.

[6]Hultin, 29.

[7]Elhance, 54.

that might interrupt smooth flow of the Nile River water to Egypt.[8] Egypt's unchallenged control over the use of the water of the Nile is being challenged by the upstream countries. The upstream riparian countries are now calling for equitable water distribution and establishment of a water management framework for the benefit of the riparian countries, a demand Egypt appears to be unwilling to accept. Additionally, increasing water demands in the Nile basin grow, while at the same time the annual water flows have been decreasing, exacerbating water scarcity for the Nile basin countries. Moreover, emergence of South Sudan as an independent country in the Nile Basin further complicates the dynamics of the water problem in the region. Table 1 shows the major international river basin systems in Africa and indicates that the Nile River discharge is extremely moderate as compared to other basins on the continent.

Table 1. Major International River Basins in Africa

Basin	N0. of countries	Area in km	Total annual discharge in m^3	Basin countries
Congo	9	2,850	64900	Angola, Burundi, Cameroon, Central Africa Republic, DRC, Republic of Congo, Rwanda, Tanzania, and Zambia
Niger	9	2,000	180	Benin, Burkina Faso Cameroon, Chad, Cote d'Ivoire, Guinea, Niger, and Nigeria
Nile	11	6,700	84	Burundi, DRC, Egypt, Ethiopia, Eritrea, Kenya, Rwanda, South Sudan, Sudan, Tanzania, and Uganda
Limpopo	4	413,000	170	Botswan, Mozambique, South Africa, and Zimbabwe
Orange	4	950	12,000	Botswan, Lesotho, Namibia, and South Africa
Senegal	4	340	41	Guinea, Mali, Mauritania, Senegal
Volta	6	1,850	400,000	Benin, Burkina Faso, Cote d'Ivoire, Ghana, and Togo
Zambezi	8	1,420	130	Angola, Botswan, Malawi, Mozambique, Namibia, Tanzania, Zambia, and Zimbabwe

Source: Elias Ashebir, "The Politics of the Nile Basin" (Master's Thesis, University of Witwatersrand, Johannesburg, 2009), 200.

[8]Ibid., 54.

Ever growing water scarcity in many regions of the world presents a serious challenge to mankind. Human demand for water is constantly rising driven by population and usage rate increases.[9] Not very long after signing the Camp David Accords in 1977, in the press conference, Moshe Dayan, the former Israel Foreign Minister, commented prophetically that in the Middle East, "water is probably more valuable because you cannot do much with land without water."[10] This visionary sentiment was further echoed in the 1990s, when the World Bank warned that in the 20th century wars were fought over oil, but in the next century wars over water resources are more likely to dominate.[11] Alex S. Winner argues that the demand for freshwater is not only insatiable, but also universal; and its impact is absolute.[12] He further argues that recent scientific studies predict that there will be severe global water scarcity with serious political consequences both in terms of state security and international stability.[13] Figure 1 shows geography of countries through which Nile River flows.

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[9]W. Chris King, "*Understanding International Environmental Security: A Strategic Perspective* (Atlanta: Army Environmental Policy Institute, 2000), 12.

[10]Alex S. Wilner, "Fresh Water Scarcity and Science of Fresh Water and the Politics of Conflicts," *Journal of Military and Strategic Studies* 8, no. 1 (Fall 2005); Helga Haftendorn, "Water and International Conflict," Working Papers, International Studies Association 40th Annual Convention, Washington, DC, 16-20 February 1999), 3.

[11]Waterwiki.net, "Water Conflict and Cooperation/Nile River," http://waterwiki.net/index.php/Water_Conflict_and_Cooperation/Nile_River_Nile (accessed 17 March 2011).

[12]Wilner, 2.

[13]Ibid., 3.

Figure 1. Geography of the Nile Basin Countries

Source: Google Images, "Nile River Basin, http://rci.rutgers.edu/~oldnb/355/nile_basin_lrg.gif (accessed 27 March 2011).

Historically, Egypt and the Sudan have monopolized and controlled the utilization of the Nile waters for almost a century without properly sharing with the other countries through which the River Nile flows. This is unique because other international rivers have water sharing systems put in place between states to handle disputes. For example, a water sharing agreement exists between the USA and Mexico over the Colorado River; between India and Bangladesh over Ganges River; and between China and its

neighboring southeast Asian countries over the Mekong River.[14] In the case of the waters of the River Nile, Egypt, and later the Sudan exclusively, share the waters between the two countries: the former with 85 percent of the water while the latter with about 15 per cent of the annual flow.[15] The 1929 River Nile Treaty is a hotly contested legal document that provides the exclusive right of utilization of waters of the Nile to Egypt. It was signed by the British colonial power on behalf on the East African countries under her protectorate. These countries were Sudan, Uganda, Kenya and Tanzania. Another agreement was signed between the British Empire and Italy. Britain signed on behalf of Egypt and Sudan while Italy signed on behalf of Ethiopia. The two agreements aimed to control the usage of the water the former to control flow of the White Nile (from East Africa) and the latter to control flow of the Blue Nile from the Ethiopian highlands. These colonial agreements provided the legal basis for Egypt to have absolute right over the use of the water. It t further prohibited any of these countries from establishing development projects that may impede the flow of waters to Egypt. The 1929 treaty was further strengthened by the 1959 bilateral water agreement between the Sudan and Egypt on the use of the waters of the River Nile.[16] Like the 1929 treaty, the 1959 agreement did not even reconsider all the interests of the riparian states in water sharing; even though at the time, most of these states were gaining independence and demands for the use of the waters had begun to increase dramatically.

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[14]James E. Nickum, "Hydraulic Pressures: Into the Age of Water Security," *Council on Foreign Relations* 89, no. 5 (September/October 2010), mhtml://D:\Age of Water Security.mht (accessed 15 April 2011).

[15]Waterwinki.net, "Water Conflict and Cooperation/Nile River."

[16]Elhance, 70.

Tension has often flared among the Nile Basin countries. On several occasions, Egypt has threatened military action against Ethiopia if the latter dare construct dams on the Blue Nile.[17] It is not only Ethiopia which disputes the Egypt's right over the Nile. The upstream states are equally opposed to Egypt's declared absolute right to the Nile waters enshrined in the last two treaties. They argue that these treaties which gave it the right were colonial agreements and now each one of them is an independent country, therefore those agreements are null and void.[18] That means they are not part of the treaties and they urge Egypt to renegotiate a new agreement that will be inclusive and reflect the interests of all the Nile basin states. For a very long time, Egypt has not been receptive to the demands of the upstream states to renegotiate the agreement, and has often resorted to military threats against any state that violates its right over the waters.[19]

Under enormous pressure from both upstream states and the international community, Egypt for the first time agreed to negotiate the sharing of the waters of the River Nile to attempt to resolve the disagreements surrounding it.[20] With the financial and technical support from the World Bank, the Nile Basin Initiative was established in early 1999.[21] This initiative was established to facilitate the process of the negotiations,

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[17]Ibid., 75.

[18]Derege Zeleke Mekonnen, "The Nile Basin Cooperative Framework Agreement Negotiation and Adoption of 'Water Security' Paradigm: Flight into Obscurity or a Logical Cut–de–Sac?" *The European Journal of International Law* 21, no. 2 (2010): 12.

[19]Ibid., 18.

[20]Ibid., 20.

[21]Patricia Kameri-Mbote, "Water, Conflict and Cooperation: Lessons from the Nile River Basin," Woodrow Wilson International Center for Scholars, Navigating Peace no. 4 (January 2007), www.wilsoncenter.org.water (accessed 17 February 2011), 3.

but also formulate shared projects that may be implemented jointly for the good of the Nile basin communities. This initiative, however, has already hit setbacks. One of the objectives of the initiative is to facilitate the member states in negotiating a new agreement that would have given them a "win-win" situation over the use of the waters. That agreement was concluded in 2010 after ten years of negotiations, but both Egypt and Sudan refused to sign it claiming that the new agreement violates their traditional right over the use of the waters.[22] Meanwhile, Uganda, Rwanda, Ethiopia and Tanzania have all signed the agreement. They were followed by Kenya and Burundi. The Democratic Republic of Congo (DRC) is expected to sign the agreement soon.[23] This has opened a new area of confrontation between Sudan and Egypt on one hand, and the bloc of the riparian states headed by Ethiopian and Uganda on the other hand. This is a manifestation of unprecedented escalation in the region, which many experts believe might lead to potential military confrontations between Egypt and signatories of the new water sharing treaty.

Regardless of Egyptian opposition to the document, some upstream countries have already embarked on huge developmental projects in their respective nations. For example, Ethiopia has started programs to construct a number of hydroelectric power projects, one of which is the Mega Millennium Dam, whose construction work began recently on the Blue Nile.[24] Uganda has also initiated studies on a number of new dams

[22]Mekonnen, 18.

[23]Kameri-Mbote, 3.

[24]International Rivers, "African Dams Briefing 2010," http://www.international rivers.org/africa/african-dams-briefing-map (accessed 16 November 2011).

to be constructed.[25] More, Tanzania on its part is in the process of implementing a multi-million dollar water pump project to supply clean drinking water for its population in the Kahama and Shinyanga regions. Additionally, Kenya also has similar projects that it wants to implement. In Egypt's eyes, these projects are contrary to and display contempt toward its absolute right to the water.[26]

Of significant importance are the events unfolding in the Sudan, since South Sudan, s now an independent state, bringing number of states on the Nile to eleven. It is widely argued that emergence of South Sudan is more likely to complicate or increase competition over the already depleted waters of the Nile.[27] It is however, worth of noting that one of the contributing causes of the rebellion in South Sudan in 1983 was the digging of the purposed Jongolei Canal Project. If it were to be completed, the canal would have not only increased the speed of the flow of the water in the Nile, but would have also drained water from the swampy areas in South Sudan, hence impacting negatively on agriculture, livestock and the ecosystem in general in the region.[28]

The emergence of the country South Sudan is yet another new dimension to the existing water scarcity problems in the River Nile basin. With this new country comes its need for Nile waters based on demands for socio-economic development. Even more critical, however, is South Sudan's absolute requirement for safe and clean drinking

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[25]Ibid.

[26]Mekonnen, 25.

[27]Salman Salman, "New State of South Sudan and the Hydro-politics of the Nile Basin," *Water International* 36, no. 2 (October 2011): 161.

[28]Ibid., 164.

water for its growing population. In already volatile hydro-politics of the Nile Basin, the birth of South Sudan can only exacerbate tension in the region.

The purpose of this study is to investigate the rapidly changing dynamics over the legality and use of the Nile waters between all of the partners of the Nile basin and specifically, to determine the implications they have on the security of the new state of South Sudan. Therefore, the primary research question is: how will potential conflicts over the Nile affect South Sudan's national security strategy? Secondary questions include: first, what are the current and future demands for the countries of the Nile basin**?** Second, what are the current uses of waters of the Nile? Third, what are the laws and agreements that presently determine water uses in the River Nile? And finally, can fundamental theories of international relations help to understand the hydro-politics of the Nile Basin?

Assumptions

This study has four assumptions:

1. The study assumes that with South Sudan as an independent country, the Nile Basin hydro-politics will change dramatically and there will be the potential for real conflict.

2. The study assumes that South Sudan is more likely to cooperate with the upstream Nile Basin countries as opposed to the lower riparian countries.

3. The study assumes that there may be cooperation amongst Nile Basin countries.

4. The study assumes the issue of water resources will dominate national strategies of the Nile Basin countries for this century and beyond.

Limitations

Interests have continued amongst different groups to conduct research in the Nile River system not only because of the opportunities it presents, but also to resolve the challenges that face the region in the future. This research does not intend to investigation all the issues in the Nile Basin, but limits itself to understand the immediate impact of the potential conflict on the Nile River water on the national security of South Sudan, the newest nation in the Nile Basin. A time constraint has also significantly limited the scope of the research. This is study is to be completed by December 2011. Considering the geographical location of the area, it is not possible to conduct or collect primary data, which requires a good amount of time to be spent from one country to another. To conduct both quantitative and qualitative research requires financial resources, which is not the case in this study. Thus, this research has the limited endstate to understand the impact of hydro-politics of the Nile Basin on the national security of South Sudan, all based on existing literature data.

Delimitations

Until July 2011, the Nile River passed through ten countries but has increased to eleven countries with South Sudan gaining independence from Sudan. Each of these countries has played different roles in terms of their national interests in the Nile. This research focuses its attention on countries such as Burundi, Egypt, Ethiopia, Rwanda, South Sudan (newly independent country), Sudan, and Uganda. These countries are critical and their stakes and interests are considered to be extremely high in the Nile basin systems. This does not mean that other countries like DRC, Eritrea, and Tanzania are not important. These countries are equally important, but because of the time limitation, the

geographic location of each of these countries within the basin, their dependence on the water, and roles played by them are considered to be either moderate or low. For example, Eritrea is not a full member of Nile Basin Initiative, its role is an observer; for both DRC and Kenya, their dependence on the waters of the Nile River is not significant; and Tanzania, though its leadership played a bigger role in the hydropolitics of the Nile basin, the dependence on the Nile River waters is small. Although they have been delimited for the research, where needed, they will be referred to throughout the study.

Significance of the Study

Water is increasingly becoming a huge challenge to the world. It has great potential to induce inter-state conflict. It is often ascribed that, if 20th century wars were fought over the oil, the 21st century wars will be fought over water. The Nile River presents unabated challenge that may shape and dominate the politics of the region. It is also a present dilemma with the independence of South Sudan. The study of the Nile Basin is of great significance to Republic of South Sudan. It informs the young government in its national security and military strategies, and economic development policies. This study also adds to the growing body of literature in the field and recommends future research to be conducted.

Conclusion

This study investigates how the potential conflicts over the Nile River water may affect South Sudan's national security strategy. The literature review conducts a critical examination of major works in the field of water wars, especially in the Nile Basin. Chapter three explains the methodology that is employed in this research to provide the

analysis. Chapter four is the analysis of the study. The final chapter summarizes the findings of the research and provides recommendations for future study.

CHAPTER 2

LITERATURE REVIEW

The purpose of this chapter is to review works done on the Nile River in order to understand the prevailing conditions for the management of the Nile River water resources. Several of the major works reviewed in this study include Peter H. Gleik, *The Global Environment in the Twenty- first Century: Prospectus for International Cooperation*; Leif Ohlsson, *Hydropolitics Conflicts Over water as A Developed Constrains;* Alex S. Wilner, *Freshwater Scarcity and Hydropolitical conflict: Between the Science and Freshwater and the Politics of Conflicts.* Both Gleik and Ohlsson believe that there have been no major water-related conflicts however, if states refuse to cooperate to share water resource, it may lead to potential inter-state conflicts. Wilner on the other hand, argues that water is now a major source of friction amongst states, and the 21st century may see wars being fought over water. This view is also held by international figures such as the Former United Nations Secretary General Dr. Boutros Boutros Gali and World Bank Deputy Director.

This chapter then traces the evolution of the debate on the Nile River and, in particular, Egypt's domination over the Nile River water. This leads to a review of current conditions and the projection of possible futures in the Nile basin countries, based on the existing legal framework and theories of international relations. This is necessary to demonstrate and understand the depth of the Nile basin water crises amongst the impacted states. There is an obvious gap in the existing literature in regards to the impact of these water issues on the national security of South Sudan as an independent state. This will be addressed in the analysis conducted in Chapter 4.

Water is often described as the most precious resource, which without it there will be no life on earth. For thousands of years, water has been a key factor responsible for the world's civilizations in all aspects. It can harness cooperation amongst different states, but it can also be a major factor leading nations into inter-state conflict. The actual significance of water has generated intense debate among political scientists, sociologists, security strategists, environmentalists, government officials, academics, policy-makers, and interagency personnel. There are over 260 international water systems, which constitutes about 60 percent of the earth's freshwater supply.[29] However, there is a growing concern that available freshwater is drying up due to either environmental degradation or mismanagement of the water.

Peter H. Gleik is a renowned scholar on water and water-related conflicts.[30] He argues that tensions or conflicts are not new phenomena. Water related conflicts can be traced back throughout the history of mankind. For example, he documents that there are over 150 episodes of tension and water related conflicts amongst states since 3000 BC. He warns however, that with the world's population explosion, combined with environmental hazards in arid areas of the world, water has become what he refers to as high politics the possibilities for conflicts are increasing. Alex S. Wilner agrees. In his doctoral thesis *"Freshwater Scarcity and Hydro-political conflict: Between the Science of Freshwater and the Politics of Conflict*, Wilner writes that water, environment,

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[29]Nicole Shema, "The Failing and Future of Nile Basin Management" (Political Science Honors Thesis, 27 April 2009, polisci.uoregon.edu/acrobat/HTShema.pdf), 2

[30]Peter H. Gleick, "Coping with the Global Fresh Water Dilemma: The State, Market Forces, and global Governance," in *The Global Environment in the Twenty- first Century: Prospectus for International Cooperation*, ed. Pamela S. Chasek (New York: United Nations Printing Press, 2000), 204-222.

economic, and security interests are all intertwined or closely interrelated.[31] He claims that water is now an issue of national security. He argues, that water security ought to replace traditional high politics. Another renowned expert on water issues is Lief Ohlsson who has written extensively on water, conflicts and environmental issues. While he cautiously admits that water has become a matter of national security and may lead to inter-states conflicts, there may be an area of cooperation among states that share trans-boundary international river systems.[32] Other staggering statistics on the water problems are given by the United Nations and its agencies.[33] The World Health Organizations and Food Agricultural Organization reports predict water scarcity problems in the world.[34] Some of the factors that will have negative impacts are environmental issues such as

[31]Wilner, 1.

[32]Leif Ohlsson, "The Role of Water and the Origins of Conflicts," in *Hydropolitics Conflicts Over Water as a Development Constraints*, ed. Leif Ohlsson (Dhaka: University Press Ltd., 1995), 1-28.

[33]Hans Cathcart, "Future Demands on Nile River Water and Egyptian National Security," ICE Case Studies, no. 203 (May 2007); http://www1.america.edu/ted/ice/nile-2020.htm; Simon A. Manson, et al., "Linkages Between Sub-national and International Water Conflicts: The Eastern Nile Basin," in *Facing Global Environmental Change: Environmental, Human, Energy, Food, Health, and Water Security Concepts*. Vol 4/Hexagon Series on Human and Environmental Security and Peace, ed. Hans Cuiter Brauch, John Grin, Patricia Kameri-Mbote, Bechir Chourou, and Heinz Krummenacher, (April 2009), http://books.google.com/books?hl=en&lr=&id=OdwNU8csNKAC&oi=fnd&pg=PA20&dq=Facing+Global+Environmental+Change:+Environmental,+Human,+Energy,+Food,+Health,+and+Water+Security+Concepts&ots=c2QEsFnviL&sig=zY0j_oOMAZdwN_wQV9SGwM_BqnU# (accessed 15 July 2011), 325-330.

[34]FAO Cooperate Document Repository, "Irrigation Potential in Africa: A Basin Approach," http://www.fao.org/docrep/w4347/e/w4347e0k.ht (accessed 17 August 2011).

drought and global warming, which have already started to effect patterns of rainfall in the world.[35]

Many studies confirm that the world's population is growing rapidly. It is projected that the world population will reach between 11-12 billion people by 2100.[36] Most of the population increase will occur in developing nations, which are already stricken by poverty.[37] Ban Ki-moon, the United Secretary General of the United Nations, during the World Economic Forum in 2008, warned that water would be a destabilizing factor.[38] The then Deputy Director of the World Bank echoed the same sentiments. He claimed that 20th century conflicts were fought on oil, but wars in 21st century will be over water.[39]

While most of the water conflict literature in the last century was preoccupied with the argument that water scarcity might possibly to lead to inter-state wars, there is a growing body of literature that holds the view that water scarcity does not necessarily lead to immediate war. Proponents of this view are scholars such as Anthony J. Allan, Martin Jon Trolledalen, and Simon A. Manson.[40] They down-grade the severity of the

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[35]King, 22.

[36]Hans Cathcart, "Future Demands on the Nile River Water and Egyptian National Security," ICE Case Studies no. 203 (May 2007), http://www1.america.ed/ted/ice/nile-2020.htm (accessed 29 August 2011), 4.

[37]Ibid.

[38]James E. Nickum, "Hydraulic Pressures: Into the Age of Water Security," *Council on Foreign Relations* 89, no. 5 (September/October 2010), http://www.D:\Age of water Security (accessed 15 April 2011).

[39]Ibid.

[40]Mason, 325-330.

water scarcity problems to only a politically destabilizing factor that may lead to political tensions and hinder sustainable development.[41] To them conflicts over the water are likely to occur at what they refer to as "on the subnational rather than on international level."[42]

Shlomi Dinar's study appears to have embraced the view that water scarcity may not be the major factor that drives states to war. In his work on *The Israel- Palestinian Water Conflict and its Resolution: A View through International Relations,* he contends that water, in the case of the Israel- Palestinian conflict is one where water as a causation of low politics becomes embedded in the high politics of both people [43]Israelis and Palestinians are struggling to establish or sustain states; thus making it hard to justify that it is a water-related conflict.[44] Employing both neo-realism and neo-liberal institutionalism theories to understand cooperation and conflict, he argues that while water is a significant factor of conflict, it can also be a vehicle for cooperation.[45] The University of Oregon is one of the leading research institutions on water resource management. Its database on trans-boundary freshwater indicates no direct conflict exists

[41]Ibid.

[42]Ibid.

[43]Shlomi Dinar, "The Israeli-Palestinian Water Conflict and its Resolution: A View through International Relations Theory" (School of International and Public Affairs Columbia University, International Studies Association, 40th Annual Convention, Washington, DC, 16-20 February 1999).

[44]Ibid.

[45]Ibid.

amongst the countries; instead, cooperation has existed in most of the cases.[46] Cooperation has existed between India and Pakistan under the 1960 treaty.[47]

The Nile River

Geographers, historians and archeologists have extensively studied the Nile Basin and its significance as source of livelihood to the population. It is one of the world's oldest places, referred to by writers as the cradle of civilization.[48] It is where great ancient politics and empires emerged: the ancient powerful Pharaonic Kingdom of Egypt, the ancient Sudanese Kingdom of Merowe, and the Aksumite of Ethiopia, all can be linked to the Nile basin.

Studies project that the population of the Nile basin will reach over 600 million by the year 2050.[49] Compounded by rapid population growth and global warming, the region is already under serious water stress. Water as a scarce resource has been a serious concern to Egypt, but also to other the Nile basin countries, and in particular Ethiopia, Sudan and South Sudan whose countries dominate life of the Nile River.

Egypt has often purported its historically exclusive rights to the use of the water of the Nile. Egypt views the Nile as "Egypt is the Nile, and the Nile is Egypt" – the two are inseparable. Significant decreases in the quantity of water to Egypt compounded by the rapid increase in water demands by the other Nile basin countries have been areas of

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[46]Ibid.

[47]Ibid.

[48]Swain, 202.

[49]Ibid., 202; Cathcart.

recent concern for Egypt.[50] The decrease on the volume of the Nile River has continued over the last 100 years. Ashok Swain in his article *Ethiopia, the Sudan, and Egypt: The Nile River Dispute* writes that there has been significant decrease.[51] It has decreased from: 1,100 billion cubic meter during 1870-99; 84 billion cubic meters during 1899-54; and 81 billion cubic meters during 1954-1996. Moreover, the United Nations' reports confirm that indeed the decrease in the volume of the lower Nile River has continued in the last few years.[52] Unavailability of water resources is an area of enormous concern. It is an issue that can drag countries into conflicts as they struggle to meet the increased economic and social challenges in their respective countries.

Both Swain and Hultin argue that Egypt's rapid population growth combined with current economic challenges will force Egypt to rethink its national policies and diversify its economy in order to realize self-sufficiency in food security. The FAO estimates that Egypt has 4 million hectares (ha) of land with irrigation potential. Of this, 3 million are under irrigation.[53] In the last few years Egypt has also embarked on land reclamation projects in Egypt's Western Sahara Desert and the Sinai for urban resettlement and irrigated agriculture. According to the study, Egypt's water demand was estimated to be at 56.9 billion cubic meters (BCM) in 1993; it increased to 66.9 BCM by 2000.[54] This

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[50]Hultin, 29.

[51]Ashok Swain, "Ethiopia, the Sudan, and Egypt: The Nile River Dispute," *The Journal of Modern African Studies* 35, no. 4 (1997), 675.

[52]Cathcart.

[53]FAO Cooperate Document Repository, Irrigation Potential in Africa: A Basin Approach, http://www.fao.org/docrep/w4347/e/w4347e0k.ht (accessed 17 August 2011).

[54]Ibid.

study projects demand to be more than 75 BCM by the year 2025.[55] This amount has already exceeded the Egypt's share of water as provided by the 1959 water agreement.

Like Egypt, Sudan depends entirely on the Nile River water. Agriculture accounts for the 94 percent of the annual water withdrawals. Agriculture is the mainstay of the economy of the country and accounts for the 70 percent of Sudan's foreign income. The FAO estimates that the country has irrigation potential to be at 4 million ha. Sudan's irrigation networks have expanded over the last twenty years from 1.6 million ha in 1979 to about 2. 8 million ha by the year 2000.[56] Sudan's government, however, announced in early 1990, that it had used its entire share of the Nile River. It further announced that Sudan's water demand for agricultural and other essential uses is estimated to be as much as 32 BCM by 2025.[57] These figures are indicative of water stress in Sudan, but are silent on exactly how water will impact the new nation of South Sudan.

Previously, Ethiopia has played a low profile role in the hydropolitics of the Nile basin, despite the fact that about 86 percent of the annual flow to the Nile River originates from its highlands. Observers today note that this has changed significantly. Swain argues that since end of the Cold War, Ethiopia has pursued an aggressive policy to utilize more of the water of the upper Nile basin.[58] Tension between Egypt and Ethiopia has intensified, especially after remarks made by the former Egyptian President Anwar Sadat who expressed his willingness to divert the Nile basin water to Israel for his

[55]Ibid.

[56]FAO Cooperate Document Repository.

[57]Ibid.

[58]Swain, 675.

water for peace project.[59] Ethiopia opposed Egypt on this policy; since then the two countries have traded accusations, and at other times threats of military confrontations.

Eyal Devenisti disapproves of the notion that tensions amongst the Nile basin countries may automatically lead to war. In his article "Collective Action in the Utilization of Shared Freshwater: The Challenges of International Water Resources Law," he argues that the issue of water management has posed challenges to mankind, but human society has found ways of dealing with such challenges.[60] Using Sumer and Assyria in Middle East, he argues these communities developed efficient mechanisms for cooperation in water amongst the communities and, often based on mutual and shared interests of individuals rather than on external force.[61] This cooperation, according to Denvenisti helped farmers to form complex ways of utilizing water resources equitably.[62] To him such mechanisms may be replicated in water scarce prone regions such as the Nile Basin.

In the beginning of this century there was a growing volume of literature that holds that water conflicts are not likely to occur, especially in the case of the Nile basin. Kassian Stroh, Simon A. Mason, Tobias Hagmann, Christine Bichsel, Eva Ludi, and Yacob Arsano argue that there is little evidence to indicate that inter-state water conflicts

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[59]Ibid.

[60]Eyal Devenisti, "Collective Action in the Utilization of Shared Freshwater: The Challenges of International Water Resources Law," *The American Journal of International Law* 90, no. 3 (July 1996), 384-415.

[61]Ibid., 384-415.

[62]Ibid.

would occur.[63] This group believes that even more powerful states such as Egypt are likely to advocate for cooperation and shared interests. In the case of the Nile basin, they argue that though a zero-sum game exists, it can be overcome because riparian countries have many interlinked interests and hence cooperation, is a key interest of every country.[64] They allude to shared economic projects as one of the powerful tools that can lead of countries to cooperation rather than war. This school of thought appears to have been influenced by the Nile Basin Initiative that aimed to establish a comprehensive framework based on what is often referred to as a "shared vision" in the Nile basin.[65] This was the case until 2010 when the initiative collapsed over the disagreement between Sudan and Egypt and the other riparian countries. Sudan and Egypt refused to sign the new agreement that could have provided the legal basis for the sharing of the Nile River water.

Another different perspective, but on the same theme of Nile Basin Cooperation comes from Ana Elisa Cascao. In her article "Ethiopia-Challenge to Egyptian hegemony in the Nile Basin," she argues that Egypt has used all elements of power from soft to hard in order to dominate the Nile Basin.[66] However, this hegemony is being contested by Ethiopia and other riparian countries. Hegemony is not only hard power or use of

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[63]Mason, 325-330; Kassian Stroh, "Water: An Advocate for Reason Win-Win Solutions for the Nile Basin," *International Politics and Society*, no. 4 (2003), http://www.fes.de/ipg/IPG4_2003/ARTSTROH.HTM (accessed 30 August 2011).

[64]Ibid.

[65]Ibid.

[66]Ana Elisa Cascao, "Ethiopia–Challenge to Egyptian hegemony in the Nile Basin," Water Policy 10 Supplement 2 (London: IWA Publishing, 2008), 13-28.

coercion, but includes a mixture of political leadership and powerful negotiation skills.[67] For example, Egypt has diplomatic skills to negotiate and convince other countries when it comes to the matter of the Nile River. This powerful hegemonic position enjoyed by Egypt for many years, Elias argues is diminishing rapidly. What is happening in the Nile basin is that other riparian countries, headed by Ethiopia, have put in place counter-hegemony mechanisms. This occurs when non-hegemonic parties partially or totally break the status quo.[68] For example, the signing of the new Nile basin water sharing agreement by upstream riparian countries is a clear rebuff of Egypt's traditional dominance in the region. Hence, according to Elias, the diminishing power of Egypt may force Egypt to change its strategy from a coercive approach to a more collaborative action on the Nile basin.

Current and Future Use of Water for South Sudan

Since it was part of Sudan until July 2011, there exists no scientific data to show South Sudan's current water use or future needs. The 1959 Water Agreement gives Sudan 18.5 BCM per year. This could be interpreted that South Sudan' share could be within the total share allocated to the country. Two ways to consider the apportionment of water rights would be based on population or land areas. In this regard and in reference to pre-July 2011 Sudan, 27 percent of the total population lives in South Sudan, while 33 percent of the total land area is now in the country of South Sudan. Since 1959, there have been no major projects that require the additional use of water. The major

[67]Ibid.

[68]Ibid.

agricultural projects proposed to be implemented in South Sudan were not implemented or few of those, which did take off, used rain fed water. Thus, South Sudan's current use of Nile River water is minimal.

South Sudan is now an independent country in the Nile basin. After the signing of the Comprehensive Peace Agreement in 2005, the Republic of South Sudan made ambitious plans to change the face of the new country in the region. The government declared that its major priority would be assuring the country's enormous agricultural potentials are realized and it attains food security to meet the food demand of its growing population. South Sudan's population is growing rapidly. The population of South Sudan is at 8.2 million and the population growth rate is at almost 3 percent annually. It is projected that the population will triple to about 25 million by 2050.[69] It is important to note that the documented population numbers have not included internally displaced persons who were displaced in Northern Sudan. This population is estimated to be 4 million. Another group is the refugees in the neighboring countries. In total if and when all these groups return, the population would exceed the present figures.

South Sudan has plans to construct a number of dams on the White Nile in order to provide hydroelectric power and water for its economic development. The largest of these dams is Fula Full hydroelectric dam. It will produce 1,200 MW which would be able to supply the Greater Equatoria Region of South Sudan and supply Northern Uganda as well as Northern DRC.[70] Turning South Sudan into an agriculture producing country

[69]South Sudan Center for Census, Statistics, and Evaluation, 2010.

[70]http://www.nilebasin.org/sdbs/dmdocuments/sudan%20nileInitiative.pdf (accessed 15 September 2011).

requires more water. Moreover, construction of more dams on the Nile means significantly reducing the overall flow of water in the lower Nile since dams produce an overall loss in water, primarily through surface evaporation. Still more, the demand for clean drinking water per capita is also expected to increase too. In sum, in the next few years the water demand for South Sudan will increase rapidly and significantly.

Current and Future Use of Water in other Nile Basin Countries

The other countries in the Nile basin with upstream riparian rights include Uganda, Kenya, Tanzania, Rwanda, Burundi, and Democratic Republic Congo (DRC). These countries constitute important river basin systems from which the White Nile, one of the two major tributaries of the Nile River originates. However, the significance of these countries and their rights to use the water of the Nile River have been completely neglected as a result of the conclusion of the Nile River Water Agreement in 1929. This agreement, first signed between the British Empire and Egypt and then modified between Egypt and Sudan in 1959, prohibited these countries from construction of any developmental projects on the White Nile that might divert or reduce the flow of the water into Nile River. Consequently, these countries have not been involved in any water-intensive economic activities on the Nile throughout the last century.

Egypt, Sudan, and Ethiopia have dominated the hydro-politics of the Nile River, while sidelining the other riparian countries. Many studies including the extensive works done by Ashok Swain, have placed much emphasis on the three countries and fail to consider water needs and uses of the other basin countries. This leads to insufficient data on the water use of these countries.

Tanzania opposed the 1929 Water Treaty Agreement. The then Prime Minister, Julius Nyerere rejected Egypt's monopolization of the water and called for renegotiation of the agreement. He further argued that Tanzania is an independent country and would not abide by the agreements signed by a colonial government.[71] Kenya and Uganda also denounced the agreement. They also requested for the agreement to be renegotiated to where water of the Nile basin would be shared and distributed equitably among the Nile basin countries.

Future water demands for these countries are matters of high politics as defined by Gleick. This region has undergone several challenges: persistent droughts and famine, internal conflicts, emerging impacts from global warming and environmental degradation, poverty, urbanization, and unprecedented population growth.[72] With relative peace and stability, the governments in the region plan to reverse their misfortune by seeking to build economic growth and food security. Water availability is critical to achieving these goals. The FAO's study shows significant potential for irrigation in the region. It estimates that these countries combined (Burundi, Rwanda, Tanzania, Kenya, DRC and Uganda) have total irrigation potential areas of 765,000 ha. Of this only about

[71]Mekonnen, 434.

[72]Ashok Swain, "Challenges for water sharing in the Nile basin: changing geo-politics and changing climate," *Hydrological Sciences Journal* 56, no. 4 (Special Issue: From Conflict to Cooperation) (2011): 687.

[72]International Rivers, African Dams Briefs, 2010, http://www.international rivers.org/Africa/Africa-dams-briefing-map (accessed 16 November 2011).

241,000 ha are irrigated.[73] These figures represent only 19 percent and 8 percent of Egypt's irrigation potential area and irrigated land respectively, but they are significant.

Uganda has the biggest irrigation projects of the countries in the region. It has over 202,000 ha, and at present only 5,500 ha have been cultivated. Kenya has 180,000 ha; Rwanda 150,000 ha, Burundi 105,000 ha; and DRC 10,000 ha.[74] Additionally, these countries have invested heavily in the construction of dams to produce power and manage water for irrigation. Uganda is the second country after Ethiopia in the construction of new dams. There are about twelve dam projects in Uganda. Of the ten dams under construction, 70 percent (7 dams) are new sites either under construction or proposed; while 30 percent (3 dams) are under rehabilitation. These figures do not include the Nalubaale Dam, previously known as Owen Fall Dam, built and completed in 1954, and the Bujagali Hydroelectric power station whose Phase I is completed and Phase II is expected to be completed by 2012.[75] Tanzania is implementing a multi-million dollar water pump project which withdraws water from Lake Victoria to supply clean drinking water for its population in the Kahama and Shinyanga regions. Additionally, Kenya also plans to develop its irrigation potential as well as construct dams to provide hydroelectric power and prevent floods.

The projects discussed may be small compared to the huge irrigation projects in Egypt and Sudan, but water-based projects in upstream Nile basin countries are significant to these countries and the upper Nile basin. There is not exact data on the

[73]Ibid.

[74]Ibid.

[75]Ibid.

amount of water consumed, agricultural irrigation occurring, and the impacts of withdrawal of water from Lake Victoria and a growing numbers of dams throughout the region, but the net result is the significant reduction of inflow rates into the lower Nile River.

The International Law and the River Nile

To date, there exists no all-inclusive Nile basin agreement on the use of the water among the countries in the basin. The only legal agreement upon which water is distributed between any of these countries is the 1929 Treaty which includes only Egypt and Sudan. This treaty was subsequently revised in 1959.[76] Other riparian countries were not part of these agreements when they were signed. The legal agreements on the international river systems have evolved for centuries.[77] Generally, there are four main competing theoretical legal rights to river waters. These are: absolute territorial sovereignty; absolute territorial integrity; community of co-riparian; and limited territorial sovereignty. It is important to understand these theoretical frameworks since attempts to develop a comprehensive framework center on them.

The theory of absolute territorial sovereignty, associated with the Harmon Doctrine, holds that a state has a right to use the river water that flows within its borders without consideration of whether this use affects other states or not. The theory favors the

[76]Shema, 4; Hultin, 29; Swain, 677-679.

[77]Korwa G. Adar, "Kenya's Foreign Policy and Geopolitical Interests: The Case of the Nile River Basin," *African Sociological Review* 11, no. 1 (2007): 65.

upstream countries. This theory has the potential of igniting inter-state conflict as it does not consider the rights of downstream states to use the water of the same river.[78]

The theory of absolute territorial integrity also known as riparian rights of the river, assumes that the low riparian countries have an absolute right to use the water flowing from the territory of upstream riparian. It restricts the upstream countries from over using water, significantly reducing the water quality, or altering the course of the water. This is the theory on which Egypt and Sudan center their argument.[79]

The theory of community of co-riparian states ,or community of interests, permits collective rights to river water. It believes that the river water forms common geographic and economic mutual benefits to all states. It also believes that integrated water resource management is the most efficient approach to control of watersheds and requires collaboration and creation of institutions to implement joint policies.[80]

The theory of limited territorial integrity is also called the theory of sovereign equality and territorial integrity. According to this theory every state has the right to use water within its territory as long as action of that state does not impede the right of other states. This means that a state may use the water of an international river system, but the use should be managed in such a way that other riparian states can also use the water. The theory recognizes the rights of both the upstream and downstream countries in the equitable share of water.[81]

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[78]Adar, 67.

[79]Ibid., 68.

[80]Ibid.

[81]Ibid.

These theories are important as they define the existing processes that might be applied to the current situation in the Nile River basin. Based on the extensive analysis provided in this chapter, it is fair to conclude that the Nile River has no agreement accepted by all of the riparian states. Further, attempts to develop a comprehensive legal framework for the management of the Nile River water has yet to yielded any positive result, with the latest attempt being the Nile Basin Initiative.

Fundamental Theories of International Relations

Generally speaking, studies of trans-boundary international river systems have applied the fundamental theories of international relations in analyzing politics in relation to water. Studies conducted on the international river systems in Africa and in particular, the Nile basin international river system use either realism or idealism theories, or at other times a combination of the two. Information discussed in the literature provides an in-depth framework supporting this approach. The following section briefly outlines these theories.

Realism Theory

Realism, also known as classic realism, has dominated the study of international relations and world politics for many years. Its founding fathers, including Thomas Hobbes and Hans Morgenthau, believed that mankind by nature is egocentric, competitive and conflictual.[82] Thus, in order for humans to coexist conditions must be created for that coexistence. This perspective holds the view that world politics is driven

[82]Hans J. Morgenthau," Politics Among Nations," *The Struggle for Peace for Power and Peace* (New Delhi, 2004), 92.

by competitive self-interest and because of this, states are inherently aggressive, and obsessed with security. Expanding their territories is a desired thing.[83] However, the struggle to occupy more territories can also lead to what realists view as a security dilemma. The conundrum is that the actions taken to increase one's security may result in even a greater instability as an opposing party reacts to what it sees as a threat to its security.

Classic realists have dominated international politics, where traditionally, inter state relations are based on struggle for the dominance, whose end result is often seen as a zero sum.[84] They have often regarded states as the most powerful actors in international politics because they considered the states to have been the universal standard of political legitimacy with no high authority to regulate the relations between them.[85] The dominant interests of states have been national security, defined largely in terms of military capability.[86] Consequently, states invest enormous resources in the accumulation of military capability so as to defend themselves against perceived threats from their neighbors.

Many works on the Nile River systems have been analyzed from this point of view. Egypt has used its political, economic and military power to dominate and control the utilization of the Nile River water. Its national and foreign policy, but more

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[83]Ibid., 92.

[84]Cirino H. Ofuho, "Security Concerns in the Horn of Africa," in *African Regional Security in the Age of Globalisation*, ed. Makumi Mwagiru (Nairobi: English Press Limited, 2004), 8.

[85]Ibid.

[86]Ibid., 10.

profoundly the country's national security policy, is formulated around the issues of the Nile River water.

Liberalism

Liberalism is another theory of international relations. Adam Smith and Immanuel Kant are its founding fathers. The liberalism theory is a rival to realism theory. In terms of its perspective on the world politics, it does not view a state as a unitary actor. It permits for plurality in state interactions. Accordingly, these interactions may vary from one state to another and this is dependent on factors such as culture, economics, and government system.[87] Unlike realism, liberalism strongly holds that interaction between states is not limited to the high politics but also includes low politics. For the liberal theorists, states can cooperate through economics, organizations, or individuals. They believe such activities provide opportunities for cooperation among states. Liberal theorists further assume that absolute gains can be made through cooperation and interdependence, thus peace can be achieved as opposed to coercion by power. Liberal institutionalism believes that with the right conditions set, the international system provides opportunities for not only cooperation and interactions, but also increases shared security responsibility amongst states.[88]

Various analyses on inter-state cooperation in the Nile basin is based on the notion of liberal institutionalism, whereby it is viewed that cooperation and interaction amongst the Nile basin countries will provide opportunities not only to share water

[87]Morgenthau, 100.

[88]Ibid.

resource equitably, but also shared developmental projects may bring more economic integration. In this way, potential for conflict to occur over the water is reduced significantly. The Nile Basin Initiative, funded by the World Bank and International Monitoring Fund (IMF), was solely initiated on the principles of liberalism. Additionally, other information in the literature reviewed provides a detailed accounting to support that liberalism is ideally suited for this study.[89]

Hegemony and Counter-hegemony

The third theory to be examined is hegemony and counter-hegemony. These concepts are not new, but their use to understand power relations in hydro-politics and the extent to which power is influenced and challenged is quiet recent.[90] Advocated by Gramscian theory on hegemony and counter-hegemony, and later neo-Gramscian, hegemony is defined as "political power that flows from intellectual and moral leadership.[91] According to Gramsci, power is relational, and its hegemonic power effectiveness is measured by the interaction of diverse actors. He urged that hegemony includes leadership, legitimacy, but more importantly ideas, knowledge and consent. Hegemony, is not the use of coercion, but instead it is the power of ideas and knowledge.

Based on this theory, Egypt has also used a hegemonic position and not just physical dominance. While at times it has used threats against upstream riparian countries, quite often these threats have been used hand- in- hand with political

[89]Morgenthau, 102.

[90]Cascao, 13-28.

[91]Ibid., 38.

leadership, for example, its power negotiation skills. The main purpose of hegemy is to maintain and consolidate the status quo in favor of the hegemon. In Egypt's case, it wants continue its dominance over the Nile River water.

On the other hand, counter-hegemony is when non-hegemonic parties partially or totally break the consent. What counter-hegemony does is to resist hegemonic pressure, and build up a hegemonic alternative strategy.[92] This is exactly what upstream riparian countries, headed by Ethiopia, are doing to challenge Egypt's traditional monopoly of the Nile River water.

What does this mean for South Sudan?

The emergence of the South Sudan as an independent country within the Nile basin will significantly reshape the hydropolitics of the Nile basin. It is important because about 90 percent of total area of South Sudan falls in the Nile basin.[93] It is also important to recognize that most of the rivers that form the White Nile have their confluence in South Sudan.[94] Another significance of South Sudan is the proposed Jonglei Canal. The canal, if completed, is expected to reduce by 50 percent the waters of the White Nile lost to evaporation in swampy areas in South Sudan.[95] The Nile basin is a cornerstone of South Sudan's very survival as a nation. It may become a matter of life and death just as

[92]Ibid., 39.

[93]Salman, 154-166.

[94]Ibid.

[95]Ibid.

the Nile is to Egypt. Not only its domestic and foreign policy will evolve around it, but also national security policy will be dominated by water security.

Conclusion

This chapter has revealed compelling arguments both for and against a widely discussed thesis that water scarcity may be one of the strongest reasons that could take countries into conflict with each other. There is one school of thought, which believes that as a water resource dwindles, and no available options to deal with such situation are found, war amongst states is just a matter of when and not if. The counter argument is that there would be no water conflict because it has never been. Water disputes historically have been resolved through negotiations. The third school of thought believes whereas there has been no significant water conflicts previously, resistance to share water equitably has the potential to cause inter-state conflict. The chapter also reviewed the existing legal debate on international law as applies to international water courses, and what is available within the Nile Basin.

CHAPTER 3

RESEARCH METHODOLOGY

The aim of this chapter is to describe the research methodology employed to answer the primary research question; how will potential conflicts over the Nile River water affect South Sudan's National Security Strategy? This study uses a mixed research method. It is the method in which qualitative and quantitative methods and techniques, or other paradigm characteristics, are mixed in one overall study. Here, a researcher uses the a quantitative research method for one phase of research study, while the qualitative research method is used in the second phase of the study. In other words, the mixed research method is like conducting two mini- studies within one overall research project. Both quantitative and qualitative have dominated methods dominated 20th century research with the former being the dominant and the latter emerging as prominent research methodology in the last quarter of the last century.[96] However, an era in which one single research method cannot adequately explain by itself a particular phenomenon, it urgently calls for a research approach that can close the gap between the two dominant methods in a multi-disciplinary fashion. The mixed methodology has closed that gap and is used in this study to explain and analyze the dynamics of South Sudan's current and future water resource issues.[97]

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[96]Ibid.

[97]www.southalabama.edu/coc/bset/johnson/lecture/lec2.htm (accessed 16 September 2011).

Mixed Research Methods

Quantitative and qualitative research methods are employed for this study.

Quantitative Research Methods

Quantitative research is one of the most important research methodologies that has dominated the field for many years. It is used widely in social sciences. Its objective is to develop and employ models or hypotheses pertaining to phenomena. The process of measurement is central to quantitative research because it provides the fundamental connection between empirical and statistical expression of quantitative relationships. This means that the quantitative researcher asks a specific, narrow question and collects numerical data from participants to answer the question. The researcher analyzes the data with the help of numbers. The researcher is hoping the numbers will yield a balanced result that can be generalized to some larger population.[98]

In this study, the quantitative methodology, whose principle is to compare two or more variables with a view to discover specific facts about one or all the variables being compared is used. It is an excellent tool for analysis of information and secondary data. It compares current statistics on, for example, annual rainfall in the Nile Basin, annual flow of the water into tributaries of the Nile Basin, current data on the water usage in the Nile basin countries, and population growth with a view to explain the present trends and what could be future implications for these trends as they affect water demands for South Sudan. This analysis also provides an understanding and predicts potential future

[98]Ellen Taylor-Powel, "Analyzing Qualitative Data," 2003, learningstore.4wex.edu/assets/pdfs/G3658-12.pdf (accessed 28 April 2011).

conflicts for South Sudan with its neighbors. Four phrases of analyses are involved at this stage.[99]

The first step in is to quantitatively determine potential for conflict as it applies to the Nile basin water issue. As indicated in the literature review, potential conflicts can be caused by water stress due to rapidly increased domestic water demands , agricultural based economic activities, increased demand for energy, population growth, and other economic sectors in the Nile basin countries. This method assesses the available data or existing information on the usage of water in different economic sectors from different countries in the Nile basin. The critical point of departure is to determine current and future water demands for countries under study. Additionally, their current and the projected populations by 2050 were presented as well. In order to calculate the present water demands, the data on the total annual water withdrawal per capita for each of the countries were taken based on the available data from the United Nation's Food Agricultural Organization Data Base for 2000 Survey.[100] The current population of each of the countries was based on the U.S. Census Bureau's International Data Base.[101] The total per capita of each country is multiplied by the country's population to provide the current water demand of each country

[99]Taylor-Powell, 14.

[100]Food and Agriculture Organization of the United Nations, "Water Resources and Fisheries" (2004), 1-6.

[101]U.S. Census Bureau, International Data Base, http:www.census.gov/ population/international/data/idb/country.php (accesses 3 November 2011).

Per Capita water withdrawal * Total Population	= Current water demand

Similarly, this formula is used to calculate water demands for these countries by 2050. Again, the U.S. Census Bureau projected the population growth in the Nile basin countries. Based on these projections, the calculations are made to project water demands by 2050. It is important to note that assumption is that the total annual withdrawals per capita remain as they are currently. If the per capita withdrawal increase, it would affect the current projected water demands for 2050. This is discussed in great detail in chapter four. Also see Table 5 for the current and projected water demands for 2050. This method provides analytical tools to examine what is currently available, and what is needed for the future. It also provides the data on gaps in water supply and water demand in the Nile basin countries. Additionally, it helps to determine areas of potential conflict, and what could be the best approach to minimize the threats and avoid conflicts by working collaboratively with other riparian countries, including South Sudan.

Qualitative Research Methods

The second part of this study employed qualitative research methods. The qualitative method is one of the two major approaches to research methodology in social sciences. The qualitative research method aims to evaluate information or data by using both primary and secondary sources. Based on the information or data, the research sought to establish initially security concerns to South Sudan and, secondly regional security implications caused by tension of the Nile basin nations. Anne-Marie Ambert argues that the qualitative method employs objective studies of a broad range of subjects for depth in order to facilitate understanding on a more restricted sampling. It focuses on

how people or things behave, or act in a particular way, and not concentrating on what things happen on a large scale[102]

Ellen Taylor-Powell also argues the significance of the qualitative method. To her, analyzing qualitative data requires he researcher to know the material, focus on the analysis, and categorize the information in such a way that themes or patterns are identified and can be organized into coherent categories. In this way, the researcher is allowed to continue with an interpretation of the data where the researcher attaches meaning and significance to the analysis.[103] As argued earlier, when a qualitative method is used alongside a quantitative research method, qualitative research can help to interpret and better understand the complex reality of a given situation and the implications of quantitative data.[104]

Based on the above discussion, the next step was to determine if international laws can resolve these potential conflicts. There was no consensus on the debate as to whether there is a legal basis for the sharing of the Nile River water among the Nile basin countries. Indeed, it becomes a real challenge at a time water demand grows and its sources are drying up. Over many centuries water treaties or agreements have been signed between two or more states of the Nile basin.[105] The analysis was based on the

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[102]Amber Anne-Maries, "Understanding and Evaluating Qualitative Research," *Journal of Marriage and the Family* 57 (November 1995): 879-893.

[103]Ellen Taylor-Powell, "Analyzing Qualitative Data," 2003, learningstore.uwex.edu/assets/pdfs/G3658-12.pdf (27 November 2011).

[104]Anne-Maries, 879-893.

[105]Salah El-Din Amer, "The Law of Water Historical Record," *Options Mediditerraneennes* (Ser. A/n 31, 1997).

historical data. From the period of the French Revolution, debate about use of international river systems began. Discussions that advocated free navigation to all nations led to Vienna Conference in 1815, and subsequently the Paris Conference in 1856.[106] Since then, a number of theories have emerged including the theory of absolute territorial sovereignty, the theory of absolute integrity of the river, the theory of limited territorial integrity, the theory of community of interests, and more recently the 1966 Helsinki Rules and the 1997 United Nations Convention on Non-Navigational Uses of International Watercourse also known as the UN Watercourses Convention.

The historical facts were used to provide an understanding of these theories, and which ones could be employed to help resolve water resources issues in the Nile basin. Additionally, various agreements signed by the colonial powers on the use of the Nile River were critically analyzed. Moreover, in 1999, with the support of the World Bank (WB) and International Monetary Fund (IMF), the Nile Basin Initiative (NBI) was established with a goal of creating a shared vision for the entire region, as well as developing a legal framework for sharing Nile basin water among its members. This research analyzes the existing laws, agreements and theories within the context of the concept of the NBI. This should yield a legal framework with the best potential to resolve the conflicts within the Nile basin countries.

The third step determines the most likely risks or threats of conflict for South Sudan. The qualitative research method is used because it provides relevant tools with which to analyze, examine and determine most dangerous threats to South Sudan.

[106]Ibid.

In the final stage, the method examines three fundamental theories of international relations to understand the nature of conflicts that South Sudan faces and how it should deal with them based on these theories. This study bases its analysis on realism and liberalism. As outlined in the literature review, realism and liberalism are two known competing theories in the world politics. Built on Westphalian nation-state model, nation-states are based on concept of realism where states are the supreme authority. States' relations with each other are nothing but a struggle for the accumulation of power and dominance, often defined in terms of security. Liberalism offers a different perspective. It views the states as not unitary actors. One of its strong principles is that relations among states are not restricted to the high politics alone, but also to low politics. At the heart of its belief is that the concept that states can cooperate in many ways through shared economics, organizations, or as individuals. To them, these activities provide for cooperation amongst states, hence promoting peace among nations.

Conclusion

The study uses mixed research methods because it not only provides better analytical tools, but also in-depth analysis and understanding of the changing dynamics in water-related conflict. It combines quantitative and qualitative tools because there are both hard sciences as well as social and political sciences to be considered in examining the impacts of water resource management in the Nile River basin on the security of South Sudan. Hard science analysis will determine the water balance and future water resource needs. Qualitative assessment must be used to examine water rights laws and the political science implications of the sovernity and rights of the new nation of South

Sudan. The ultimate result will be a more complete analysis than can be accomplished with any single approach.

CHAPTER 4

ANALYSIS

The purpose of this chapter to answer the primary research question: how will potential conflicts over the Nile River water affect South Sudan's national security? In order to answer this, critical analysis is done in four major themes. First, it identifies and analyzes potential conflicts over the use of Nile River waters, examining the current and future water demands for each of the Nile basin countries. Second, it analyzes the potential conflicts and addresses whether existing international law can be used to resolve these conflicts. Third, it discusses water conflicts and South Sudan security. Finally, South Sudan's national security strategy is discussed.

Drivers of Potential Conflicts over the Nile River Water

The River Nile is an extremely unique international river system. Globally, there are 261 major international river basins which transverse through 145 states. The Danube River Basin, in central Europe, crosses 17 national boundaries, while the Nile River is the second passing through 11 countries.[107] The longest river in the world, the Nile is estimated to be over 6, 800 km in the length flows from south to north before it discharges its water into the Mediterranean Sea. The major tributaries of the River Nile are the While Nile and Blue Nile. The White Nile drains its waters from the great equatorial plateau lakes of Burundi, Rwanda, Tanzania, Kenya, the Democratic Republic of Congo (formerly known as Zaire), Uganda, and now South Sudan. The Blue Nile, on

[107]Helga Haftendorn, "Water and International Conflict" (Working Papers, International Studies Association 40th Annual Convention Washington, DC, 16-20 February 1999).

other hand, draws its water from the Ethiopian highlands, which provides about 86 percent of the total flow into the Nile, 84 BCM.[108]

The sources of the Nile are found in humid regions with an annual rainfall of about 1,000 mm. In South Sudan rainfall varies from 1200 to 1500 mm annually; and further to the north the rainfall falls to about 20 mm per year. In Egypt, the annual rainfall is estimated to less than 20 mm per year.[109] Table 2 shows the area and rainfall by country.

The Nile basin countries occupy different portions of the total area of a country within the basin. Some are small, and others are dominant. For example, a country like the DRC, the Nile basin forms only a very small (0.7 percent) part of its territory.[110] Although, countries like Burundi, Rwanda, Uganda, and Egypt are fully contained within the Nile basin.[111] The water in Burundi and Rwanda, as well as more than half of the waters in Uganda are produced internally while most of the water resources of Sudan and Egypt flows from outside their borders.

[108]FAO Corporate Documentary Repository, "Irrigation Potential in Africa: A Basin Approach," http://www.fao.org/docrep/w4347e0k.htm (accessed 17 August 2011).

[109]Ibid.

[110]Ibid.

[111]Ibid.

Table 2. Nile Basin area and rainfall by country

country	Total areas of the country	Total area of the country within the basin	As % of the total areas of basin	As % of total area of country	average annual rainfall in the basin area (mm)		
	(km2)	(km2)	(%)	(%)	min	max	mean
Burundi	27, 834	13, 260	0.4	47.6	895	1,570	1,110
DRC	2, 344, 860	22, 143	0.7	0.9	840	1,935	1,105
Egypt	1, 001, 450	326, 751	10.5	32.6	0	120	15
Eritrea	1, 21, 890	24, 921	0.8	20.4	240	665	520
Ethiopia	1, 100, 010	365, 117	11.7	33.2	205	2,010	1,125
Kenya	580, 370	46, 229	1.5	8	505	1,790	1,260
Rwanda	26, 340	19, 876	0.6	75.5	840	1,935	1,105
South Sudan[112]	644,329	0	0	0	1,200	1,500	1,100
Sudan	2, 505, 810	1, 978, 506	63.6		0	20	10
Tanzania	945, 090	84, 200	2.7	8.9	625	1,630	1,015
Uganda	235, 880	231, 366	7.4	98.1	395	2,060	1,125
For Nile basin		3, 112, 369	100		0	2,060	615

Source: FAO Corporate Document Repository, "Irrigation Potential in Africa: A Basin Approach," http://www.fao.org/docrep/w4347/e/w4347e0k.htm (accessed 17 August 2011).

A close reading of the Nile River paints a very gloomy picture for the future of the region. At the end of the century many groups, including academics, policymakers, practitioners, politicians, and civil society organizations made statements that confirmed the prediction. They argued that water resources will send countries to inter-state war . The Egyptian leaders expressed war rhetoric. The then Deputy Director of the World

[112]There is no data on the total area of country within the basin, as well as its percentage since it got independence in July 2011.

Bank also echoed this sentiment by saying that the wars of the last century were fought over oil, but the 21st century wars will be fought over water resources.[113]

Sub-Sahara Africa, and, in particular the Nile basin is predicted to be further stressed by water scarcity. This means that inter-state water conflict is very likely to break out in the region. To put this claim into perspective, it is critical to understand some of the factors that have given rise to the aggressive competition over the water resources among the Nile basin states.

Declining Waters of the Nile River

Evidence has consistently shown that the Nile basin is in great water stress and its annual water flow has been dropping for the last 100 years. Several explanations can be offered. The Nile basin is world's largest river, but its annual water discharges is disproportionally disappointing compared to other major basins on the continent.[114] The Nile River discharges only 84 BCM yearly. In contrast, Volta River's annual discharge is about 390 BMC, significantly higher than the Nile Basin.

[113]Hultin, 56.

[114]Ashok Swain, "Mission Not Yet Accomplished: Managing Water Resources in the Nile River Basin," *Journal of International Affairs* 61, no. 2 (Spring/Summer 2008): 202.

Table 3. Decreasing in Water Flow of the Nile River

Year	Declining Annual Flow of the Nile in BCM
1870 – 1899	**1,100**
1899 – 1954	**84**
1954 – 1996	**81**

Source: Ashok Swain, "Ethiopia, the Sudan, and Egypt," *The Journal of Modern African Studies* 35, no. 4 (1997): 675-694.

The figures presented here can be analyzed or interpreted in different ways, but the data clearly indicates that the water flow of the Nile River has shown an unabated trend of decline. It is the combination of factors ranging from human activities, rapid population growth, climate change, loss of water at different locations, increased agricultural activities especially, in countries such as Egypt, Sudan and Ethiopia, and industrialization to urbanization. These factors do not operate in isolation but are all inter-related in such a way that they deliver devastating impacts on the Nile basin.

Population Growth

The world's population is growing rapidly, and it is predicted to reach to about 8 billion or even more by the next century.[115] This rapid population growth is expected to occur in particular in sub-Sahara Africa, but in particularly in the Nile basin. There are already 300 million people living in the Nile basin, of which 250 million are dependent on the Nile River for their livelihoods. Moreover, with the present population growth rate at between 2 and 3 percent, it is predicted that the population will reach to about 600

[115]King, 22-26; Swain, 202.

million by 2050.[116] Countries that will experience a high rate of population growth include Ethiopia, Rwanda, and Burundi. Comparing the trends of the population growth, in 1998, Ethiopia's population was 66 million and it is expected to rise to 212 million by 2025. By 2050 its population is expected to reach 278 million. An increase of more than 150 million over the period of half a century.[117]

In the past, people have had divergent views on the issue of increasing population in Africa. For a very long time, population was viewed favorably in a sense that population is a key human resource to drive economic development. Aware of scare water resource, this view is definitely changing because what water is available cannot carry the weight of the growing population. This idea can be further explained through the concept of carrying capacity. To borrow this concept from King's work, it can be explained in terms of livestock management practices. This is where a rancher understands exactly how many head of cattle can graze on a given piece of land for an indefinite period of time without causing permanent environmental damage to the land.[118] Contextualizing this to the Nile basin is a work of available water resource and other ecosystems of the Nile. If the population continues to grow, as is the case now, the carrying capacity will eventually be unable to carry the weight of the population. The Nile River will not provide enough water to produce sufficient food for the population.

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[116]Majeed A. Rahman, "The Geopolitics of Water in the Nile River Basin," Global Research, 24 July 2011.

[117]Kittson, "Transforming Conflict and Reshaping Cooperation in Africa," *Hydropolitics and Geopolitics* (November/December 2004), www.un.org/.../2001/ issue3/0103p65.html (accessed 12 October 2011).

[118]King, 22-26.

There will also be a decrease in the availability of clean drinking water, among other concerns.

Climate Change

Alongside rapid population growth, climate change is a growing challenge in the Nile basin. The debate has been advanced with divergent opinions on the topic. Some experts hold that climate change is a result of global warming, while cautiously warning that there still exists a great lack of clarity.[119] There is however, acknowledgement that global warming does occur and affects human beings.[120] The impact of climate change has been experienced in the Nile basin for some time. It has manifested itself in many ways. For example, the Horn of Africa region has been periodically hit by drought and famine due to lack rainfall. Countries in the Horn of Africa have experienced drought and famine at one or two times in the last three decades. The most hit countries are Ethiopia, and Somalia.[121] According to the IRIN Humanitarian New and Analysis, there have been 47 droughts in Horn of Africa since 1980.[122] The present drought has threatened livelihoods in the entire east Africa region, affecting between 12. 4 – 13. 3 million

[119]King, 29.

[120]Ibid.

[121]Ibid.

[122]INIR News Humanitarian and News and Analysis, "Horn of Africa: Fast Facts about the Drought," www.ininnews.org.aspx?ReportId=93426 (accessed 2 November 2011).

people, the worst drought in 60 years.[123] These droughts have caused crop failure due to lack of rainfall in the entire region. This pattern is expected to continue for unforeseeable future.

It is predicted that between 75-250 million people in the Nile basin countries will be exposed to water stress by 2020 due to climate change.[124] Agricultural production is expected to be very low in the Nile basin countries. This uneven pattern of the water shortages, compounded with food deficiencies has resulted in the governments in the region having reacted in an uncoordinated fashion in dealing with the water crisis resulting in a high competition for water among other Nile basin countries.

Loss of Water

As mentioned elsewhere, the Nile River loses a significant amount of water at various locations during its long journey begins from the Lake Victoria to the Mediterranean Sea. Its journey starts at Lake Victoria through the Albert Nile. It enters in South Sudan at the border town of Nimule, now named Bahr El Jebel. Even before entering South Sudan, the Albert Nile often loses a significant amount of its water within the country due to evaporation and extranspiration from the lakes and wetlands.[125] After leaving Juba, South Sudan, and Bahr El Jebel, it continues its northward journey, and enters into the swampy area also known as the Sudd region. The Sudd is one of the

[123]U.S. Department of State Diplomacy in Action, "Drought in the Horn of Africa," 3 August 2011, www.state.gov/p/af/r/s/rm/201/169501.ht (accessed 2 November 2011).

[124]Cathcart.

[125]FAO Corporate Document Repository,

biggest wetlands in the Nile basin characterized by a maze of channels, lakes and swamps.[126] It is formed out of the four large swamps, the Sudd of Bahr El Jebel and Bahr El Zeraf, the Bahr El Ghazal swamps, and the Sobat/Macher. It should be noted this is where the three main tributaries of the White Nile form. Table 4 shows the average annual discharges at the different locations.

Table 4. Average annual discharges at different locations in the Sudd

Period	Discharged at Mangalla (Km/per year	Discharged at tail of Swamps (Km3/ per year	Quantity disappeared (Km3/year	% Disappeared
1905 - 1960	**26.8**	**14.2**	**12.6**	**47**
1961 - 1980	**50.3**	**21.4**	**28.9**	**57.5**
1905 - 1980	**33**	**16.1**	**16.9**	**51.2**

Source: FAO Corporate Document Repository, "Irrigation Potential in Africa: A Basin Approach," http://www.fao.org/docrep/w4347/e/w4347e0k.htm (accessed 17 August 2011).

Much water is lost in this region. Hydrological studies have confirmed that water entering into the area flows out into the White Nile. This is, however, only the half of the water that comes from Uganda. The other half or the remaining 50 percent is lost due to evaporation.[127]

[126]Ibid.

[127]Ibid.

Jonglei Canal Project

The Jonglei Canal is a vital project to Egypt. Its aims to shorten and direct the flow of the water through the swampy areas. In this way, almost 20 BCM of water could be recovered and added up to total annual flow of the Nile River to the Aswan Dam. After eighty years since the feasibility study was conducted, the work on the construction of the Jonglei Canal began in 1978. The work was stopped in 1983 by the civil war in South Sudan. Only 240 Km of the total planned 360 km of the length of the Canal was completed.[128] This project remains a vital national security interest, in the first place for South Sudan, and Egypt, but also impacts the entire Nile basin region. Figure 2 indicates the proposed Jonglei that could have shortened the river and reduced the evaporation of water in the Sudd area.

[128]Salman, 45.

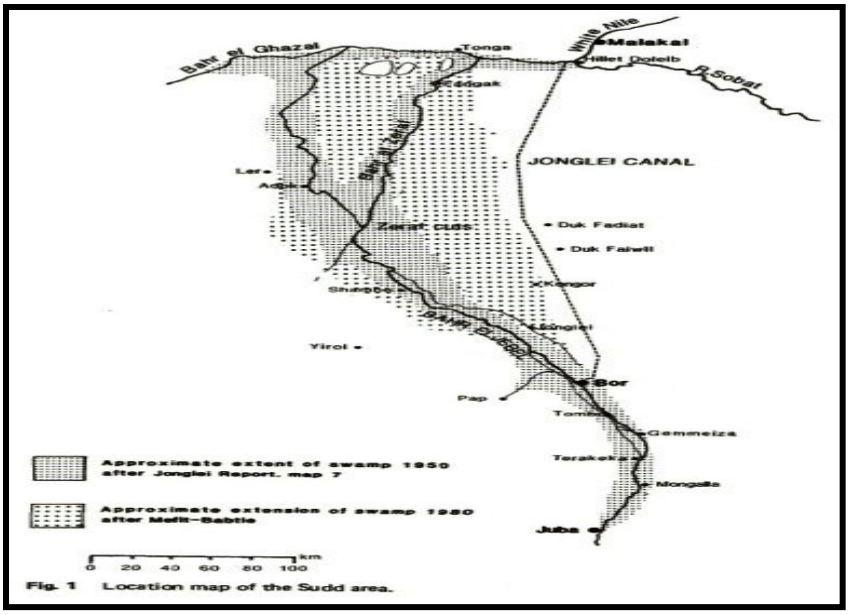

Figure 2. Proposed route of the Jonglei Canal
Source: John Allen, "Transboundary Water Resources," 30 March 2010, www.ce.utexas.edu/prof/mckinney/ce397/Topics/Nile/Nile_sudd_2010.pdf (accessed 27 October 2011).

The Jonglei Canal plays directly into Egypt's master plan not only purely from a hydrological perspective, but from a political strategic level as well. Until it became apparent that South Sudan was heading for separation, Egypt had aggressively supported the unity of Sudan. Even during the British colonial power, it resisted attempts to divide Sudan from Egypt. Its national vital interests are basically threefold. First, Egypt wants to maintain its unchallenged influence over the sources of the Nile River, and to ensure that water flow to Egypt remains uninterrupted. It is particularly worried about another independent country in the Nile basin, which it fears will be influenced by other actors in the region; hence undermining Egypt's influence. Second, Egypt wants to revive the

Jonglei Canal Project.[129] In 2006, South Sudan and Egyptian government officials signed a memorandum of understanding regarding technical support, assessment of the water resource, forecasting floods and drought, and reviewing studies of the Jonglei Canal Project.[130] This move contradicts the spirit of the Nile Basin Initiative, which demands that issues of water resource management, joint assessments, forecasting floods and drought are to be handled collaboratively amongst all member states since these issues affect the entire region. Finally, among the Arab world, including Egypt, there is a feeling of anger and disappointment as result of creation of South Sudan. This is viewed in the Arab world as disfiguring it and therefore weakening of the Arab world. A recent survey conducted in the United Arab Emirates overwhelmingly reflected this feeling. The survey will be discussed later. It contends that the United States of America and Israel are principally to be blamed for the separation of South Sudan. Egypt and the Arab world are concerned that Israel may have a significant influence on its southern border, and more fundamentally having Israel's strategic influence on the resources of the Nile basin is a reason for the Arab world to be concerned.[131]

Current and Future Water Demands in the Nile Basin

As discussed elsewhere, there is consistent evidence that water demand is rapidly increasing amongst the riparian countries, as states embark on large mechanized

[129]Ibid.

[130]Ibid.

[131]Maey Shoush, "South Sudan seen as plot of US and Israel," *The National* (11 October), www.the national.ae/news/uae-nwes/south-sudan-seen-as-plot-of-us-isreal-poll-findings (accessed 17 October 2011).

irrigation agriculture. This is occurring at the time that the annual water flows are declining. Upstream countries that traditionally depend on rain fed crops are turning to irrigation. Table 5 shows the current water demand for Burundi, Egypt, Ethiopia, Rwanda, South Sudan, Sudan, Tanzania, and Uganda. Water demand for the same countries is projected for the year 2050.

Current and Future Water Demand for Burundi

Burundi's territory is almost completely integrated into the Nile basin. The Luvinzora River, which originates in Burundi, is a tributary of the Kagera River. It forms in the border between Rwanda and Tanzania, and then between Uganda and Tanzania before it flows to Lake Victoria. While being fully integrated, its interests in the Nile basin are considered not be as high as those of the other countries. As shown in Table 5, the total annual water withdrawal per capita is estimated to be $37m^3$ one of the lowest in the upstream riparian countries. Burundi's current population is 8 million. This means that its current water demand is about 0.310 BCM per year. Of this amount agriculture accounts for 82 percent, industry 1 percent, and domestic use 17 percent.

Table 5. Current water demands, and projected water demands and population by 2050 by country

				Water Demand	
Country	**Per capita (M3 Per Person Per Year)**	**Population in 2011**	**Projected Population in 2050**	**Current Water Demand**	**Projected Water Demand 2050**
Burundi	37	8,383	27,149	310	1 BCM
Egypt	1,013	81,121	137,873	82 BCM	140 BCM
Ethiopia	40	82,950	278,283	3.3 BCM	11 BCM
Rwanda	10	10,624	27,506	0.1 BCM	0.3 BCM
South Sudan	1,879	15,000	30,000	17 BCM	35 BCM
Sudan	1,879	34,000	67,000	40 BCM	40 BCM
Uganda	13	33,425	128,008	0.4 BCM	1.7 BCM
		265,503	696,781		

Source: World Bank. "Africa Development Indicators," 2004, http://publications.worldbank.org/ (accessed 27 March 2011).

In the next fifty years, Burundi's population will almost triple to reach 27 million by 2050. As explained in the analysis, the water demand is expected to increase reaching 1 BCM per year. It is important to note that this prediction remain as it is are now only if the current assumption that the total per capita per year remains the same, and the population growth remain rate the same as well. Either way, if any of the two variables is impacted, there is likelihood that, the water demand would be expected to increase.

Current and Future Water Demand for Egypt

Egypt has enjoyed unchallenged rights over the utilization of the Nile River water for thousands of years.[132] That is why the Egyptians say "the Nile River is Egypt, and Egypt is the Nile". The 1929 Nile River Treaty, signed between the British Empire and the Egypt, gave it the absolute right to utilize the Nile River water while prohibiting other upstream riparian countries from constructing of any projects that may divert or impede the smooth flow of the water. [133] Table 5 shows a significant trend in Egypt's water demands, current and in the next fifty years. The water demand projection confirms that Egypt consumes the lion share of the Nile River waters.

Table 5 calculates Egypt's current annual water withdrawal per capita, which stands at 1,013m^3, the highest, per capita in the Nile basin. With its current population of 81 million, the water demand for Egypt is estimated to be at 82 billion cubic meters per year. It is significant to mention here that the Nile contributes about 95 percent of the Egypt's annual renewable resources led by the Nile's waters. Of the total amount agriculture accounts for 78 percent, industry 14 percent and 8 percent for domestic use.

In the next fifty years, both of Egypt's population and water demands are predicted to increase dramatically. As shown in Table 5, the population is projected to reach 138 million. This is an increase by more than a third to the current population. Based on the existing data on the per capita, Egypt's water demand is estimated to be 140 BCM by 2050. This an increase of more than 70 percent in water demand. It is also

[132]Ashok Swain, "Mission Not Yet Accomplished: Managing Water Resources in the Nile River Basin," *Journal of International Affairs* 61, no. 2 (Spring/Summer 2008): 202.

[133]Ibid.

possible to assume that there may be change in the two variables. The current projections are based on the assumptions that both annual water withdrawal per capita, and population growth rate remain the same. Should the opposite occurs to the variables then per capita and population are expected to increase subsequently increasing future water demand by 2050.

Harsh economic challenges and the desire to meet demands of the growing population have prompted Egypt to reform its national polices to the ones that realize food security and economic prosperity. Its agricultural sector remains at the core of its policies. The FAO estimates that Egypt has 4 million hectares of potential irrigation areas. Of this, 3 million hectares are under irrigation.[134]

In the recent past, Egypt has been working on land reclamation projects. One is in Egypt's Western Desert, and the second in and Sinai. These projects are for urban resettlement and irrigation. Because of their high water consumption rates, Egypt's water demand has been increasing over the period of the time. There are reports that Egypt has little water surplus. Several statistics indicate that Egypt's water demand is on a constant increase since 1993.[135] In the same year, water demand was estimated to be at 56.9 billion cubic meters (BCM); it increased to 66.9 BCM in 2000. Today, the demand has reached 82 BCM million. Still more, the demand is predicted reach to 140 BCM by 2050. [136] It is significant to note that based on the current information on the annual flow of the Nile River registered at Aswan High Dam, the annual flow of the Nile River is 81 BCM.

[134]FAO Cooperate Document Repository,

[135]Ibid.

[136]Ibid.

This means Egypt alone without other riparian countries would use all the Nile River's annual flow. It could only be assumed that billions of cubic meters of water could have been stored at Aswan High Dam; if this assumption becomes fact, the questions then arise: how many billions of cubic meters have been stored at Aswan High Dam? How long would it sustain Egypt, if the Nile water continues decline and waters at Aswan dried up? If sufficient water has been stored at Aswan, can other riparian countries be allowed to use it if they are in severe water crisis?

The outlook does not look good because the statistics for both the current and future water demands for Egypt are extremely disturbing. Egypt has already consumed its entire share as stipulated in 1959 agreement. Its current water demand is 81 BCM. In other words, Egypt is already in water demand deficit, and worse than other Nile basin countries.

Current and Future Water Demand for Ethiopia

Ethiopia's interests in the Nile basin are considered as to be very high, since the Blue Nile contributes about 86 percent of the annual flow to the Nile River and originates in the Ethiopian highlands. Until recently, Ethiopia's water demand could be described as moderate as compared to Egypt and Sudan. This fact has changed dramatically. It has moved to aggressively to meet its rapid population growth, and other socio-economic challenges. Table 5 indicates Ethiopia's current and future water demand. Its total annual water withdrawal per capita is estimated to be at $40m^3$, which is still insignificant compared to its population and the percentage Blue Nile River contributes to the Nile River. This is an indication that Ethiopia has had not been involved in major agricultural projects, but it could also mean that most of its population depended on the rain water. As

shown in Table 5, Ethiopia's current water demand is projected to be 3.3 BCM. This is expected to rise in fifty years. According to this study Ethiopia will experience the fastest growing population in the entire region. Its population is projected to reach 278 million by 2050. With this huge population, its water demand is estimated to reach11 BCM per year by 2050. This water demand appears to be not sufficient for the population of 278 million.

Ethiopia has been pursuing a policy to modernize its economy in order to enable it to meet the challenges of its growing population. Agriculture has been one of the sectors Ethiopia is pursuing. Ethiopia's potential irrigation areas are estimated to be 2.2 million ha. Only 23,000 to 290,000 ha are currently under irrigation. The largest estimated value represents only 11 percent of the total irrigation potential.[137] In order to utilize its agricultural potential, Ethiopia has declared its intentions to use up to half of the total Blue Nile's annual flow to the Nile River. This means that if this plan indeed becomes operational, only 43 percent of the Blue Nile will flow to the Nile River annually, instead of 86 percent. This will be a massive increase in the water demands that obviously concerns Egypt.

These huge developmental projects only massively increase Ethiopia's water demand, but often sends Ethiopia and Egypt at odds, and at other times, moved them to the brink of military confrontation. In an interview given by Ethiopian Prime Minister Meles Zenawi, to the Egyptian Gazette 20 May 2010, he described the idea that the Nile water belongs to Egypt, and that it [Egypt] has a right to decide what percent other Nile

[137]Ibid.

basin countries get as “an old fashioned idea”.[138] He further argued that facts in the region have “changed and changed forever”.[139] Statements such as this have surely set the tone for a very long confrontation among Nile basin countries. Ethiopia’s huge economic development programs have increased its water demand. Ethiopia’s water demand may be even more than what is estimated in this study. An interesting point is that while the water continues to decline due to natural factors, huge agricultural projects also consume water. These factors interplay among themselves to create an unprecedented water deficit Nile basin countries.

Current and Future Water Demand for Rwanda

The Kagera River flows through Rwanda. It forms on the border between Rwanda and Tanzania, and then moves between Uganda and Tanzania before it flows to Lake Victoria. Although Rwanda’s total area within the Nile basin is 0.6 percent, it is one of the countries that has a high annual rainfall ranging between 840 to 1935 mm annually, the third greatest after Uganda and Ethiopia, therefore considered an important source of the Nile River.

Table 5 shows the projected current and future water demand for Rwanda. Using that data, Rwanda’s total annual water withdrawals per capita is $10m^3$, the lowest in the Nile basin, and 100 times less than Egypt’s per capita per year. With the population of 10 million in 2011, the current water demand is projected to be only 0.1 BCM. Of the total amount of water, the agricultural sector accounts for 39 percent, industry 14 percent, and

[138]Swain, 687.

[139]Ibid.

domestic 48 percent. It is worth noting that the agricultural sector, including other sectors of the economy, consume rain fed waters.

Still using the same data, in projecting both the population growth and water demand for Rwanda, the population is expected to reach 27 million in 2050. As noted elsewhere, assuming that the per capita usage rate remains the same, its water demand is estimated to hit 0.3 BCM per year by 2050. Rwanda represents a classic irony of water sharing in the Nile basin. While it is one of the biggest contributors of the water flows to the Nile River, its share of usage is minimal, compared to countries like Sudan and Egypt that contributes nothing, but their use shares are 200 percent more.

Rwanda, faced by rapid population growth, urbanization and climate change is more likely to pursue policies of mechanized agriculture. Recent studies show that this country is pursuing large scale irrigation projects.[140] Rwanda is described as having arable land that can be irrigated. Its estimated potential irrigation area is 150,000 ha. Of the total, about 2,000 ha has been irrigated. Rwanda's water demand may increase if more arable land is irrigated.

Current and Future Water Demand for South Sudan

South Sudan's independence in July 2011 has changed the dynamics of the hydropolitics of the Nile basin and caused more worries to the lower riparian countries. Its existence as a sovereign state has a direct impact on both Egypt and Sudan. South Sudan will negotiate for its share of the water from Sudan. Moreover, its huge geographic area within the Nile basin and being where the White Nile River's tributary system forms

[140]FAO Cooperate Document Repository.

its confluence and is one of the major tributaries of the Nile basin makes South Sudan very significant. Additionally, the Jonglei Canal Project increases the significance of South Sudan in the hydropolitics.

It is challenging to access data on the new country's current and future water demand. As noted in chapter three, the data used for the projection of both population and water demands are entirely based on the present water use data in Sudan. The assumption is that data and documentation on Sudan include South Sudan. If the U.S. Census Bureau's International Data Base is used, Sudan's 2010 population census estimates the entire population to be 44 million, including that of South Sudan. Of the total population, South Sudan's population is estimated to be about 8 million; although this number has been disputed by the government of South Sudan. For the purpose of this study, the population of South Sudan is estimated to be about 15 million. The United Nations' agencies and non-governmental organizations have estimated that as many as 4 million South Sudanese were internally displaced persons (IDP) in Northern Sudan, and half of that number were refugees in foreign countries.[141] These categories of people are not counted during the population and household census. Since the independence of South Sudan these categories of people have been returning to South Sudan. This justifies the rational to estimate the population of South Sudan at 15 million in the near future.

It is also assumed that the total annual water per capita withdrawals of South Sudan is 1,187 M^3, the same as that of Sudan. Based on those assumptions, the current

[141]Internal displacement monitoring center, "Estimates for the total numbers of IDPs all of Sudan," January 2011, http://www.internal-displacement.org/idmc/website/countries.nsf/(httpEnvelopes)/0026B2F86813855FC125757000185?OpenDocument (accessed 10 April 2011).

water demand of South Sudan is estimated to be 17 BCM. If South Sudan's population continues to grow at the rate of 2 percent, its population is expected to reach 30 million by 2050. Again, based on the above Table 5,it assumes that South Sudan not only continues to use the existing total per capita per year, but also the per capita does not change. In this scenario, the projected water demand reaches to 35 BCM by 2050. This estimate may be impacted by additional usage being considered in South Sudan overreaching strategic plans relating to agriculture and other sectors of economy.

South Sudan's share of water depends on its geographic location, negotiated share, or influence in the Nile basin. It is a very significant country in the Nile basin. The White Nile, which transverses through South Sudan feeds the Nile River with a total of 28 percent of the Nile water. This represents about 23 million BCM of the 84 BCM total flow of the Nile. This places the White Nile as the second biggest tributary of the Nile River after the Blue Nile. Because of length and the total area within the country, South Sudan has very high stake and interest in the Nile River, as significant and comparable as Ethiopia.

Another significant concern for of South Sudan is the swampy areas known as the Sudd. It covers an area of about 30,000 sq km of the wetland, the largest freshwater wetland in the Nile basin. Its size is larger than the state of Maryland. Figure 3 shows the Sudd swamps and freshwater systems in South Sudan. It is distinct in its feature, but yet intrinsically related to the broader White Nile tributary system. It stretches from Bor in

the south, reaching to the Sobat confluence in the north, and westward along Bahr El Ghazal.[142]

Figure 3. Freshwater systems in the Sudd, South Sudan

Source: John Allen, "Transboundary Water Resources," 30 March 2010, www.ce.utexas.edu/prof/mckinney/ce397/Topics/Nile/Nile_sudd_2010.pdf (accessed 27 October 2011).

As noted elsewhere, huge amounts of water is lost in this area due to evaporation. In fact it is estimated that as much as half of the water flowing into this region is lost. The other half discharges into the White Nile. A project to reduce the great loss of water through evaporation was initiated in 1898 by the colonial British. The study recommended digging a canal to shorten the distance of the flow of the White Nile. However, the construction by the Egyptian government, , did not start until 1978 and was stopped by the civil war in South Sudan in 1983. The formations of the entire White Nile's tributaries within South Sudan, the great loss of water in the Sudd area, and the

[142]Salman.

Jonglei Canal Project have strategically raised South Sudan's significance in the Nile basin.

Current and Future Water Demand for Sudan

Sudan's current and future water demand has been complicated by the separation of South Sudan from it in July 2011. Previously, Sudan and Egypt enjoyed the Nile River waters splitting the water share between them 18.5 BCM and 55.5 BCM respectively. Sudan's water demand has been on the rise steadily, but more importantly, its existing water share now has to be divided between South Sudan and Sudan. This adds to Sudan's growing water demand problems. As shown in Table 5, Sudan's current and future water demand are predicted to increase sharply in the next fifty years.

Like Egypt, Sudan depends entirely on the Nile River water. From the above table, Sudan's total annual withdrawals per capita is 1,187,M^3, the highest in the Middle East. In order to calculate its current and future water demand, South Sudan's population is subtracted to yield Sudan's current population. The total population of Sudan before South Sudan seceded was 44 million. Of that, the population of South Sudan that previously was counted as a part of Sudan is estimated at 10 million. Therefore, after the separation of South Sudan, Sudan's population now is estimated to be at 34 million. With the population at 34 million and per capita water usage at 1,187m^3, its current demand is 40 BCM per year. Of the total amount, agriculture accounts for the 96 percent, industry consumes only 1 percent, and domestic use is 3 percent. As can be clearly seen, agriculture is the mainstay of the economy and it provides 70 percent of the country's foreign income.

Still, based on the statistical data in the above table, the population of Sudan is projected to increase dramatically by 2050. It is predicted that with the current annual population growth of 2 percent, the country's population would reach 67 million, a doubling of its population by 2050. From this projected population, if Sudan's current total annual per capita remains at 1,187m^3 its water demand is estimated to be at 80 BCM.

As mentioned already, serious challenges confront Sudan. First, the issue of sharing water with South Sudan is not yet clear as to how it would be resolved, particularly considering the animosity that exists between the two countries. Second, even if the two countries agree to negotiate, what would be the basis upon which water would be shared equitably? Thirdly, at beginning of this century the government of Sudan announced that it had used all 18.5 BCM of its share of water as provided in 1959 Agreement. It therefore announced that by 2025, its water demand would reach 23 BCM. Comparing these figures with the available statistics on Sudan's current water demand, it is clear that Sudan has exceeded its water share by twofold.

Sudan has lost 75 percent of the revenue from its oil exports after the separation of South Sudan. This has increased pressure on Sudan to invest in agriculture more than before. Currently, the FAO estimates that the country has irrigation potential to be at 4 million hectares. In 1979, over 1.6 million ha were irrigated; 1.9 million ha were irrigated in 1990.[143] In early 1990, the government in Khartoum designed a comprehensive policy aimed at resolving the country's chronic economic problems in order not only to improve the living standard of its citizens, but also attain self-sufficiency in food security. Sudan

[143]FAO, Cooperate Document Repository.

proposed to cultivate 2.8 million ha of arable land by 2015. The government may seek to expand this goal in light of the economic pressure put on it after the split of South Sudan. The current statistics show that Sudan is short of water to adequately meet its irrigation demand. The plans designed by the government to irrigate 2.8 million ha by 2015 is looking increasingly unlikely because it lacks sufficient water. Sudan has only irrigated 1.8 million ha as opposed to the proposed 2.8 million ha. This is indeed a clear manifestation of the water shortages in Sudan, and beyond.

Current and Future Water Demand for Uganda

Uganda is another significant country in the Nile basin. All the tributaries that flow from the DRC, Burundi, Rwanda, and Tanzania drain their waters into Lake Victoria, the second largest fresh lake water in the world, before it continues its journey northwards into South Sudan. The main sources of the White Nile originate from Uganda. Moreover, Uganda has the highest average annual rainfall in the entire basin areas. It receives between 395mm–2,060mm of rain meaning it contributes very significantly to the Nile River.

Like many other upstream riparian countries, Uganda has not shared its fair share of the Nile River waters because most of these country has depended on rain fed water for agricultural activities. It is also worth noting that to date the riparian countries have not embarked on mechanized commercial farming, which consumes even more water. As can be seen from Table 5, Uganda's current and future water demand, and its population projection in 2050 are not different from the rest of the countries under study. The pattern is similar, water demand increases and rapid population growth are expected.

There are two main variables that influence calculating the mathematics of population growth and water demand. Based on the above table, Uganda's total annual water withdrawal per capita is $13m^3$, and its current population is 33 million. In order to determine the current water demand, the two variables are multiplied. Hence, Uganda's current water demand is estimated to be 0.4 BCM. Of the total amount agriculture consumes, 39 percent, industry takes 15 percent, and domestic use accounts for 45 percent. Still based on the same data, the projected population of Uganda would reach 128 million, and its water demand will reach to about 1.7 BCM by 2050.

As discussed in chapter two, Uganda has the biggest irrigation projects planned amongst upstream riparian countries. It has over 202,000 ha, of arable land, and at present only 5,500 ha have been cultivated.[144] Additionally, Uganda has invested heavily in the construction of dams to produce power and water for irrigation. Uganda is the second country, after Ethiopia, in the construction of new dams. There are about twelve dam projects in Uganda. Of the ten dams under construction, 7are new, either under construction or proposed, while 3 are under rehabilitation.[145] These figures do not include Nalubaale, previously known as the Owen Fall Dam built and completed in 1954, and the Bujagali Hydroelectric power station whose Phase I is complete and Phase II is expected to be completed by 2012.[146]

Uganda's unstoppable aspiration to become one of the most industrialized and urbanized countries in Africa would drive it to withdraw more water. It is also one of the

[144]Ibid.

[145]International Rivers.

[146]Ibid.

fastest growing populations in the Nile basin. All of these issues sum to only drive Uganda to increase its water demand in the future.

South Sudan's Security: The Most Likely Conflicts in South Sudan

South Sudan faces a combination of internal and external security concerns. The former originating from within the country, while the latter from South Sudan's northern neighbor, and the growing transnational groups such as terrorists. The country's insecurity is linked to the history of struggle in Sudan even before Sudan got its independence in 1956. A close reading of post-colonial Sudan indicates that militias are deeply rooted and occupy a significant place in the country's contemporary history. South Sudan's security threats can be broadly categorized as follows: insecurity emerging from cattle rustling; intra-and inter-ethnic tensions; geographic or political tendencies; political or regional alliances; and a set of unresolved issues in south and north relations.[147] As discussed in Chapter three, the aim of this chapter is to identify the three most likely conflicts to occur in South Sudan. These are water stress, south – north disputed borders, and militia groups. They will be discussed separately to analyze their respective merits to cause future war in South Sudan. Appendix A presents a more complete strategic security threat analysis for South Sudan to provide a context within which water issues must be considered.

[147]Andrew Atta-Asamoah, "South Sudan: Origins and Implications of emerging (in) security dynamics," Institute for Security Studies Situation Report (29 July 2011), 3.

The Water Conflict

Diminishing water resources can drag South Sudan into future conflicts with its neighbors. In the past, no one could have imagined that the region, at some time would be exposed to this type of circumstance. The views on this matter are divergent as to whether or not future conflicts may be caused by water stress and competition over its accessibility. The body of literature has grown significantly in this discipline, but there is no conclusive answer. The renowned scholars on hydrology such as Ashok Swain, Gleick, and others have warned that since the water of the Nile basin has been pressed so hard, if the current status quo is not changed or managed in a collaborative way countries may be pushed to wage inter-state conflict, especially if dominant countries continue to deny their right to the use of that the water. In the case of the Nile basin it is Sudan and Egypt, which want to maintain the traditional policy of exclusivity.

Another school of thought holds that there will be no conflicts because the issue of water stress has been there for many centuries and societies have often resolved challenges without resorting to the war. Extensive studies conducted at Oregon University suggest that its data finds no evidence that water scarcity may lead to inter-state conflict. The recent writings on hydropolitics of the Nile basin appear to have concurred with the argument that inter-state conflicts are unlikely to occur. Rather, water issues would be resolved interdependently. This thought was probably inspired by the establishment of the Nile Basin Initiative (NBI) in 1998. However, the disagreement that split the Nile basin member states into two proved that cooperation amongst the member states is not something that can be resolved in the short term.

Shlomi Dinar's study on the Israel – Palestinian conflict supports the notion that water scarcity can immediately degenerate into inter-state war. He, however, did admit that water was the main trigger of the war in the Middle East.[148] This is what Alex S. Wilner argues also, that the significance of water resource is gaining prominence, and the nature of high politics is rapidly changing through time and water is replacing it. It is thus evident that future wars can occur. It is not a matter of if, but a matter of when it will occur. In sum, with what is going on between south and north Sudan, and other the Nile basin countries, it is becoming more likely that a water war could be fought in the new country.

Potential Conflicts and International Law: Can Any of the Conflicts Be Resolved?

Referring to the strategic security analysis for South Sudan in Appendix: A South Sudan, faces a number of potential conflicts, a primary one being the water related conflict. Analysis in this section examines potential water conflict over the Nile River water, and to what extent this may be resolved within the existing framework provided by the International Law on watercourses. As argued throughout this study, there appears to be no clear cut argument as to whether or not water disputes automatically result in inter-state conflict or lead states into a collaborative action. Of recent, there is a growing body of literature, which argues that water resource is under severe stress, much more severe than it was 100 years ago. Expanding on this line of the argument, it would therefore be inferred that the water factor can indeed act independently, or in combination with other

[148]Dinar.

factors, to prompt inter-state conflict. It should be added here that potential of inter-state conflict has to be analyzed on a country-by- country or region-by-region basis.

The Nile basin does not have a current water agreement that governs water resource management amongst its member states. What does exist are the two bilateral agreements. First is the 1929 Agreement between the British and Egyptian governments. The second is the 1959 agreement between Sudan and Egypt. Basically, the 1959 Agreement is a revision of the former agreement in which Egypt was reallocated 55.5 BCM per year, and Sudan's share increased to 14 BCM annually. Other upstream countries, including Ethiopia, Tanzania, Kenya and Uganda, have all opposed the two agreements, arguing that they were signed by colonial governments, and therefore not bounding upon them. Instead, they have called for a new agreement that would be premised on the principle of equitable distribution of the water amongst the Nile basin countries.

The legal stalemate in the Nile basin does not mean that there are no legal frameworks on the international water course. Several water treaties exist globally. The United Nations' Food and Agriculture Organization (FAO) has documented over 2,000 instruments relating to the issues of international water resource among the nations. Some of them date back to the eleventh and twelfth centuries[149] Table 6 shows four main theories and legal codes relating to international law on international water courses. They are the theory of absolute territorial sovereignty, the theory of absolute integrity of the river, the theory of limited territorial integrity, the theory of community interest, and codification of 1966 Helsinki Rules into the 1997 United Nations' Convention on Non-

[149]Mekonnen, 10.

Navigational Uses of International Watercourse, also known as the United Nations Watercourses Convention.

Table 6. Summary of Major Theories of International Law on International Water courses

Theory	**Main Points**	**Applicability**
Absolute Territorial Sovereignty Theory	Associated with the Hermon Doctrine. Sovereign State has unlimited rights to natural resources within its territorial jurisdiction.	Not applicable and can cause inter-state conflict
The Theory of Absolute Territorial Integrity also known as Riparian rights	Upstream riparian states should not get involved in activities that might obstruct the natural flow of the waters that may affect low riparian countries. This Theory is often invoked to defend territorial in their possession.	Currently used by Egypt and Sudan. It has a serious potential for conflict
The Community of co-riparian states also called Community Interests	The River waters constitute a common geographic and economic entity beneficial to all states Its integrated management is the most efficient approach to water course and requires collaboration and create institution to implement joint policies premised in the doctrine of equitable distribution and use of the water	premised in the doctrine of equitable distribution and use of the water codified in the Helsinki Rules and the UN 1997 Convention on Non-Navigational watercourse
Limited Territorial Sovereignty Theory, also known as the Theory of Sovereign Equality and Territorial Integrity	States through which a river flows has the right to use its river water This rights should not hinder of affect the use of water by other riparian states It recognizes the rights of both upstream and downstream riparian states	Includes all elements of the theories discussed above

Source: Korwa G. Adar, "Kenya's Foreign Policy and Geopolitical Interests: The Case of the Nile River Basin," *African Sociological Review* 11, no, 1 (2007): 63-80.

The debate about use of international river systems is traceable to the time of the French Revolution. At the time, the discussions had advocated free navigation to all nations. This eventually led to the Vienna Conference in 1815, and subsequently the Paris Conference in 1856.[150] Since then, the theories explained above have had taken center stage in the debate on the sharing of common international water courses. As stated in the summary above, each theory has taken differing viewpoints relating to disputes arising from international water systems. This study uses the theory of community of co-riparian states, also known as community of interests, to examine possible solutions that this theory may generate.

Historical Perspective: the Nile Basin Cooperation

As summarized in Table 6, the community of co-riparian states, or community of interest theory, advocates for collective rights to river waters. The theory is based on the idea that the river waters and the international drainage systems form a common geographic and economic entity beneficial to the states, which operates on the doctrine of equitable utilization. Community of interests theory is "premised on the belief that integrated management is the most efficient approach to water course basin and requires collaboration and creation of institutions to implement joint policies."[151] This is particularly true when a basin is treated as a single economic resource and entity enjoyed by the states through established contractual obligations or agreements.[152]

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[150]Adar, 66.

[151]Ibid., 63-80.

[152]Ibid., 81.

Egypt and Sudan have opted to use the theory of absolute territorial integrity, or called riparian rights, which says that upstream countries may not be involved in any activities that might affect natural flow of the river waters that may have an adverse implication on the low riparian states. This theory has the potential to exacerbate interstate and even regional conflicts, especially in the case of the Nile basin where upstream riparian states are calling for the equitable distribution of the Nile basin waters. Although there has been long standing disputes between downstream riparian (Egypt and Sudan), and the upstream countries, of recent there has been progress on collaborative action.

Realizing the real challenges posed by the Nile basin waters with potentially catastrophic consequences, the riparian countries have attempted to deal with the issues in a collaborative and multilateral manner. For example, over the years, efforts were made to establish politicio-legal and economic institutional frameworks governing the use of the Nile basin waters and international water drainage systems.[153] Although, most of these multilateral negotiations were dominated by Egypt, they were significant steps. The first was Hydromet (1967-1992). Its primary objective was to provide a clear baseline for the measurement of the availability and needs of water in the White Nile and around Lakes Victoria, Kyoga, and Albert.[154] Second, was Undugu (1983-1992), (Swahili word for brotherhood) which was dominated by Egypt. It tried without success to promote socio-cultural and economic cooperation amongst the riparian countries. Finally, there was Technical Cooperation Committee for the Promotion and Development

[153]Adar, 82.

[154]Ibid.

and Environmental Protection of the Nile Basin (TECONILE) in 1992–1999. The TECONILE created conditions for the establishment of the Nile River Basin Action Plan (NRBAP) in 1995, and the Nile Basin Initiative in 1999. This remains the only forum established by the riparian countries for the negotiation of the use of waters of the Nile Basin.

The Nile Basin Initiative

The Nile Basin Initiative was established in January 1999. It represents a basin wide partnership, at the time, of nine of the 10 riparian countries. The full members of the NBI are Burundi, the DRC, Egypt, Ethiopia, Kenya, South Sudan,[155] Sudan, Tanzania, and Uganda.[156] The predominant principle of the NBI is the shared vision jointly embraced by all nation members in order "to achieve sustainable socioeconomic development through the equitable utilization of, and benefit from, the common Nile Basin water resources."[157] Supported by multilateral organizations, such as the World Bank and International Monetary Fund (IMF), and other governmental institutions, the Nile Basin Initiative (NBI) was hailed as a success story that could be replicated in other parts of the world that experience similar water resource challenges.

While the NBI has made remarkable progress since its establishment, it hit serious setbacks in 2010. One of the NBI's Shared Vision Programs was the cooperative framework, in particular the legal framework, which aims to deal with equitable

[155]Ibid.

[156]Ibid.

[157]Ibid., 13.

distribution of water and its management. A demand of the upstream riparian countries is to develop a new legal framework that would replace the 1929 and 1959 Nile Basin Water Agreements. The negotiations for the new legal framework took 10 years, but before the signing of the final document in 2010, disagreement emerged between the downstream and upstream riparian countries.

The disagreement prompted the upstream countries to sign the new agreement, while Egypt and Sudan have not signed it. This has stalled the spirit of cooperation between the two opposing groups of the Nile basin countries. This does not mean that fundamental concepts of the NBI are being torn down or are dead. The NBI is constructed on the premise of the theory of community of riparian states, or community interests. It permits rights of every riparian country to river water without disadvantaging others. It believes that water represents a common economic benefit to all states. Collaborative and integrated water management programs are the most efficient approach to be followed in the Nile Basin.

South Sudan and its National Security Strategy

South Sudan's national strategy will be dominated by domestic politics and its northern neighbor Sudan. Domestically, the new country has to deal with issues of water demand for its use, insecurity sharing of its oil wealth with the worth, establish strong institutions of governance, and deliver essential services to its people. Externally, South Sudan will be preoccupied with its relations with Sudan. Furthermore, South Sudan also needs to set its priorities with sub-Sahara Africa and the international community. It is expected that South Sudan's national security strategy, at least for the next few years, will be based around its immediate vital interests, which can be summarized as: protection of

its people and their property, water resources, oil resource and infrastructure, and armed militia, among others. These interests are not static. Priorities change and evolve but guide the strategic environment. As a new country, South Sudan faces asymmetric security concerns. Some of them are internal security concerns, while others are externally influenced. South Sudan's national security strategy is expected to be dominated by domestic security concerns. This study identifies five top factors that pose serious security threats. These are: local and national politics (including the oil issue), ethnicity, militia groups, cattle rustling, and illegal small arms, amongst others. These factors can also be referred as the five interlocking factors threatening South Sudan's security. The interlocking factors operate separately, or in pairs, or all of them interacting together to cause instability. Politics can interact to pit one ethnic group against others. South Sudan's immediate strategy is to stop this phenomenon and protect its people and ensure that livelihoods and property are protected.

The changing strategic environment in the Nile, and in particular between South Sudan and Sudan, is of great concern to the former. There are unresolved issues between the two. Additionally, the continued instability in Southern Blue Nile, Southern Kordfan, Abyei and Darfur, which all fall along the fault border lines and the Arab Spring are serious security threats. They pose threats to South Sudan national interests. These threats can easily ignite war between the ex-foes. South Sudan's priorities should be to put more effort and use in its diplomatic, information, military and economic powers to deal with the challenges. In order to achieve those goals, South Sudan must enhance the capacity of security agents to deal with these groups and protect the civilian population, restore confidence, and improve governance.

In the 21st century, domestic security concerns are not separate from broader regional security concerns. They are interrelated. Ones' domestic security affects the sub-region as well. South Sudan's national security strategy should embrace the concept of collective security, one that is based on a real partnership with regional governments in order to enhance security and promote regional trade. Its security strategy should reflect the regional dynamics and work with regional powers to address issues of transnational organizations, drug and human trafficking, and money laundering.

South Sudan's long term national security strategy must be to develop its human capital. The country has a growing and youthful population. This can be a great potential for the country's development, but can also be the greatest source of insecurity to it. Currently, because of protracted civil war in the country, South Sudan faces severe shortages of manpower either because its educated manpower has migrated or an entire generation has gone without proper education. It is a known fact that investing in human capital is a critical determinant for a country's economic growth. In the highly competitive global economy, South Sudan needs to build economic infrastructure that will enable it to compete at key levels. The key ingredient to this is appreciating technological advancement, which remains a daunting challenge to South Sudan, but one it has to engage head-on. To succeed, human capital must one of the first top priorities because an education is a core foundation for a stronger, vibrant civil society, upon which the country's values and national cohesion are based.

Conclusion

The analysis of this study paints a disturbing picture in the future for the Nile basin countries regarding their current and future water demands not only the countries

selected for this study but the entire sub-region. The water demands are extraordinarily high, at the time that the water supply is declining to the lowest point ever in recorded history. There is a general consensus that this is what faces the Nile basin. However, there is no agreement on whether or not such situation can lead countries into war.

It is also evident that both Egypt and Sudan have continued to enjoy their unchallenged rights over the use of the Nile River's water, as accorded to them in the previous water agreements. This is quickly changing with the growing water demands of the upstream riparian countries, which previously have depended mainly on the rain fed agricultural activities for their livelihood. These countries are requesting their fair share of the water. Like Egypt and Sudan, these countries face problems of population growth, food security, urbanization, and irrigation, all of which require higher consumption of water.

In the next fifty years, the population of the Nile basin will double, and their water demands will also double. Countries that will experience significant population increase are Burundi, Egypt, Ethiopia, Rwanda, South Sudan, Sudan, and Uganda. Ethiopia's population increase is predicted to be the highest, reaching 278 million by 2050. Egypt's water demands increasing by 70 percent from the current. The total effect is that demand will well outgrow supplies in the very near future.

The water scarcity in the Nile basin will be severely catastrophic if no attempt is made to deal with the matter. The independence of South Sudan has further complicated the dynamics. There may still be a window of opportunity to address the water stress problems in the region. The Nile basin countries may need to reach an agreement among the member countries to create a legal framework, or build on the Nile Basin Initiative,

which has a broad shared vision program. It aims must be to achieve sustainable socio-economic development through the equitable utilization of, and benefit from, the common Nile basin water resources. Collaborative and integrated water management programs are the only kind that can find an equitable solution to the issue of water rights in the Nile basin.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

This study made four main assumptions in order to be able to answer the secondary and primary questions. The first assumption is that with South Sudan as an independent country, the Nile basin hydropolitics will change dramatically and there will be potential for a real conflict over the water. Tension over the water of the Nile River is well documented throughout history. However, the recent pattern of the tension is unprecedented, which threatens to engulf the entire region into conflict. Water scarcity is blamed for the rising tension.

There is a consistent pattern throughout the study, and general agreement among the experts, that water resource is rapidly declining in the Nile basin. There is, however, sharp disagreement as to whether or not acute water stress can immediately lead to inter-state conflict in the Nile basin. Three schools of thoughts have argued differently. The extreme right school views that conflicts over water are real. It is not 'if' but a matter of 'when' before inter-state conflicts occur, especially in the Nile basin. This school assumes that water security has replaced what is traditionally referred to as high politics. The left wing school of thought believes that water scarcity does not necessarily lead to an immediate war and it downgraded the water scarcity problem to only a political destabilization factor that may lead to political tensions and hinder sustainable development. This school further holds the view that war scarcity may not be a major factor that drives states to war; instead, water which is considered low politics may become embedded in the high politics to cause war. The third school has taken a

moderate view. It cautiously argues that while there exists a window of opportunity for cooperation over the use and management of the water resource, time appears to be running out and if states will refuse to cooperate to share water resources equitably and responsibly. this may lead to inter-state war. This position has also been held by politicians in the Middle East, including the World Bank, whose former deputy director, once stated that if the wars in the last century were fought over oil, the 21st century wars will be fought over water . These predicaments appear to be unfolding in the last 100 years that inter-state wars over water are likely to occur.

The existing data reveals that over the last 100 years, the flow of water into the Nile basin has fluctuated from 1,100 BCM in 1870 to 81 BCM in 1996. There are multiple factors that have come into play: the human activities along the Nile basin, excessive agricultural activities, construction of new dams, and climate change. Climate change had a direct impact on the region. In addition, the water distress is further compounded by the alarming population growth out of the Nile basin.

The study also finds that the Nile basin is experiencing an extraordinary population. Currently, its population is about 300 million, representing more than a third of the continent's population. It is further predicted to reach to about 700 million, doubling the current population by mid century. This represents more than the entire population of USA, with the populations of United Kingdom, France and Germany combined. This will exert more water stress. The significance of this is that while the water supply continue to dwindle, its demand is extravagantly rising. This trend may lead competition over the water, subsequently resulting into a potential conflict.

Water Shortage: Current and Future Water Demands

As water supply declines, this study reveals that water demand is exceptionally high throughout the Nile basin. The analysis of current and future water demands of the countries under investigation shows an alarming but consistent result with the findings of the other studies. As noted elsewhere, the Nile basin countries will experience population growth, especially in countries such as Burundi, Egypt, Ethiopia, Rwanda, Uganda, and South Sudan. A new trend is that most of these countries that will experience population growth are those, which previously depended less on the water of the Nile River. According to the findings of the study, this is expected to change as mostly rain fed countries will be forced to use the Nile water because the rain water is no longer sufficient to meet all their water demands.

The findings of this study also confirms that while water shortages affect every country in the region, both Egypt and Sudan continue to enjoy lion's share of the Nile. Egypt's current water demand is 82 BCM per year, sufficient for its current population of about 81 million. The analysis of Egypt's population and water demand predicts that its population and water demand are expected to reach 138 million and 140 BCM respectively by 2050. This is an increase in water demand by more than 70 percent in the next half century. On the other hand, Sudan's population and water demands are expected to even increase further because portion of its share of water is to be divided between it and newly formed South Sudan. In 2003, Sudan had already announced that it had a water deficiency, and it declared that it needed about 32 BCM for its agricultural and other essential uses. This water demand becomes critical for Sudan after it lost 75 percent of its oil revenue to South Sudan. According to the findings of this study, Sudan's current

water demand is 40 BCM. This is expected to rise to 80 BCM by 2050 when its population reaches 67 million.

Ethiopia has emerged as a challenger to oppose Egypt and Sudan's traditional dominance over the utilization of the Nile River water. It has become the leader in upstream riparian countries that have called for equitable and responsible utilization of water amongst the Nile basin countries. The Blue Nile contributes 86 percent of the total annual flow to the Nile River flows from Ethiopia. However, its annual water withdrawal per capita is only $40m^3$ compared to Egypt and Sudan whose per capita are $1,013m^3$ and $1,897m^3$ respectively. This has changed over the past few years. Ethiopia experiences the same challenges as other countries in the basin: rapid population growth, persistent drought and famine, and increased urbanization. To meet the demands of its growing population, it has embarked on the process of diversifying its economy, which includes policies to modernize its agricultural sector. increasing its water demand becomes a critical issue for Ethiopia.

Based on the findings of this study, Ethiopia's population growth is the fastest in the entire Nile basin, with the population projected to reach 278 million in 2050. The water demand is estimated to be 11 BCM for the period of time. Obviously, the water demand falls too short to meet the demand of the population of 278 million. Furthermore, the study finds that Ethiopia has embarked on major dam construction projections for irrigation. Some of these dams include Megech and Ribb dams that would irrigate 16,000 ha and 19,000 ha respectively. This means that the flow of water to the Nile River will be reduced significantly.

South Sudan's independence in July 2011 changed the dynamics of the hydropolitics of the Nile basin, and caused panic in the lower riparian countries. Its existence as a sovereign state has a direct impact on both Egypt and Sudan. This means South Sudan will negotiate for its share of the water from Sudan. Moreover, its huge geographic area within the Nile basin , where the entire White Nile's tributary systems form or confluence as one of the major tributaries of the Nile River, makes South Sudan significant. Additionally, the Jonglei Canal Project increases the significance of South Sudan.

With the population estimated to be 15,000 million, South Sudan's current water demand is estimated to be at 17 BCM. According to the study, South Sudan's population is expected to reach 30 million, and the water demand is expected to reach 35 BCM by 2050. It is important to stress that if South Sudan's per capita water usage rate remains the same and growth stabilizes, the water demand can remain as it is projected now. It also depends to what extend South Sudan would embark on large scale agricultural projects and other non-agricultural economic sectors in the next fifty years. The final analysis is that water demand may stay constant or increase as changes occur in the essential variables.

The water demands for other upstream riparian countries such as Burundi, Rwanda, and Uganda have increased significantly as well. They face similar challenges to their northern neighbors. While in the past they depended on the rain fed waters, rain water alone can no longer sustain the agricultural economies in these countries. Three of the countries are predicted to experience rapid population growth. The study also finds that the total annual water withdrawals per capita of these countries are the lowest

Rwanda, $10m^3$; Uganda, $13m^3$; and Burundi, $37m^3$, respectively in the Nile basin. Rwanda's per capita is 100 times less that Egypt's annual withdrawals. Although water demands for Burundi (0.3 BCM) and Rwanda (0.1 BCM) are not significant as compared to that of Egypt and Sudan, the demands are projected to reach for Burundi (1 BCM) and Rwanda (0.3BCM) by 2050. While not a significant increase, is serious with the current declining water flows that the region experiences. If these countries move to high rate agriculture to grow their economies, as expected, then demand will increase greatly.

Uganda's water demand has recently experienced a significant increase recently. Its current water demand of 0.4BCM is slightly higher than those of Burundi and Rwanda. By 2050, the population is estimated to be 128 million, and projected water demand will reach 1.7 BCM. Recently, Uganda has introduced robust agricultural policies aimed to reform and modernize that sector. It plans to transform completely underutilized arable land into large scale mechanized agricultural farms. Apart from large scale irrigational schemes, Uganda has the ambition to become an industrialized and urbanized country. This ambition would only drive Uganda to increase its water demand for now and for future.

Legal framework in the Nile basin

The second assumption is that South Sudan is more likely to seek cooperation among the Nile basin countries than pursue an independent approach. This study endorses that this may be the best option for water management. Generally, the study confirms that the Nile basin does not have a water agreement that governs water resource management amongst its member states. What does exist are the two bilateral agreements, the 1929 and the 1959 agreements, which was basically the review of the

former agreement, allocating the water shares between Sudan and Egypt. It completely ignores other upstream Nile basin countries. The evidence is clear that the lack of a cooperative legal framework has been the bone of contention. The legal stalemate in the Nile basin does not mean that there are no legal frameworks on international water course. This is quiet contrary, there exist several legal bases upon which a water sharing and management framework can be modeled. The community of co-riparian states (community of interest theory) advocates for collective rights to river resources and should be the basis of any legal agreement. It is based on the idea that the rivers and the international drainage systems form a common geographic and economic entity beneficial to the states, requiring agreement on implementing the doctrine of equitable utilization. The community of interests' theory is premised on the belief that integrated management is the most efficient approach to water course management. It requires collaboration and creation of institutions to implement these joint policies. It is not the option chosen by Egypt and Sudan which has caused a lot of pain and stress to the Nile basin.

The Nile Basin Initiative is the most viable legal framework to resolve the Nile basin's outstanding dispute over the use of the River Nile. It not only deals with legal issues, but is a shared vision to achieve sustainable socioeconomic development through the equitable utilization of the Nile basin water resources. Although the Initiative took a setback in 2010, it must be revived because is the only institution that provides opportunities to dealing with water problem in a cooperative manner. The NBI with the exception of several key protocols, has the support of the member states and that of

international community, it therefore provides the best vehicle for cooperation among the Nile basin countries.

South Sudan's National Security

This study assumes that the issues of water resource will dominate national strategies of the Nile basin countries in this century and beyond. The findings of the study also confirm this assumption. Broadly, South Sudan's national security strategy is analyzed mainly through the lenses of realism and liberalism theories. As mentioned before, South Sudan's national security strategy will be dominated by domestic politics and other associated factors. Domestically, the new country has to deal with issues of water demand for its use, other factors of insecurity, establish strong institutions of governance, and deliver essential services to its people. Externally, South Sudan will be preoccupied with its relations with Sudan. Furthermore, South Sudan also needs to set its priorities with sub-Saharan Africa and the international community. It is expected that South Sudan's national security strategy, at least for the next few years, will be based around its immediate vital interests, which can be summarized as: protection of its people and their property, water resources, oil infrastructure, and armed militia. These interests are not static. Priorities change and evolve, but are driven by the strategic environment. As a new country, South Sudan faces asymmetric security concerns. Some of them are internal security concerns, while others are externally influenced. South Sudan's national security strategy is reasonably expected to be dominated by domestic security concerns. This study identifies five factors that pose serious security threats. As mentioned before, these factors can operate separately, or in pairs, or all of them interacting together to cause instability.

The changing strategic environment in the Nile basin, particularly between South Sudan and Sudan, is the pressing security concerns of South Sudan. There are many unresolved issues between the two. Additionally, the continued instability in Southern Blue Nile, Southern Kordfan, Abyei and Darfur states, which all fall along the fault border lines and the Arab Spring are serious security threats. They pose threats to South Sudan's national interests. These threats can easily ignite a war between the ex-foes. South Sudan's priorities should be to put more efforts in its use of its diplomatic, information, military and economic powers to deal with the challenges. In order to achieve those goals, South Sudan must enhance the capacity of security agents to deal with these groups and protect the civilian population, restore confidence, and improve governance.

In the 21st century, domestic security concerns are not separate from broader regional security concerns. They are interrelated as one's domestic security affects the sub-region as well. South Sudan's national security strategy should embrace the concept of collective security, the one that is based on a real partnership with regional governments in order to enhance security and promote regional trade.

South Sudan's long term national security must be develop its human capital. The country has a growing and youthful population. This can be a great potential for the country's development, but it can also be the greatest source of its insecurity. Because of protracted civil war in the country, South Sudan confronts severe shortages of manpower. Either because its educated manpower has migrated, or the entire generation has gone without a proper education. It is a known fact that investing in human capital is critical determinant for country's economic growth. In the highly competitive global economy,

South Sudan needs to build its economic infrastructure to enable it to compete at different levels. A key ingredient to this, is leveraging technological advancement, which remains a daunting challenge to South Sudan. To succeed, human capital must be one of the first top priorities because an education is a core foundation for a strong, vibrant civil society, upon which a country's values and national cohesion are based.

Recommendations

As stated elsewhere, one of the compelling findings of this study is that increasing demand on Nile River water is a vital national interest of South Sudan. Evidence has consistently shown that the Nile basin is at its greatest level of water stress. This has prompted countries to redesign policies that are aimed at addressing the emerging challenge. If this phenomenon is not dealt with in a manner that it is acceptable to all countries, it may trigger a sub-regional war.

Another significant finding is the current strategic environment in the region, in particular South Sudan's strategic security analysis attached in Appendix A. This subsets of factors can interplay independently or combined, but remains closely interrelated to water security in the Nile basin.

Furthermore, South Sudan is a vital country in the Nile basin because of three main reasons. First, its geographic location within the Nile basin is critical only second largest after Sudan in terms of its total area within the Nile. Second, the tributaries of the White Nile either forms its confluence in the country, and its total annual contribution to the Nile River is estimated to be 23 BCM per year. Finally, it covers an area of about 30,000 sq km. The Sudd has become critically significant due to the amount of the water lost in the area. This then relates to the Jonglei Canal Project aimed at reducing the water

evaporation by 20 BCM of the annual flow of water to the Nile. In the face of this uncertainty, this study recommends a number of actions both at domestic or national, and regional and international levels.

National Level Actions

1. South Sudan does not have laws that can effectively manage water resources domestically. It should move quickly to legislate appropriate national water laws. It should also create institutions or forums in which issues of water resources within its territory are discussed based on the existing international legal systems for dealing with international water systems.
2. Conduct a comprehensive water demand study for South Sudan by identifying a number of agricultural projects, both short and long term, incorporating other essential economic activities , as well as safe drinking water and urban sewage systems.
3. Project general population growth trends in the country, and urban population growth in major cities to understand urban water demand.
4. Conduct feasibility studies to assess economic benefits and environmental impacts on the Sudd region.
5. Conduct an extensive research on the Jonglei Canal Project, assessing both its economic viability and the negative impacts on communities in its area, the people’s livelihoods, and ecosystems of the area.

Regional and International Level

1. South Sudan needs to work to build strong diplomatic and information institutions to enhance its capabilities to argue its case in the international forums. One of the important steps in this direction is to train experts in the area of water management, negotiation skills, and information operations within South Sudan and outside of it.
2. The only viable option in the Nile basin is to encourage cooperation amongst the states for equitable distribution of the water of the Nile River based on the existing International Law on International Watercourses. South Sudan signed the Nile Basin Initiative Protocol. This is a meaningful forum through which South Sudan can pursue its interests in the Nile Basin. Need to make a focused effort on getting Egypt and Sudan to sign it.
3. Building a strong framework for a water policy requires funding. Therefore, South Sudan needs to mobilize international support and funding to develop infrastructures so as to enable it carry out the required feasibility studies.
4. South Sudan still lacks expertise-based knowledge. It is critical that it develops hydrological and hydraulic knowledge both at the scientific and policy levels. This knowledge gap is decisive and effects both policy and decision-making processes.
5. Claim for legal principles by becoming a signatory to a major international laws, especially signing the international legal principle of equitable and responsible utilization of water as founded in the UN in 1997.Convention on International Water Courses and other related laws.

Future Research

While most of the findings are consistent with the fact that the annual water flows to the Nile River is declining at a fast high rate and that demand for it is increasing. Two key factors emerged in the study. These are: lack of updated information or data on the total annual flow to the Nile River and the accurate data on the water demand of the upstream riparian countries. The problem with the current data is that the current water demands for both Egypt and Sudan already exceed the total annual flow to the Nile River. This excludes water demands of the other upstream riparian countries. There are still unanswered questions out there. Therefore, studies are needed to study and understand what is the exact amount of annual flow of the water to the Nile River, including those of the upstream riparian countries and what are the current demands on it. Such studies will help in projecting water demands in future, and understand water shortfalls. Data of this nature is critical for any effective water management and policy making process.

The Sudd region presents huge challenges and opportunities for South Sudan and the entire Nile basin countries. It can save an additional 20 BCM to the Nile basin community, if the Jonglei Canal Project is resumed and completed, and shared common projects are established on it. It also has a potential to divide states even deeper, if a hegemonic tendency continues to dominate politics of the Nile basin. South Sudan has a bigger stake in all of this in terms of environmental impact and economic benefits. Therefore, this study recommends the need for a new series of research study to assess economic benefits and overall environmental impacts. Findings of such research would help leaders in the decision-making process.

The most persuasive lesson to take away from this study is that with the overwhelming evidence of the water decline, and unprecedented rise in the water demands, the Nile basin countries has to form a cooperative and collaborative framework. One that can create a common geographic and economic entity beneficial to all states. This type of cooperative framework must be premised on the doctrine of equitable utilization of water which believes that integrated management is the most efficient approach to water course management which requires collaboration and the creation of institutions to implement joints polices. This is the way to go and the best option at this time of harsh water scarcity in the Nile basin.

APPENDIX A

SOUTH SUDAN'S STRATEGIC SECURITY ANALYSIS

Appendix A provides an overview of South Sudan's strategic security analysis. While water security will remain a dominant factor, other emerging strategic security issues combined with water security are pertinent to South Sudan's national security strategy.

A range of issues remain unresolved between south and north, including oil, citizenship, debt payment, and the demarcation of 2,000 km long stretch of the international boundaries, and most importantly the Abyei region. Even within united Sudan, the border issue has never been resolved. Understandably it is linked to the strategic resources. Oil was discovered in South Sudan in 1978. Soon after the announcement was made, the regime in Khartoum attempted to re-draw the new border lines by curving the oil rich area into Sudan. This resulted into massive riots throughout South Sudan; and one of the causes of the Civil War in Sudan.

The 2005 Comprehensive Peace Agreement (CPA) that ended the Africa's longest conflict war called for the demarcation between the south and north.[158] The demarcation of the south- north border as it existed on 1 January 1956, the day Sudan got its Independence, was significant for two reasons: to confirm the exact territories between the two, and to facilitate the implementation of the 2005 CPA, especially the population census, voter registration, and deployment of Sudan People's Liberation Army (SPLA)

[158]International Crisis Group, "Sudan: Defining the North–South Border," *Africa Briefing*, no. 75 (2 September 2010), 2.

and Sudanese Armed Forces (SAF) [159] Subsequently, the Technical Border Committee was formed by the Presidency, to be supported by national and international experts.[160] Due to political unwillingness, the committee's work has not been supported. Therefore, a stretch of about 2,000 km is not only demarcated, but has increasingly become areas of disquiet between the two countries.

The south-north border has to be seen in a broader socio-economic, political, and military context. For this reason, the issue of demarcation is not only the re-drawing of the borders; it is intrinsically linked to political influence, alliances, and competition over the valuable resources that seemingly stretch themselves along the faulty border lines. There are several areas that are disputed, but according to the Report of the Technical Border Committee (TBC), five stand out to be border flash points: Renk or Jabaleen (in Upper Nile State), Megnesis (borders both Upper Nile State, South Sudan, and Southern Kordfan, Sudan), Kaka (Upper Nile State, South Sudan, and Sudan); and Kiir Kau (in Bahr El Ghazal State, South Sudan, Southern Kordfan, Sudan). Each of these places attaches uniquely some strategic significance to both countries. For example, in Renk and Jabaleen, it is a home to a number of Arab nomadic tribes, who are mainly from Sudan's White Nile State. In addition, Renk is an arable land that can be transformed into a large mechanized agricultural project.[161] Kafia Kingi lies in the northern tip of Western Bahr el Ghazal State sharing a long border with Sudan's troubled state of Southern Darfur. It also shares an international border with Central Africa Republic (CAR). Kafia Kingi is

[159]Ibid., 2.

[160]Ibid., 5.

[161]Ibid., 9.

important, primarily because of its strategic location at the border of South Sudan, Central Africa, and Darfur. There are a lot of mineral resources such as copper deposits, timber, wildlife, grazing land, and more possibly other high valued minerals like uranium.[162]

Apart from natural resources, Sudan's interest is to maintain its influence in the region, especially in South Sudan. Two of the most unstable states in Sudan are Southern Darfur and Southern Kordfan (conflict in this region will be discussed in the faulty borders); they divide the 2,000 km long stretch of border between themselves. There are three major themes of Sudan's security concern in the areas. First, both Darfur and Southern Kordfan have both degenerated into insecurity as early as 2003. Others would argue that the history goes beyond this period. Whatever the fact is, Darfur has become an unstable state hosting different insurgent groups, some of them are pro-Khartoum regime, while others are against it. Foreign insurgencies have found Darfur to be a safe haven.

It has become a breeding space to organize, train, and launch attacks against their own governments from bases in Darfur. Although Sudan-Chad relations have improved recently, in the past, each of them has conducted wars of proxy by supporting each other's insurgencies. The Khartoum regime wants to ensure that its vital interests in the region are not undermined. Secondly, that triangle border region, including CAR, South Sudan, Sudan and Chad, share a great deal of commonalities. They are poor and less developed, and to some extent share ethnic similarities. Sudan's ground strategy is to

[162]Ibid., 11.

[162]Ibid., 9-10.

maintain its political, economic, and military influence in the region, Chad in particular. The recent Sudan-Chad relations has witnessed great improvement. Consequently, the two countries have signed a number of bilateral treaties. This can be explained as Sudan's ambitions to expand its influence in the heart of Central Africa, and also building new alliances outside the Arab world. Sudan's economic interest is also in play. After the secession of South Sudan, Sudan lost 75 percent of its oil revenue.[163] On the other hand, Chad is producing oil. At the moment, Chad's crude oil is transported through Cameroon to the port at Kribi. Although, there is no indication that Sudan may be wooing Chad to use its oil infrastructure, definitely, there seems to be something in play. If a meaningful agreement is not reached between South Sudan and Sudan, and in future the former decides to use different options for transporting its oil to the global market, Sudan's pipeline may be become economically marginalized.

Finally, Sudan is worried about the presence of anti-Khartoum forces in Juba, especially, Darfur groups. Khartoum has accused the government in Juba of supporting and harboring these elements. The claim is vehemently rejected by the Juba government. On the other hand, South Sudan has accused Khartoum of supporting militia groups that are causing insecurity. In all of this the, Sudan government wants to protect its lines of communication with its paramilitary and militia groups, who are mainly formed from Arab tribes. For example, most of the Sudan's Janjaweed Militia is comprised of Messiriyya, Baggara, and other Arab tribes come from Darfur and Kordfan States. To put

[163]International Crisis Group, "South Sudan: Compounding Instability in Unity State," *Africa Report* no. 179 (17 October 2011), 3.

it differently, these regions that fall between the seams of the border areas border are the regime's strong paramilitary constituent that the government cannot afford to abandon.

South Sudan: Militia Groups within Borders

South Sudan faces a number of internal security threats that many argue, if not addressed, may drag the new country into vicious cycle of civil war. They include long standing splits within the South Sudan leadership, ethnicity and fear of dominance, interferences in South Sudan's affairs by northern Sudan, and militarization in the form of militia groups in South Sudan, among others. This section analyzes the role militia groups play in destabilizing South Sudan with a view towards a wider regional security implication.

History of the post-colonial Sudan indicates that militias are deeply rooted in the country's contemporary history. Their politics and existence cannot be ignored any longer The successive regimes in Khartoum and the Sudan People's Liberation Army used a militia counterinsurgency strategy to fight the wars. The use of these groups has become more sophisticated overtime from protecting traditional homesteads and livelihoods to multifaceted roles, to include being used by politicians.[164] For example, evidence consistently indicates that political influence or interference often transforms tribal groups to into formidable fighting forces, in most cases based on clan, ethnic or tribe, region and political orientations.[165] This appears to be the case in South Sudan where militia groups have been organized, trained, facilitated financially and logistically

[164]J. Young, "Study of Ethnic Conflict Along Sudan, Ethiopia and Eritrea," (2005), 18.

[165]Ibid.

and then directed to conduct cross-border raids or even establish permanent bases across the borders inside South Sudan.

During the entire period of Sudan's civil war, the Greater Upper Nile states were the homes for pro-Khartoum groups. The United Nation's report estimated that by the time CPA was signed about twenty three different militia groups were operating from various locations in South Sudan.[166] Of that number 78 percent (13) different militia groups operated from the Upper Nile and Unity states (previously the two states were one state, known as Greater Upper Nile); 13 percent (3), about three different groups, operated from Bahr El Ghazal state; and 9 percent (2), different groups, operated from Greater Equatoria (now spilt in to three states). These figures reflect the extent to which South Sudan has been militarized, but also the security challenges that the government of South Sudan has to deal with.

The number of these groups dropped significantly after the signing of Juba Declaration in 2006. The Juba Declaration is the Agreement signed between SPLM and Southern Sudan Defense Forces, (SSDF), an umbrella organization for different militia groups that opposed the SPLM during the civil war. Basically, the Juba Declaration provides a framework for the integration of all militia groups into the SPLA. The strategy is aimed to promote reconciliation and national dialogue amongst different South Sudanese military and political leaders. The integration of the militia forces has not been an easy exercise. Generally, South Sudanese viewed this as a positive step to unite the people of South Sudan. To them, this is worth doing for peace and prosperity in the

[166]UN Mission in Sudan, CPA Monitor, annex 20, http://unmis.unmissions.org/portal/UNMIS/CPA%20Monitor/Annexes/Annex%2031%20-%20OAG-SSDF%20after%20Juba%20Declaration%20-%200607.pdf (accessed 24 April 2011).

country.[167] The down side of the integration process is that it has never created cohesion or professionalism in the SPLA. The integration of the SSDF brought into the SPLA armed groups and personalities who were not core members of the SPLA.[168] Some of these groups are politically motivated with their own political agenda. Others may be working for Sudan. This caused the SPLA to become a conglomerate of armed groups and warlords with different political agendas. This has not only weakened cohesion in the SPLA, but impeded the transformation of it.

By 2008, most of South Sudan's armed groups had integrated into the SPLA, with few that maintained their allegiance to northern Sudan. A new pattern is being observed regarding the politics of militia groups. Over the last year, some of the SSDF leaders who had integrated with their forces had left the SPLA, went to Khartoum and declared a rebellion against the government of South Sudan.[169] Since April 2010, eight (8) different groups declared rebellion against Juba. Of the eight (8), six (6) groups have accepted the amnesty given to them by the President of South Sudan. Two (2) groups have refused the amnesty.

There is not only a very clear pattern but also a correlation to the current militia groups and those during the civil war in relation to geographic base, ethnicity and leadership. A significant pattern is that 88 percent (7) of the groups operate from the Greater Upper Nile (now split in to three states: Upper Nile, Unity and Jonglei states),

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[167]Andrew Atta-Asamoah, "South Sudan: Origins and Implications of emerging (in) security dynamics," Institute for Security Studies (29 July 2011), 1-10.

[168]Ibid.

[169]Ibid.

with four militia groups in Unity State. 50 percent (4) of the leaders of the militia groups are ethnically Nuer. Another 50 percent (4) of the leaders of the group are from different ethnic groups: two from Dinka, one each from Murle and Shilluk ethnic groups. Another clear pattern is that all the militia groups, with exception of one, operate from the state that falls within the fault border lines with the northern Sudan. This raises a question: what is the role of northern Sudan in supporting the South Sudan's militia groups?

The Greater Upper Nile has been the region of great interest in the south- north relations. Unity State is the center of gravity in all what is occurring around it. In a recent report by the International Crisis Group, it states: "Unity State confronts a set of challenges unparalleled in South Sudan. Some exemplify concerns that register across the emerging republic; others are unique to the state. Situated abreast multiple frontiers, its political, social, economic and security dilemmas make a perfect storm"[170] This statement depicts the complexity of a real challenge not only for the state but the country at large.

Unity State is situated in a strategic location and is a primary source of the country's economic life-blood.[171] Because of its subterranean resources, it became an epicenter of Sudan's civil war that pitted national forces, border area proxies, South Sudan rebels and its own ethnic Nuer clans against each other.[172] Sudan's government successfully used this strategy in the past. It pitted groups, including the Nuer clan

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[170]International Crisis Group, "South Sudan: Compounding Instability in Unity State," *Africa Report*, no. 179 (17 October 2011).

[171]Ibid.

[172]Ibid.

against each other; while it exploited the resources. This time, the strategy is to create instability in the state in such a way it becomes ungovernable. Oil infrastructure can be targeted or disrupted affecting its production. South Sudan is entirely dependent upon it for its economic existence. Stopping the flow of the oil would bring down the government and create instability. As usual, this strategy is realized by border-area proxies, pitting people against Juba and ethnic Nuer clans against one another.

The Fault Border Lines between South Sudan and Sudan

The three regions of Southern Blue Nile, Southern Kordfan (also known as Nuba Mountains), and Abyei fall, in what Samuel P. Huntington referred to as the fault lines, between civilizations.[173] The Abyei region is discussed separately in a later section. In Huntington's definition, the clash of civilizations can occur at two levels: micro and macro. First, at the micro level, this is where groups that live along the fault lines of civilizations fight each other, which sometimes, can be quite violent for control of territory and resources. This level represents different ethnic groups both from South Sudan and Sudan. Second, is the macro level, where these are the states from different civilizations. These states are in constant competition for military and economic power. Additionally, they also struggle to control territory and resources, but also to settle old scores. This represents the current status quo between South Sudan and Sudan.

Figure 4 shows the geographic locations of these regions. In fact they are not only contested border regions, but fighting has broken out in these regions since South Sudan became an independent country.

[173]Samuel P. Huntington, "The Clash of Civilizations?" *Foreign Affairs* (Summer 1994): 29.

Figure 4. Geographic Locations of Three contested Areas
Source: BBC News Africa, "Sudan Army seizes rebel stronghold in Blue Nile State," http://www.bbc.co.uk/news/world/africa-15582526 (3 November 2011).

As shown on the map, Blue Nile State lies in the Southeast of Sudan, bordering Ethiopia in the east and South Sudan in the northeast. While Southern Kordfan lies in central Sudan, it strategically borders three states: Upper Nile, Unity and Bahr El Ghazal. It is important to note that Southern Kordfan also borders Abyei. In order to put the conflicts dynamics in these regions into perspective, it is important to pose this question: what is the significance of these regions for South Sudan? Both states have not only demonstrated great attachments to South Sudan, but they share a lot in common with people in the new country. There are several factors that created this reality. They range from historical, racial, cultural, and linguistically, but more fundamentally military and political marriages that existed and developed between South Sudan and the two regions. During the two decades of civil war, people from these regions allied and fought alongside the SPLM/A against the regimes in Khartoum. But when the Comprehensive

Peace Agreement that ended African's longest and bloodiest war was signed, it did not adequately deal with these major political issues in the regions.

One of the major weaknesses of the CPA is its inability to provide an adequate framework for dealing with chronic issues in Southern Blue Nile and Southern Kordfan. The CPA is seen as a model for resolving conflicts in Sudan comprehensively. It provides three major protocols of power sharing, wealth sharing, and the security arrangement in Sudan during the Interim Period. It also dealt with issues of the two regions independently. Southern Blue Nile and Southern Kordfan are fall within the boundaries of northern Sudan, as they stood on 1 January 1956 at Sudan's independence.

The CPA vaguely provides only popular consultations to be conducted in these regions. The popular consultations are a process of elections of people's representatives to assemblies. In turn the elected representatives would determine the types of governance they wanted to adopt on behalf of the people who elected them. This process is supposed to take place in both regions. The CPA did not predict what would happen if these consultations were not conducted democratically and fairly? What would be a mechanism for the integration of SPLA forces from these two regions into the Sudan Armed Forces? How would members of the SPLM from these regions operate? Or how will the SPLM, as a party in northern Sudan, be allowed to operate as an opposition party? What happens if South Sudan secedes? These questions were neither looked at during the negotiation, nor were they addressed during the Interim Period. It can be argued that the CPA did not put emphasis on these issues because its primary objective was on the unity of Sudan, and it was not fully envisaged, at least during the negotiations, that South Sudan would eventually separate.

These unresolved issues appear to have put South Sudan at odds with its old allies. There has been a general feeling amongst the people of these regions of frustration and anger toward South Sudan. It is felt that the issues affecting the two regions was not negotiated well. They feel a sense of betrayal by those who negotiated the CPA. This is the criticism often labeled against South Sudan. Seemingly, the issue of the security arrangement is one of the issues on the list to be negotiated between South Sudan and Sudan. The security arrangement is tasked to design a mechanism where the SPLA forces that are from northern Sudan would be absorbed into Sudan Armed Forces. At the same time, SAF forces that are originally from South Sudan would be absorbed into the SPLA. These negotiations are at deadlock and the future of these forces has been left hanging.

Another significant issue is the ruling party. The SPLM is the party in these two regions. Even during the Interim Period it was one of the vibrant opposition parties in the northern Sudan. It has well organized structures throughout these regions. It only officially divorced itself from the SPLM, and changed its name to SPLM – North after the independence of South Sudan. While SPLM – North is now a different party in another country, it would be hard to imagine to what extent it has transformed in terms of its manifesto, objectives, policies and strategies. Putting it differently, the regime in Khartoum would always view two regions of Southern Blue Nile and Southern Kordfan as South Sudan's allies, and they must be controlled at all costs.

To place a stamp on its authority, Khartoum ensured that the popular consultation and general elections were not democratically and fairly held in Southern Kordfan. Governorship elections were rigged and a pro-Khartoum regime candidate won the seat of governor for Southern Kordfan. Moreover, it ordered forceful disarmament of SPLM –

North forces naming them militia. This action triggered the conflict in Southern Kordfan. Equally, Sudan employed the same strategy trigger in another conflict in Southern Blue Nile. The democratically elected governor of the state was dismissed and military operations ensued.

The nexus of Southern Blue Nile, Southern Kordfan, and Abyei is an interesting regions lying on fault lines. They are strategic line of communications for support of its militia. The regime's obvious end game is to either capture South Sudan's oil fields along their common border, or achieve a stronger negotiating position on shared oil revenues and border demarcation, as well as attempting to provoke South Sudan into restarting war.

The potential is high for the existing proxy conflict between Sudan and South Sudan to spill over into a full-blown war. The regime in Khartoum is growing more desperate over lost oil revenue, skyrocketing commodity prices, increasing armed and unarmed opposition, and regional pressures related to the Arab Spring. It is prepared to return to war with the south to deflect attention from these serious internal problems. South Sudan should not take the bait, but out of concern for its survival as a nation, it needs to see that the international community is willing to respond with more than just statements of concern.

Abyei Region

Abyei is another flash point between South Sudan and Sudan. It is oil rich area strategically located between Northern Bahr El Ghazal, Warrap and Unity states in the

south, and Southern Kordfan to the north.[174] Its inhabitants are ethnically Dinka, and belonging to nine chiefdoms of Dinka Ngok from South Sudan. Historically, Abyei was annexed to Southern Kordfan in 1904 by the British colonial power. The argument for the annexation of Abyei was that it is closer to the northern Sudan than South Sudan; and therefore because of its proximity it could be served better administratively if it were to be administered from South Sudan. This argument is contentious because Abyei is home to the Dinka Ngok and Messeriya Arabs. The latter migrate seasonally in search of water and grazing land, but are not permanent inhabitants of the area.

Abyei has always been contentious area for very many years. Polarization between the two began during the first civil (1955 – 1972), but a new dynamic was added to it after oil was discovered in 1979 when the regime in Khartoum attempted to push border lines deeper southward to curve Abyei into Northern Sudan. The CPA provides Abyei a special administrative status. Its administration was under the presidency.[175] It also provides a separate referendum to be conducted concurrently with the January 2011 referendum in South Sudan to decide whether people of Abyei would want to continue within the north or become part of south.[176] The provision was never implemented because of disagreement between the NCP and SPLM.

The boundary has been the sticking point of the disagreement. In recognition of this fact, the CPA provides for the formation of the Abyei Boundary Commission (ABC). It was assigned responsibility of defining the boundary. The ABC submitted its report to

[174]International Crisis Group, "South Sudan," 10.

[175]Ibid.

[176]Ibid., 13.

the Presidency with recommendations that gave Abyei to South Sudan. This also meant that a significant percentage of oil reserves that lie beneath it would belong to South Sudan. The NCP rejected this and never implemented the ABC's recommendations. After the impasse in negotiations over Abyei, the parties (being the SPLM and NCP) took the case to the Permanent Court of Arbitration (PCA) in 2008. Consequently the Abyei Tribunal was formed. The PCA made its ruling in 2009, which reduced the size of the area set forth by the ABC, but still awarded Abyei to South Sudan.[177]

Although the parties gave reassurance that each one of them would abide by the ruling of the Court, its decision has not been implemented. Instead, the region has experienced violent conflicts. So, what is the Sudan's interest in Abyei? Historically, the significance of the place has all along been about oil and the Greater Nile Oil Pipeline that passes through Abyei.[178] Other dynamics have emerged, though. Local Misseriya people, who have been very strong allies of Khartoum, feared separation of South Sudan. Loss of Abyei could mean loss of water and grazing rights as well as community rights, therefore threatening their way of life.[179] There are more politics to this than just being the case of accessibility to vital communal resources such as water and grazing land. The authority in South Sudan has allayed the fear that the Misseriya pastoralist community will always be allowed to have access to the resources as they have enjoyed for years. Furthermore, Abyei is an important corridor for Sudan's counterinsurgency strategy in South Sudan. During and after the conflict Sudan has used the area as a base for its

[177]Ibid.

[178]Ibid.

[179]Ibid.

paramilitary and militia groups to launch attacks inside South Sudan. In other words, Abyei remain a flash point.

South Sudan and Geopolitics

Analysis of the current strategic environment indicates that potential future conflicts in South Sudan are more likely to be caused by regional security dynamics than internal factors. The sub-region known as the Horn of Africa, but also linked to north Africa, originally consisted of countries of Djibouti, Eritrea, Ethiopia, Somalia, and former Sudan.[180] Due to its geopolitical location, East African countries like Kenya, Tanzania, and Uganda were added to the sub-region. Furthermore, the entire Great Lakes Region, whose countries are Burundi, the DRC, Kenya, Rwanda, Tanzania, and Uganda has also been included. The sub-region is now known as the Greater Horn of Africa. Although Egypt and Libya are not part of the Greater Horn of Africa, analysis of region is hard to appreciate without with them. Sudan links Egypt, Libya, Chad, and the Central Africa Republic (CAR). One can quickly begin to see complexity involved in maintaining regional security.

The history of the region is complex and hard to contemplate. It is often characterized by a colonial hangover, regional interference in others affairs, cross-border dilemmas, border disputes, competition over resources, and competing ideologies inherited from the Cold War, and protracted civil wars.[181] For example, countries in the Horn of Africa have used proxy wars against neighboring countries. Ethiopia has claimed

[180]Hultin, 44.

[181]Ibid.

that Eritrea supports the al Shabab in Somalia. Kenya is claimed to have given support to rival groups in Somalia. Successive regimes in Khartoum had supported Ethiopia's insurgencies in 1990. Khartoum and Kampala were reported to have supported each other's insurgencies. And Sudan and Chad also supported insurgencies opposed to each other's regimes at different points in times. This pattern of insecurity has not only occurred but thrives as well in the sub-region.

The Arab Spring

A new pattern of security threat is the Arab Spring that has swept throughout north Africa. This has far reaching implications not only to the Arab world but its neighboring countries such as South Sudan. It is not clear how things will eventually turn in these countries. Egypt, the most powerful country in the sub-region, is going through a complete political transformation. Result of such processes remain unclear whether a democratic and secular government would be elected in Egypt or the Muslim Brotherhood will take over the government. It is being predicted that the Muslim Brotherhood may win the general elections in Egypt because they are well organized. Ascendence of the Muslim Brotherhood in power in Egypt could mean radicalism and imposing Sharia law in the country. If this assumption becomes reality, what then would be the impact of such regime change in Egypt on its neighboring countries?

As Egypt's the next door neighbor, the end of 42 years of Mummer Qaddafi's regime opens the door for a new dawn in Libya.[182] This has opened the way to the

[182]International Crisis Group, "Africa without Qaddafi: The Case of Chad," *Africa Report* no. 180 (21 October 2011), http://www.crisis group.org/en/regions/Africa/central-africa/chad/180-africa-without-qaddaf (accessed 2 November 2011).

introduction of democracy into the country. However, it can also be argued that Qaddafi's fall has left the country and its neighbors facing a multitude of potential new problems that could further threaten stability in the region.[183] There has been a sense of relief to the international community that the world is better off without Qaddafi. But reports of infighting amongst different groups in Libya are concerning many. Even more alarming is a concern that whether those who started the revolution would prevail at the end, or it would be hijacked by Islamic extremist groups. To prove this point is the recent statement made by the Chairman of the National Transitional Council (NTC) in which he said that Libya will be ruled by Sharia law.

Another significant point is Qaddafi's legacy on the immediate neighbors and the sub-region. His role in supporting insurgencies in Africa is well known. He has supported insurgencies to topple regimes at different times in Chad; but at times he mediated in Chadian conflicts. He used the same strategy in Sudan. With him gone and his militia groups at large, areas at the Sudan-Chad-Libya borders will become safe haven to yet other armed groups, hence compounding regional instability even further.

If the events unfolding in Tunisia, Egypt, and Libya become derailed, they should be considered serious security concerns. It appears there is a clear pattern emerging here: if Libya is governed by Sharia law, an Islamic Party is said to have won elections in Tunisia and in Egypt, there also appears to be a general agreement that the Muslim Brotherhood may win the general elections in Egypt. In Sudan, the National Congress Party, which has held out power for more than two decades, has vigorously said it will implement Sharia law in the country. What does this mean for South Sudan? It means

[183]Ibid.

rising of Islamic extremists in power in the entire north African region. Even if Sharia law is not implemented in either of these countries, it portends for an unstable future for the region. The worst scenario would be if all of these countries implement Sharia law. Whether or not these things occur immediately, they are already a recipe for potential conflict

Although not expressed publically, opinion in the Arab world has been that of frustration and anger about the secession of South Sudan. There are different reasons as why much of it opposed the partition of Sudan. For example, Egypt's strategic interest in having a united Sudan is because of its vital interest, which is the Nile River water, and regional security. However, the overreaching goal is the unity of the Arab world. Many in the Arab world believe that the separation has already disfigured the map of the Arab world. There is also a strong feeling throughout the Arab world that the independence of South Sudan was a conspiracy which was orchestrated by U.S. and Israel, whose aim is to weaken the Arab world. In a recent survey conducted in Dubai, United Emirate, three quarters (77 percent) of those interviewed believed that the U.S. and Israel orchestrated the campaign of South Sudan's separation.[184] Another 78 percent of the interviewees agreed that the independence of South Sudan is a great loss to the Arab world.[185] It is not only a loss , but the Arab world's perception is that Israel is poised to gain influence in South Sudan, which is a serious security threat to the Arab World.

A possible South Sudan-Israel relation has been an area of concern to the Arab world. In 2009 the Arab League envoy to Khartoum alleged that Israel and pro-Israel

[184]Shoush.

[185]Ibid.

lobbyists in the U.S. were intervening in the Sudanese affairs by helping South Sudan to secede.[186] Mahmoud Muhareb, in his Article titled "The Secession of Southern Sudan: Risks and Opportunities" criticizes Israel's interference in Sudan. He claims what is occurring is a replication of the David Ben-Gurion doctrine that sought to create alliances with the countries of the Arab world's "periphery", which could then be used against the Arab heartland.[187] For example, in the 1950s and 1960s, this outer belt included countries such as Turkey, Iran and Ethiopia, as well as Sudan and Yemen. Such assertions have put South Sudan well into the spotlight with militant groups such as Hamas, Hezbollah, and other groups. They may perceive South Sudan as a friend to Israel, and hence an enemy to them. In a highly charged tension between South Sudan and Sudan, the latter can use such claims to rally support from the Arab world.

[186]Oren Kessler, "Israel hopes to attain a new African country ally in S. Sudan," *The Jerusalem Post,* 9 February 2011, http://www.jpost.com/International/A...aspx?id=207432 (accessed 23 October 2011).

[187]Mahmoud Muhareb, "The Secession of Southern Sudan: Risks and Opportunities," Arab Center for Research and Policy Studies, English.dohainstitute.org/Home/…/78284b69-d41c-47c3-0445190623b8 (accessed 23 October 2011).

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