

April 2016

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Recommended Citation

Udobong, Edna (2016) "The Rising Conflict on the Nile Waters: Understand its Legal, Environmental, and Public Health Consequences," *Liberty University Law Review*: Vol. 10: Iss. 3, Article 7.

Available at: http://digitalcommons.liberty.edu/lu_law_review/vol10/iss3/7

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ARTICLE

THE RISING CONFLICT ON THE NILE WATERS: UNDERSTANDING ITS LEGAL, ENVIRONMENTAL, AND PUBLIC HEALTH CONSEQUENCES

Edna Udobong[†]

ABSTRACT

There is a proverbial adage that water has no enemy because of the advantages water provides to mankind. The Book of Genesis tells us that the entire earth was dominated by water before man was created. When God made man, He gave him dominion of all natural resources. Of all natural resources, water and air stand out as the most beneficial to humanity. It follows that when the vast wealth of these natural resources, including water, with their potential for economic growth are compromised or ignored, man and nature suffer. Everything and everyone needs water to survive; industries need water for their production. Water is essential to all of human existence. It affects everything positively or negatively depending on its quality and usage. The quality of water and policies surrounding water and its usage are immersed in the benefit it provides the community, the nations it borders, and the world at large. A single act of pollution can generate serious health concerns to millions around the world. The dispute between Egypt, Ethiopia, Sudan, Uganda—riparian States bordering the Nile River—on the usage and rights over the Nile has continued for several decades. Scholars following the conflict have examined the origins of the dispute, commented on recent developments, and provided suggestions for the resolution of the conflicts. The issues range from ownership of water rights to state sovereignty based fundamentally on economic and political concerns. This Article provides an overview of recent developments in the conflict, and examines the legal, environmental and public health consequences of the disputes, concluding with recommendations for the

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peaceful resolution of the conflict in the interest of all stakeholders and peace in the region.

PART I. INTRODUCTION: ORIGINS OF THE NILE RIVER CONFLICT AND
STAKEHOLDER INTERESTS

At 6,695 kilometers (km) long, the Nile River is the world's longest river.¹ It flows through eleven riparian States—Burundi, Democratic Republic of Congo (“DRC”), Egypt, Eritrea², Ethiopia, Kenya, Rwanda, South Sudan, Sudan, Tanzania, and Uganda.³ The inherent value of water necessarily produces legal and political consequences.⁴ The Nile River shoulders the

1. Alice Shih & Trevor Stutz, *Sink or Swim: Abrogating the Nile Treaties While Upholding the Rule of Law*, 43 ENVTL. L. REP. NEWS & ANALYSIS 10786, 10786 (2013).

2. Eritrea has a more distant relationship to the Nile River usage issue. It shares only a small portion of the Nile and has observer status in the 1999 Nile Basin Initiative. The Nile Basin Initiative is a body established to develop the Nile waters in a cooperative manner for the benefit of countries bordering the Nile. See ECONOMIC CONSULTING ASSOCS., THE POTENTIAL OF REGIONAL POWER INTEGRATION NILE BASIN INITIATIVE (NBI) TRANSMISSION & TRADING CASE STUDY 1 (Sept. 2009), http://www.esmap.org/sites/esmap.org/files/BN004-10_REISP-CD_Nile%20Basin%20InitiativeTransmission%20%20Trading.pdf.

3. *Id.*

4. Joseph W. Dellapenna, *Rivers as Legal Structures: The Examples of the Jordan and the Nile*, 36 NAT. RESOURCES J. 217, 245 (1996); Colleen P. Graffy, *Water, Water, Everywhere, Nor Any Drop to Drink: The Urgency of Transnational Solutions To International Riparian Disputes*, 10 GEO. INT'L ENVTL. L. REV. 399, 413 (1998); Christopher L. Kukuk & David A. Deese, *At the Water's Edge: Regional Conflict and Cooperation over Fresh Water*, 1 UCLA J. INT'L L. & FOREIGN AFF. 21, 41-43 (1996); Lee A. Laudicina, *International Water Disputes: How to Prevent a War over the Nile River*, 4 LOY. U. CHI. INT'L L. REV. 235, 236 (2007); Pamela LeRoy, *Troubled Waters: Population and Water Scarcity*, 6 COLO. J. INT'L ENVTL. L. & POL'Y 299, 303 (1995); R. Andrew Lien, *Still Thirsting: Prospects for a Multilateral Treaty on the Euphrates and Tigris Rivers Following the Adoption of the United Nations Convention on International Watercourses*, 16 B.U. INT'L L.J. 273, 295 (1998); Stephen C. McCaffrey & Mpazi Sinjela, *The 1997 United Nations Convention on International Watercourses*, 92 AM. J. INT'L L. 97, 98 (1998); Stephen McCaffrey, *The Coming Fresh Water Crisis: International Legal and Institutional Responses*, 21 VT. L. REV. 803, 806-07 (1997); Stephen C. McCaffrey, *A Human Right to Water: Domestic and International Implications*, 5 GEO. INT'L ENVTL. L. REV. 1, 17-18 (1992); Valentina Okaru-Bisant, *Institutional and Legal Frameworks for Preventing and Resolving Disputes Concerning the Development and Management of Africa's Shared River Basins*, 9 COLO. J. INT'L ENVTL. L. & POL'Y 331, 348-49 (1998); Thayer Scudder, *The Need and Justification for Maintaining Transboundary Flood Regimes: The Africa Case*, 31 NAT. RESOURCES J. 75, 78 (1991); Niveen Tadros, *Shrinking Water Resources: The National Security Issue of this Century*, 17 NW. J. INT'L L. & BUS. 1091, 1102-03 (1996); A. Dan Tarlock, *Four Challenges for International Water Law*, 23 TUL. ENVTL. L.J. 369, 402 (2010); A. Dan Tarlock, *Safeguarding International River Ecosystems in Times of Scarcity*, 3 U. DENV. WATER L. REV. 231, 237 (2000); Ludwik A. Teclaff, *Evolution of the River Basin Concept in National and*

livelihood of 450 million people in one of the most water-deficient parts of the world.⁵ Because it is integral to the region's economic and environmental developments, the Nile "has been the source of life and of conflict in the Nile Basin for centuries."⁶ The transboundary nature of the Nile and the limited water volume creates a unique tension among the dependent States. Political instability, extreme poverty, underdevelopment of the economy, drastic population increase, and poor health conditions contribute further to the tension. Increased degradation of the Nile exacerbated the riparian States' water scarcity issues.⁷ Thus, despite the riparian States' continuous effort to cooperate, the built-up tensions are on the verge of collapsing.

Currently, Egypt consumes about eighty percent of the Nile waters alone.⁸ For more than half a century, this inequitable allocation has raised serious concerns among the rest of the riparian States.⁹ Egypt bases its superior claim to the water on its historical rights and bilateral treaties.¹⁰ However, after all of the riparian States gained independence, the claims of ownership rights to

International Water Law, 36 NAT. RES. J. 359, 367 (1996); Albert E. Utton, *Which Rule Should Prevail in International Water Disputes: That of Reasonableness or that of No Harm?*, 36 NAT. RESOURCES J. 635, 635 (1996).

5. See Ambereen Shaffie, *Arab Spring to Arab Drought: Securing International Cooperation Over the Nile River Basin*, 3 SPECIAL EDITION NEWSL. 23 (2015) (citing Jack Di Nunzio, *Conflict on the Nile: The Future of Transboundary Water Disputes over the World's Longest River*, FUTURE DIRECTIONS INT'L 1 (Nov. 25, 2013), http://www.americanbar.org/content/dam/aba/publications/nr_newsletters/wr/ielc_water_impacts_of_climate_change_june_2015.authcheckdam.pdf). See also *Conflict On The Nile: The Future Of Transboundary Water Disputes Over The World's Longest River*, WATER POLS. (Nov. 25, 2013), <http://www.waterpolitics.com/2013/11/25/conflict-on-the-nile-the-future-of-transboundary-water-disputes-over-the-world-s-longest-river/>.

6. Kristin Wiebe, Note, *The Nile River: Potential for Conflict and Cooperation in the Face of Water Degradation*, 41 NAT. RESOURCES J. 731 (2001).

7. *Id.*

8. Shih & Stutz, *supra* note 1, at 10786.

9. *Id.* at 10786.

10. The Nile Water Agreement was signed in 1929 between Egypt and Britain. In the Agreement, Britain officially recognized Egypt's historic rights in the Nile waters while also recognizing Sudan's needs for more water. Pierre Crabtès, *The Nile Waters Agreement*, FOREIGN AFF. (Oct. 1929), <https://www.foreignaffairs.com/articles/sudan/1929-10-01/nile-waters-agreement>. Sudan was a colony of Britain and subject to its control at the time. After Sudan gained independence in 1956, it engaged in negotiations with Egypt over the Nile water usage. The 1959 Nile Waters Treaty signed by Sudan and Egypt granted Egypt about seventy-five percent of water usage of the Nile, and twenty-five percent to Sudan. See Aaron T. Wolf & Joshua T. Newton, *Case Study of Transboundary Dispute Resolution: the Nile Waters Agreement*, INST. FOR WATER AND WATERSHEDS, http://www.transboundarywaters.orst.edu/research/case_studies/Nile_New.htm (last visited Mar. 21, 2016).

the Nile water usage resurged and the enforceability of the Agreements were disavowed. While riparian States struggle to find a successful joint solution, it is crucial to have regional cooperation for the continuing peaceful co-existence of the Nile Basin States.¹¹

The benefits of the Nile reach far beyond the borders of the countries involved and the disputes it has generated. It exists for the common good of all. However, critical issues relating to the environment, human rights, public health, and water treatment for community usage have received little attention. Thus, this Article will, in Part I, briefly describe the nature and scope of the conflict, background issues pertinent to the conflict on the Nile River, and claims of the riparian States. Part II will examine the legal and political impacts of the conflict, international and regional legal frameworks that address the conflict, and the political and economic impact on the region. Part III will review the environmental, human rights, and public health issues that are fundamental to the use of the Nile and their impact on the people. Part IV will discuss the benefits of resolving the conflict now rather than later, recommending acceptable methods of peacefully resolving the conflict of the Nile River usage for the common good, and concluding that the Nile River conflicts have been a distraction that is impeding needed cooperation in the region for economic development. Part V will suggest possible solutions to resolving the conflict permanently for the benefit and peace of the region.

A. *History of the Nile River Conflict*

The Nile conflict can be traced back to 2900 B.C.¹² Among the riparian States claiming ownership rights over the Nile Waters, Egypt has been the most aggressive in exerting its right and control. Egypt's "effective monopoly over the Nile's resources"¹³ can be traced back to a 1929 agreement from the British colonial era, which granted Egypt expansive riparian rights as well as "veto power over upstream projects."¹⁴ While a 1959 treaty resulted in "a

11. Shih & Stutz, *supra* note 1, at 10787.

12. Wiebe, *supra* note 6, at 733 ("Ancient Egyptians worshipped the Nile and its Mediterranean delta as a god, but as they came to understand the Nile's worldly sources, they pursued military ventures against upper riparian[] [States] to secure the water's flow through their own country. Egypt tried several times to unify the Nile valley under Egyptian rule by conquering their upstream neighbor, the Sudan. The first Egyptian invasion dates as far back as 2900 B.C. The Sudan was invaded during Queen Sheba's reign, Nero's Roman Rule . . .").

13. Jeffrey D. Azarva, *Conflict on the Nile: International Watercourse Law and the Elusive Effort to Create A Transboundary Water Regime in the Nile Basin*, 25 TEMP. INT'L & COMP. L.J. 457, 459 (2011).

14. *Id.*

more equitable allocation of rights”¹⁵ between Egypt and Sudan, the other riparian Nations still had inferior claims.¹⁶ Additionally, population growth among these States has rapidly fueled discontent with the colonial agreements.¹⁷ These States desire ample water rights to “cultivate more arable land and harness the Nile’s hydroelectric potential.”¹⁸ “Egypt has dug in its heels” on the issue of riparian rights.¹⁹

The Nile waters have been redirected and dammed, and silt accumulation has reduced the number of distributaries.²⁰ Industrialization and population growth has caused significant degradation of the Nile.²¹ This has resulted in “serious human health problems, damage to crops and fisheries, . . . human displacement . . . , [and] conflict between nations.”²² Conflict over the Nile has occurred throughout history, such as when “Egypt’s Muhammad Ali invaded Sudan in 1820 out of a ‘desire to secure control over the entire Nile system.’”²³ Ali’s attempt failed, and Egypt came under the control of the British Empire.²⁴ Britain secured various treaties to ensure monopoly of the Nile River, and Egypt still relies on these treaties to establish its superior rights.²⁵

15. *Id.* See *supra* note 2. The 1959 treaty between Egypt and Sudan resulted from Egypt’s plan to build the High Aswan Dam to control the annual flow of the Nile into Egyptian territories. The plan was going to cause environmental problems for Sudan and change life at the banks of the Nile. Thus, the agreement between the countries was to deal with the problem and agree on the full utilization of the Nile waters. See *The Nile River Dispute*, ICE CASE STUDIES, <http://www1.american.edu/tesd/nile.htm> (last visited Feb. 29, 2016).

16. Azarva, *supra* note 13, at 459. The 1959 bilateral treaty between Egypt and Sudan did not include the rights of Ethiopia, Uganda, Tanzania, Eritrea, Burundi, Kenya, Rwanda, or the DRC despite the fact that the agreement allocated all of the Nile waters, and despite the fact that Ethiopia, from which 80% of the Nile water runs, was not consulted. *Id.*

17. Shih & Stutz, *supra* note 1, at 10786-87

18. Azarva, *supra* note 13, at 459.

19. *Id.* at 460.

20. Wiebe, *supra* note 6, at 734.

21. *Id.* at 736.

22. *Id.*

23. Azarva, *supra* note 13, at 465-66.

24. *Id.* at 465.

25. *Id.* at 466-69.

B. Stakeholders' Political and Economic Interests

1. Why Egypt Would Declare "War"

"In 1979, . . . President Anwar Sadat said: 'the only matter that could take Egypt to war again is water.'"²⁶ Despite its superior riparian rights and irrigation as compared to the rest of the riparian States, Egypt "constantly struggles to maintain food security for its growing population."²⁷ Without the Nile River, "Egypt would be a veritable wilderness, a largely uninhabitable desert."²⁸ Egypt's dependency is demonstrated by the fact that its population of almost 82 million lives on 5.5% of its total territory, "a narrow ribbon of cultivatable land" located on the Nile River and Delta regions.²⁹ Egypt's population is estimated to reach 130 million by 2050, which would create "an environmental and demographic crisis[,] . . . exacerbate Egypt's dependence on the Nile, hasten urban encroachment on arable land, and plunge per capita water availability further below the water poverty line."³⁰ One Egyptian think tank predicts that water needs will outstrip resources by 15 billion cubic meters in 2017.³¹

2. Will Ethiopia's Renaissance Dam dry the Nile?

Ethiopia's claim over the Nile spans from its rejection of the 1902 treaty with Britain, which it claims it never ratified.³² Ethiopia's core claim is that the treaty defines borders with Sudan, and does not contain any language that would disclaim Ethiopia's water rights.³³ Even though about 84% of the Nile River's flow originates from Ethiopia, the nation did not utilize this natural advantage until recently.³⁴ Ethiopia is currently building the world's largest

26. Patricia Kameri-Mbote, *Navigating Peace: Water, Conflict, and Cooperation: Lessons from the Nile River Basin*, WOODROW WILSON INT'L CTR. FOR SCHOLARS (Jan. 2007), <https://www.wilsoncenter.org/sites/default/files/NavigatingPeaceIssuePKM.pdf>. This article cites a 1988 statement by Boutros Boutros-Ghali, then Egyptian Foreign Minister, who predicted that the next war in the Middle East would be fought over conflicts concerning the Nile waters. *Id.* Boutros-Ghali later became the Secretary-General of the United Nations. *Id.*

27. Wiebe, *supra* note 6, at 738.

28. Azarva, *supra* note 13, at 458.

29. *Id.*

30. *Id.*

31. *Id.* at 459.

32. *Id.*

33. Daniel Abebe, *Egypt, Ethiopia, and the Nile: The Economics of International Water Law* 29, 37 (Univ. of Chi. Pub. Law & Legal Theory Working Papers, Paper No. 484, 2014).

34. Walid Shoebat, *The Nile and the Euphrates are Drying Up: Both Rivers are in the News and Both Rivers are in the Bible (An Inevitable Famine Is Plaguing The Muslim World)* (Mar. 23, 2015), <http://shoebat.com/2015/03/23/the-nile-and-the-euphrates-are-drying-up-both->

dam on the Nile River near the border of Sudan.³⁵ The Grand Ethiopian Renaissance Dam, known as the Millennium Grand Dam,

will flood 1,680 square kilometers of forest in northwest Ethiopia (an area about four times the size of Cairo[, Egypt's capital city]), displace approximately 20,000 people in Ethiopia, and create a reservoir that will hold around 70 billion cubic meters of water—equivalent to the annual flow of the Blue Nile at the Sudan border.³⁶

However, Ethiopia claims that this \$4.2 billion project will not effect downstream riparian States, especially Egypt's water usage, because the dam will decrease evaporation of the Nile and improve water flow downstream.³⁷ Similar to when Egypt built the Aswan High Dam against Western and riparian States' condemnations, Ethiopia began building its dam against the protests of Egypt.³⁸

rivers-are-in-the-news-and-both-rivers-are-in-the-bible-an-inevitable-famine-is-plaguing-the-muslim-world.

35. Hassen Hussein, *Egypt and Ethiopia Spar Over the Nile*, ALJAZEERA AM. (Feb. 6, 2014, 8:15 AM), <http://america.aljazeera.com/opinions/2014/2/egypt-disputes-ethiopiarenaissancedam.html>.

36. *The Grand Ethiopian Renaissance Dam Fact Sheet*, INT'L RIVERS (Jan. 24, 2014), <http://www.internationalrivers.org/resources/the-grand-ethiopian-renaissance-dam-fact-sheet-8213>.

37. Hussein, *supra* note 35; see Jack Di Nunzio, *Conflict on the Nile: The Future of Transboundary Water Disputes Over the World's Longest River*, WATER POLS. (Nov. 25, 2013), <http://www.waterpolitics.com/2013/11/25/conflict-on-the-nile-the-future-of-transboundary-water-disputes-over-the-world%E2%80%99s-longest-river/> (noting that Egypt predicts that Ethiopia's dam would cause "the evaporation of 3 billion cubic metres of Nile water each year." However, currently, Egypt's dam evaporates 12 billion cubic meters of Nile water each year).

38. Hussein, *supra* note 35; see Sandra Postel, *Nile River Nations Agree to Cooperate, but Danger Lurks for One of the Planet's Great Wetlands* (Mar. 20, 2015), <http://voices.nationalgeographic.com/2015/03/20/nile-river-nations-agree-to-cooperate-but-danger-lurks-for-one-of-planets-great-wetlands/>. In March 2015, Sudan, Egypt, and Ethiopia reached agreement on the basic principles for managing Ethiopia's dam. While detail of the agreement was not revealed, Sudanese foreign minister at the time, Ali Karti, stated that "A full agreement has been reached between our three countries on the principles of the use of the eastern Nile Basin and the Ethiopian Renaissance Dam." See *Sudan, Egypt and Ethiopia reach agreement on use of Nile waters*, THE NAT'L (Mar. 7, 2015, 12:39 AM), <http://www.thenational.ae/world/middle-east/sudan-egypt-and-ethiopia-reach-agreement-on-use-of-nile-waters>.

3. Sudan's Means of Survival from Drought

All riparian Nations face environmental and economic crisis, but Sudan in particular faces challenges arising from increased flooding.³⁹ The sediment buildup behind the Lake Nasser Dam is causing the reservoir to overflow, bringing about countless environmental and economic losses.⁴⁰ Sudan is known for its history of drought and famine, which has resulted in massive displacements for over 100 years.⁴¹ In 2011, South Sudan split from Sudan forming its own nation.⁴² The split has deeper implications than land loss or population divides; an additional party to the Nile water conflict will change the geopolitical balance in the Nile River Basin.⁴³ The recent political struggle has greatly affected Sudan's position with its neighboring riparian States regarding rights over the Nile water.⁴⁴

4. Uganda's Lake Victoria and the Nile Connection

A large part of Uganda is occupied by lakes, including a portion of Lake Victoria. "With a surface area of 68,800 sq km (26,600 sq mi), Lake Victoria is Africa's largest lake[,] . . . the largest tropical lake in the world, and the planet's second largest freshwater lake."⁴⁵ It is second only to North America's Lake Superior.⁴⁶ "The lake receives most of its water from direct precipitation."⁴⁷ It is relatively shallow with a "maximum depth of 84 meters (276 ft) and an average depth of 20 meters (66 ft)."⁴⁸ It is drained solely by the Nile River on the lake's northern shore at Jinja, Uganda.⁴⁹ The

39. Wiebe, *supra* note 6, at 738.

40. *Id.*

41. Salah El-Din El Shazali Ibrahim, *War Displacement: The Sociocultural Dimension, from Drought, Famines, and Population Displacement*, in 13 CTR. FOR MIGRATION STUDIES SPECIAL ISSUES 35 (Eltigani E. Eltigani ed., May 1996), <http://onlinelibrary.wiley.com/doi/10.1111/j.2050-411X.1996.tb00839.x/pdf> (discussing the long history of drought and famine in Sudan and its impact on the population and the role of the Nile in providing relief to the population).

42. Hussein, *supra* note 35. See also *South Sudan country profile*, BBC NEWS (Dec. 7, 2015), <http://www.bbc.com/news/world-africa-14069082>.

43. Di Nunzio, *supra* note 37.

44. Hussein, *supra* note 35.

45. *Lake Victoria Map and Map of Lake Victoria Depth Size History Information Page*, WORLDATLAS, <http://www.worldatlas.com/aatlas/infopage/lakevictoria.htm> (last visited Feb. 20, 2016).

46. *Id.*

47. *Id.*

48. *Id.*

49. *Id.* "Forty five per cent of the surface area of Lake Victoria occurs in Uganda." UNITED NATIONS ENV'L PROGRAM, ADAPTATION TO CLIMATE-CHANGE INDUCED WATER STRESS IN THE

Ruvyironza, considered the ultimate source of the Nile, flows into Lake Victoria, and Lake Victoria is the principle source of the longest branch of the Nile.⁵⁰ Uganda has three dams to provide for its electricity needs: Nalubaale Power Station, Kiira Power Station, and Bujagali Power Station.⁵¹ However, such exhaustive water usage has taken a heavy toll on Lake Victoria as its water level reaches a record low.⁵² “The expected reduction in electricity costs have not been realized and instead the average cost of electricity increased after [the] commissioning of the dam,” making it the cause of the “highest average cost of hydro in Africa” and “unaffordable for many Ugandans.”⁵³ As a result, energy shortages and economic deprivation have resurged and started to harm the livelihood of Ugandans again.⁵⁴

In 1946, Egypt exchanged notes with Britain expressing Egypt’s wish to have a dam in Uganda for water storage purposes.⁵⁵ In 1949, Britain and Egypt signed the Owen Falls Agreement, which stated that both Egypt and Uganda would be responsible for the construction and operation of the dam.⁵⁶ “Owen[] Fall[s] Dam was completed in 1954.”⁵⁷

NILE BASIN: A VULNERABILITY ASSESSMENT REPORT 44, http://www.unep.org/dewa/Portals/67/pdf/Nile_Basin.pdf. The study reports a declining trend in vegetation around the Lake Victoria region. *Id.* For more discussion of Lake Victoria, see J. V. Sutcliffe & Y. P. Parks, *The Hydrology of the Nile*, IAHS Special Publication No. 5 (Feb. 1999), <http://www.hydrosciences.fr/sierem/produits/biblio/hydrology%20of%20the%20Nile.pdf>.

50. *The Nile River*, NILE EQUATORIAL LAKES SUBSIDIARY ACTION PROGRAM, <http://nelsap.nilebasin.org/index.php/aboutus/the-river-nile> (last visited Feb. 20, 2016).

51. Sarah Grainger, *Controversial dam divides Ugandans*, BBC NEWS (Apr. 27, 2007, 9:51 AM), <http://news.bbc.co.uk/2/hi/africa/6589495.stm>; *Bujagali Dam, Uganda*, INT’L RIVERS, <https://www.internationalrivers.org/campaigns/bujagali-dam-uganda>.

52. *Bujagali Dam, Uganda*, INT’L RIVERS, <https://www.internationalrivers.org/campaigns/bujagali-dam-uganda> (last visited Feb. 20, 2016); Daniel Kull, *Dams Draining Africa’s Lake Victoria*, INT’L RIVERS (Feb. 9, 2006), <https://www.internationalrivers.org/resources/dams-draining-africa-s-lake-victoria-4117> (“[Lake Victoria], which had dropped 1.2 meters since 2003, was, at the end of 2005, at its lowest level since 1951.”).

53. *Id.*

54. *Id.*

55. Shih & Stutz, *supra* note 1, at 10794.

56. *Id.* (“The exchange of notes leading to the final Owen[] Fall[s] Agreement occurred in three sections. First, the countries entered an agreement regarding the logistics of constructing the dam. Second, they entered an agreement regarding the granting of a contract for construction of the dam. Finally, the third section dealt with the financial arrangement for construction and maintenance of the dam.”).

57. *Id.*

5. Who Owns the Nile—Egypt, Sudan, Ethiopia, or Uganda?

The dispute as to who owns the Nile arises from the various claims by riparian States. Egypt relies on the Nile as its only source of water; Ethiopia relies on the Nile for its economic growth; Sudan claims the Nile for its survival; and Uganda relies on the Nile for its continuing livelihood. But the limited water resources cannot satisfy all. The Nile is fed by two main river systems: the White Nile and the Blue Nile.⁵⁸ “The total area of the Nile basin represents 10.3% of the area of the continent”⁵⁹ Each of the ten countries that share the Nile have different levels of dependency on the Nile waters.⁶⁰ Each country’s reliance on the Nile also depends on their annual rainfall.⁶¹ Each year, Burundi has an average annual rainfall in the Nile basin area of 1110 millimeters (“mm”); Rwanda has an average of 1105 mm; Tanzania has an average of 1015 mm; Kenya has an average of 1260 mm; Zaire has an average of 1245 mm; Uganda has an average of 1140 mm; Ethiopia has an average of 1125 mm; Eritrea, 520 mm; Sudan, 500 mm; and Egypt has an average of 15 mm.⁶² The shortage of available water sources is one of the reasons for Egypt’s jingoism.

Over the years, the riparian States, in attempts to maximize profit from the Nile, implemented more and more projects on the Nile. There are currently eight dams in the Nile Basin. The Grand Ethiopian Renaissance Dam on the Blue Nile in Ethiopia is currently under construction and expected to be completed by July 2017.⁶³ The Upper Atbara and Setit Dam Complex on the upper Atbara River and Setit River in eastern Sudan is expected to be

58. *The Nile Basin*, FOOD AND AGRIC. ORG. OF THE UNITED NATIONS, <http://www.fao.org/docrep/w4347e/w4347e0k.htm> (last visited Feb. 20, 2016). See also Andrew Carlson, *Who Owns the Nile? Egypt, Sudan, and Ethiopia’s History-Changing Dam*, 6 THE ORIGINS (March 2013), <http://origins.osu.edu/article/who-owns-nile-egypt-sudan-and-ethiopia-s-history-changing-dam>.

59. *The Nile Basin*, FOOD AND AGRIC. ORG. OF THE UNITED NATIONS, <http://www.fao.org/docrep/w4347e/w4347e0k.htm> (last visited Feb. 20, 2016).

60. *Id.* Egypt is the only country that relies solely on the Nile as its water source. *Id.* Some countries, like Uganda, have available sources of water other than the Nile. *Id.* “Uganda is a humid country with numerous lakes and wetlands and with internal renewable water resources globally estimated at 39 km³/year. However, . . . a lot of water disappears within the country through evaporation and evapotranspiration from the lakes and wetland.” *Id.*

61. See *id.*

62. *Id.* at Table 20.

63. *Grand Ethiopian Renaissance Dam Project, Benishangul-Gumuz, Ethiopia*, WATER-TECHNOLOGY, <http://www.water-technology.net/projects/grand-ethiopian-renaissance-dam-africa/> (last visited Oct. 29, 2015).

completed in early 2016.⁶⁴ The Beles Hydroelectric Power Plant in Ethiopia near Lake Tana has been in commission since 2010.⁶⁵ The Tekeze Dam in the northern Tigray region of Ethiopia was completed in February 2009.⁶⁶ The Roseires Dam on the Blue Nile at Ad Damazin in Sudan opened in 1966.⁶⁷ The Khashm el-Girba Dam on the Atbara River in eastern Sudan has been in full operation since 1964.⁶⁸ The Nalubaale Hydroelectric Power Station or the Owen Falls Dam on the White Nile near Lake Victoria in Uganda has been in use since 1954.⁶⁹ The Sennar Dam on the Blue Nile near the town of Sennar, Sudan was built during the 1920s.⁷⁰ Although each of the dams brought significant economic benefits to their respective countries, this kind of self-centered approach towards water sharing is detrimental. The riparian States are challenging the enforceability of almost all of the pre-independence agreements entered into on their behalf. In an attempt to solve the ownership disputes of the Nile, the riparian States are beginning to realize the need for a Nile basin-wide cooperation. A chronology of the regulatory framework of legal cooperation is helpful in understanding the legitimacy of the various claims of ownership of the Nile waters.

64. *Twin Dam in Eastern Sudan: Rumela Dam on Upper Atbara and Burdana Dam on Setit*, PRESERVE THE MIDDLE NILE (Apr. 24, 2012), <https://preservethemiddlenile.wordpress.com/2012/04/24/twin-dam-in-eastern-sudan-rumela-dam-on-upper-atbara-and-burdana-dam-on-setit/>.

65. Seifulaziz Milas, *Ethiopia: Nile Waters Diplomacy and the Renaissance Dam*, AFRICAN ARGUMENTS (Oct. 3, 2012), <http://africanarguments.org/2012/10/03/ethiopia-nile-waters-diplomacy-and-the-renaissance-dam-%E2%80%93-by-seifulaziz-milas/>.

66. *Tekeze project inaugurated in Ethiopia*, INT'L WATER POWER & DAM CONSTRUCTION (Nov. 17, 2009), <http://www.waterpowermagazine.com/news/newstekeze-project-inaugurated-in-ethiopia/>.

67. *Africa Dams Briefing 2010*, INT'L RIVERS (June 2010), <http://www.internationalrivers.org/files/attached-files/afrdamsbriefingjune2010.pdf>.

68. Ahmad Musa Siyam, et al., *Assessment of the Current State of the Nile Basin Reservoir Sedimentation Problems*, NILE BASIN CAPACITY BUILDING NETWORK (2005), http://www.nbcn.com/Project_Documents/Progress_Reports/RM-G1.pdf.

69. Ibrahim Kasita, *Owen falls dam: Powering Uganda for five decades*, NEW VISION (Feb. 3, 2012), <http://www.newvision.co.ug/news/628782-owen-falls-dam-powering-uganda-for-five-decades.html>.

70. *Conquest of the Desert*, WONDERS OF WORLD ENGINEERING, <http://wondersofworldengineering.com/sennar-dam.html> (last visited Oct. 29, 2015).

PART II. A CHRONOLOGICAL SURVEY OF THE REGULATORY FRAMEWORK
FOR LEGAL COOPERATION

One of the key issues relating to the Nile conflict revolves around post-colonial struggles—whether the agreements entered on the riparian States' behalf are binding even after the countries gained independence. These agreements affect the ownership rights and water distribution of the Nile. The conflict between the independent wills of the riparian States and the wills of the “mother countries” is the root of the current ownership dispute. Thus, to better examine this question of ownership, it is important to provide a historical overview of the legal framework beginning with pre- and post-independence.

A. *Pre-Independence Agreements*

The following is a brief chronological overview of the Nile Water agreements negotiated prior to the riparian States' independence. These agreements governed the use and sharing of the Nile. The Anglo-Italian Protocol of 1891 between Italy and Great Britain was the first agreement regarding the use of the Nile water.⁷¹ The 1901 agreement between Britain and Italy over the use of the River Gash touched upon the “principles of good neighbourship.”⁷² The Treaty for a Delimitation of the Frontier between Great Britain and Ethiopia in 1902 established boundaries between Ethiopia

71. See Protocol for the Demarcation of Their Respective Spheres of Influence in East Africa From Ras Kasar to the Blue Nile (Gr. Brit-Italy), Apr. 15, 1891, art. III. Italy agreed to avoid irrigation impacting the Nile flow. *Id.* Article III of the treaty stated that “[t]he Italian government engages not to construct on the Atbara [river], in view of irrigation, any work which might sensibly modify its flow into the Nile.” *Id.*; Shih & Stutz, *supra* note 1, at 10791 (noting that Ethiopia argues that this treaty is not effective since colonial rule has ended. Italy signed the agreement because it planned to conquer Ethiopia. However, Italy's first attempt ended in its defeat in 1896. Ethiopia's successful resistance to colonization gave it standing in rejecting the Protocol signed by Italy on its behalf).

72. Kafyalew Mekonnen, *The Defects and Effects of Past Treaties and Agreements on the Nile River Waters: Whose Faults Were They?*, <http://www.ethiopians.com/abay/engin.html> (last visited Feb. 20, 2016). The agreement states in full that:

[T]he Government of Erythraea, while recognizing all its rights on the waters of the Gash and having regard to the requirements of the Colony, sees no difficulty in declaring that, in so far as the regime of the waters of that river are concerned, it will regulate its conduct in accordance with the principles of good neighbourship.

Id. The 1925 Anglo-Egyptian Exchange of Notes later reinforced this Agreement. *Id.* However, Mr. Mekonnen notes that some find this Agreement invalid due to the end of colonialism in the Nile Basin. *Id.*

and Sudan, and involved the flow of the Nile River.⁷³ The Agreement between Britain and the Government of the Independent State of the Congo⁷⁴ in 1906 established the colonial boundary of the Congo between Britain and Belgium.⁷⁵ In 1906, Great Britain, France, and Italy signed the Tripartite agreement, in part to reconfirm the terms of the 1891 Protocol and the 1902 Treaty.⁷⁶ The 1925 Exchange of Notes between Italy and Great Britain

73. Shih & Stutz, *supra* note 1, at 10791 (citing Treaties Between Great Britain and Ethiopia, and Between Great Britain, Italy, and Ethiopia, Relative to the Frontiers Between the Anglo-Egyptian Soudan, Ethiopia, and Erythræ (Railway to connect the Soudan with Uganda), Art. III, Addis Ababa, 15 May 1902). Great Britain's cotton-growing interest in Egypt and Sudan depended heavily on the Nile. *Id.* at 10790. Thus, in consideration of Ethiopia's recent success on resisting Italy's invasion, Great Britain acted on behalf of Egypt and Sudan to secure its interest in the area. *Id.* Article III of the agreement restated the main thrust of the 1891 Protocol, that Ethiopia would not "construct or allow to be constructed, any work across the Blue Nile, Lake Tsana, or the Sobat, which would arrest the flow of their waters into the Nile except in agreement with His Britannic Majesty's Government and the Government of the Sudan." *Id.* at 10791. However, some argue that the "treaty never came into force as Britain did not ratify it." Abadir M. Ibrahim, *The Nile Basin Cooperative Framework Agreement: The Beginning of the End of Egyptian Hydro-Political Hegemony*, 18 MO. ENVTL. L. & POL'Y REV. 282, 299 (2011). Additionally, some argue that Britain "violated the terms of the treaty by virtue of giving support and recognizing [Italy's second] invasion of Ethiopia" in the 1950s. *Id.* Article 60 of the 1902 treaty fortifies this position, stating that "a material breach of a bilateral treaty by one of the parties entitles the other to invoke the breach as a ground for terminating the treaty or suspending its operation in whole or in part." *Id.* Furthermore, Ethiopia also raises objection over the wording of the treaty itself. *Id.* See Yoseph Endeshaw, *Review of the Validity or Continuous Application of the Nile Water Treaties*, Paper Submitted at the National Water Forum, ECA, 3-4 (Oct. 25-27, 2004).

74. C. O. Okidi, *Review of Treaties on Consumptive Utilization of Waters of Lake Victoria and Nile Drainage System*, 22 NAT. RESOURCES J. 161 (1982). Even though the treaty titled the "Independent State of the Congo," the Government of Belgium signed the treaty on behalf of the Congo.

75. Mekonnen, *supra* note 72. Article III of the agreement states "the Government of the independent state of the Congo undertakes not to construct, or allow to be constructed, any work over or near the Semliki or Isango river which would diminish the volume of water entering Lake Albert except in agreement with the Sudanese Government." *Id.* There were no restrictions imposed on the downstream Nile water users. *Id.*; see G.B. Treaty Series, No. 4 (1906), Cmd. 2920; British and Foreign State Papers, Vol. 99, 173; Hertslet, Africa, No. 165, 584-86; H.A. SMITH, THE ECONOMIC USES OF INTERNATIONAL WATERWAYS 166 (London, 1931). Mr. Mekonnen rejects the enforceability of this agreement because of the one-sided favoritism against the DRC, and because the agreement did not reflect the "principle of equitable water use [or] the approach of integrated water development." Mekonnen, *supra* note 73.

76. Shih & Stutz, *supra* note 1, at 10792 (citing Gebre Tsadik Degefu, *The Nile: Historical, Legal, and Developmental Perspectives* 35-36 (2003)). Great Britain, Italy, and France all wanted heavier influence in the Nile Basin. *Id.* Each country had an interest in Ethiopia because of its geographic importance to the flow of the Nile and the lack of a successor to the aging Emperor Menelik II. *Id.* "Great Britain relied on the Nile to irrigate its cotton fields in

governed a primary source of the Nile, Lake Tana of Ethiopia.⁷⁷ The 1929 Water Agreement between Egypt and Anglo-Egyptian Sudan was yet another attempt by the British to secure the Nile's flow to Egypt, after Britain's failure to control Lake Tana.⁷⁸ To prevent pollution of regional water systems,

Egypt, which then supplied her textile factories. France was interested in more economic power in Ethiopia, namely through its railroads. Italy still hoped to absorb northern Ethiopia into her empire." *Id.* Mr Mekonnen cites the Article IV(a) of the agreement as stating that its purpose was: "To act together . . . to safeguard . . . the interests of Great Britain and Egypt in the Nile Basin, more especially as regards the regulation of the waters of that river and its tributaries [due consideration being paid to local interests] without prejudice to Italian interest." Mekonnen, *supra* note 72. The agreement "denied 'the absolute sovereignty'" of Ethiopia over its water resource. *Id.* Ethiopia immediately rejected the agreement since the agreement was entered on behalf of an independent, non-colonized state. *Id.* It indicated that no country has the right to prohibit an independent country's right to use its own water resources. *Id.* Additionally, Mr. Mekonnen argues that Ethiopia's rejection to the 1906 agreement effectively acted as a retraction of the 1902 Treaty. *Id.*

77. Shih & Stutz, *supra* note 1, at 10792. Britain and Italy signed an agreement in 1919 over Lake Tana stating that, "In view of the predominating interests of Great Britain in respect of the control of the waters of Lake Tana, Italy offers Great Britain her support, in order that she may obtain from Ethiopia the concession to carry out works of barrage in the lake itself . . ." Mekonnen, *supra* note 72. In 1925, the agreement stated that "Italy recognizes the prior hydraulic rights of Egypt and the Sudan . . . not to construct on the head waters of the Blue Nile and the White Nile (the Sobat) and their tributaries and affluents any work which might sensibly modify their flow into the main river." *Id.*; C. ODIDI OKIDI, THE HISTORY OF THE NILE AND LAKE VICTORIA BASINS THROUGH TREATIES, 325-26 (Paul P. Howell & J. Anthony Allan, eds., 1994). As a result of Ethiopia's protests, the League of Nations decided that the Exchange of Notes was not binding on Ethiopia. Shih & Stutz, *supra* note 1, at 10792 (citing NURIT KLIOT, WATER RESOURCES AND CONFLICT IN THE MIDDLE EAST 27 (1994)). Ironically, Ethiopia was excluded from discussions of the agreement. *Id.* Ethiopia notified the Italian government its objection stating that:

The fact that you have come to an agreement, and the fact that you have thought it necessary to give us a joint notification of that agreement, make it clear that your intention is to exert pressure, and this in our view, at once raises a previous question. This question[,] which calls for preliminary examination, must therefore be laid before the League of Nations.

Id. To the British government, Ethiopia stated that:

The British Government has already entered into negotiations with the Ethiopian Government in regard to its proposal, and we had imagined that, whether that proposal was carried into effect or not, the negotiations would have been concluded with us; we would never have suspected that the British Government would come to an agreement with another Government regarding our Lake.

Id. Given these objections, the League of Nations found that the 1925 Exchange of Notes was not binding. *Id.*

78. Shih & Stutz, *supra* note 1, at 10793 (citing Exchange of Notes Between His Majesty's Government in the United Kingdom and the Egyptian Government in Regard to the Use of the Waters of the River Nile for Irrigation Purposes, Cairo, 7 May 1929). The Agreement

Britain and Belgium signed the London Agreement in 1934.⁷⁹ The 1949 Owen Falls Dam Agreement between Britain, Egypt and Uganda, required construction of a reservoir to benefit Egypt on Lake Victoria in Uganda.⁸⁰

reiterated previous agreements and enacted a grossly “disproportionate allocation” of the Nile’s waters. *Id.* at 10793. In 1929, Great Britain colonized Kenya, Sudan, Tanzania, and Uganda; in addition to its heavy influence in Egypt.

Section 4(b) of the agreement reiterates language from previous agreements signed by Great Britain regarding the effect of water flow to Egypt: ‘Save with the previous agreement of the Egyptian Government, no irrigation or power works or measures are to be constructed or taken on the River Nile and its branches, or on the lakes from which it flows, so far as all these are in the Sudan or in countries under British administration, which would, in such a manner as to entail any prejudice to the interests of Egypt, either reduce the quantity of water arriving in Egypt, or modify the date of its arrival, or lower its level.’

Id. at 10792-93. The agreement allocated 80% of the Nile water to Egypt, 18.5% to Sudan, 1% to Ethiopia, and 0.5% to the rest of the riparian States. *Id.* at 10793. This agreement effectively gave Egypt the power to veto any Nile-related projects. Egypt maintains that the 1929 Agreement is consistent with the prior agreements and with its prior usage of the Nile. *Id.* Furthermore, Egypt argues that the terms in the 1929 Agreement state that the “‘detailed provisions of this grant will be observed at all times and under any conditions which may rise,’ which includes the condition of independence.” *Id.* at 10793-94. However, the rest of the riparian States reject this heavily prejudicial Agreement, especially after the States gained independence from British control. *Id.*

79. *Id.* at note 1, at 10794 (citing Agreement Between the United Kingdom and Belgium Regarding Water Rights on the Boundary Between Tanganyika and Ruanda-Urundi-London, 22 November 1934, para. 3) (“Great Britain (on behalf of Tanganyika) and Belgium (on behalf of Rwanda and Burundi) signed the Agreement.”). The Agreement regarded water rights on the boundary between Tanganyika and Ruanda-Urundi-London, and not only prohibited pollution of regional waters, but also any work interfering with the flow of Kagera to Lake Victoria. The Agreement stated that no government could take up operations that would “pollute or cause the deposit of any poisonous, noxious or polluting substance in the waters of any river or stream.” *Id.* The affected States challenge this agreement as a colonial agreement. *Id.*

80. *Id.* at note 1, at 10794. Egypt’s only water source comes from the Nile. Thus, it is especially crucial for Egypt to secure water flow during the dry season of the Nile, which stretches from January to July. The 1946 exchange of notes between Great Britain and Egypt stressed the need for “water security for cotton growing, as well as sanitation and health.” *Id.* Only 25% of the Egyptian population had access to potable water. *Id.* Even after Egypt implemented a purification system with the help of Great Britain, it could only provide twenty liter per capita per day when a minimum of twenty-five liters per day is required to sustain life. *Id.* Because of the need for a more steady flow of water year-round, Great Britain and Egypt entered into an agreement to construct the Owen Falls Dam in Lake Victoria of Uganda for water storage. *Id.* The Agreement reiterated the 1929 Agreement that Uganda may not “adversely affect the discharge of waters to be passed through the dam in accordance with arrangements to be agreed upon between the two Governments.” *Id.* (citing *His Majesty’s Ambassador at Cairo to the Egyptian Minister for Foreign Affairs ad Interim*, Exchange of Notes

Most pre-independence agreements are being challenged by the affected States.⁸¹ Challenges to colonial agreements are common due to the fact that the will of the colonized people was rarely considered when these agreements were entered into.

B. Post-Independence Agreements

Riparian States entered into the following agreements governing the use and sharing of the Nile post-independence. The Nile Waters Agreement of 1959 between Egypt and Sudan⁸² did not allocate any water to other riparian States.⁸³ The Nile Hydrometeorological Survey of 1967 is an agreement between Egypt, Kenya, Sudan, Tanzania, Uganda, the United Nations Development Programs, and the World Meteorological Organization to survey the water level of Lake Victoria and its flow to the Nile.⁸⁴ The Kagera

Constituting an Agreement Between the Government of the United Kingdom of Great Britain and Northern Ireland and the Government of Egypt Regarding the Construction of the Owen Falls Dam, Uganda, Cairo, 30 May 1949). The Agreement governed the Ugandan construction of the dam and prohibited Uganda from adversely interfering with water passing through the dam. This agreement is still binding on all the parties. *Id.*

81. Wuhibegezer Ferede & Sheferawu Abebe, *The Efficacy of Water Treaties in the Eastern Nile Basin*, 49 AFRICA SPECTRUM 55 (2014) (discussing the efficacy of pre-independent agreements and the rejection and renegotiation of the agreements).

82. Shih & Stutz, *supra* note 1, at 10794 (noting that Sudan gained independence from the Great Britain in 1956. Thereafter, it disclaimed all agreements entered by Great Britain on its behalf. Egypt agreed to renegotiate with Sudan on the allocation of the Nile water).

83. *Id.* at note 1, at 10794-95. This new Agreement gave Egypt seventy-five percent of the Nile water and Sudan twenty-five, leaving none to the rest of the riparian States. *Id.* The Agreement clearly stated that it would not replace the 1929 Agreement, instead, it was an “adaptation and extension” of the previous Agreement and by signing it, Sudan renounced any reasonable claim it might have against the 1929 Agreement. *Id.* at 10795. Additionally, this agreement gave Egypt the right to construct the Aswan High Dam, as well as a joint veto power with Sudan over any projects on the Nile. *Id.* Other riparian States disavow the validity of this Agreement because they were not a party. *Id.* They were not included in the negotiations, and their interests were not considered or represented in the agreement. *Id.* See also Ibrahim, *supra* note 73, at 284.

84. Shih & Stutz, *supra* note 1, at 10795; Abdel Gattah Metawie, *Lessons Learnt From Cooperation in the Nile Basin* 9, ciwr.ucanr.edu/files/168983.doc (last visited Feb. 25, 2016). The Hydrometeorological Survey Agreement “is a highly successful example of technical cooperation between eight [Riparian States] assisted by two United Nations agencies.” *Id.* Collection of hydrometeorological data became a high priority of the riparian States due to their dependence on the Nile. *Id.* at 10. “Following an initial study by the World Meteorological Organization and the Food and Agriculture Organization in 1963 . . . Egypt, Kenya, Sudan, Tanzania, and Uganda requested the co-operation of the United Nations Development Program in a hydrometeorological survey to study the water balance of lakes Victoria[and] Albert.” *Id.* Soon, Rwanda, Burundi, and DRC joined. *Id.* Ethiopia joined in 1971 as an

Basin Agreement of 1977 between Burundi, Rwanda, and Tanzania established an organization to manage the Kagera Basin⁸⁵ that includes an exhaustive list of projects (such as “hydropower, agriculture, trade, tourism, and fisheries”).⁸⁶ The 1993 Framework for General Cooperation between Ethiopia and Egypt is vague and lacks any specific commitment from the two countries.⁸⁷

These agreements entered by the riparian States post-independence indicates their willingness to cooperate with each other. However, most of the ownership disputes relate to the pre-independence agreements and their enforceability. Thus, the conflict continued irrespective of its environmental, human rights, and public health consequences.

PART III. ENVIRONMENTAL, HUMAN RIGHTS, AND PUBLIC HEALTH CONSEQUENCES OF THE CONFLICT

Environmental degradation is “omnipresent, immediate, and threatens entire communities with cultural, if not virtual, extinction.”⁸⁸ These communities’ “rich social traditions and vital economic practices” are

observer. *Id.* See generally Report of the Hydrometeorological Survey of the Catchments of Lakes Victoria, Kyoga, and Albert (Burundi, Egypt, Kenya, Rwanda, Sudan, United Republic of Tanzania, and Uganda), 1 Meteorology and Hydrology of the Basin Part II, Vol. 1, Part 1, 9 (1974).

85. The Kagera Basin is also known as the Alexandra Nile. It is one of the upper headwaters of the Nile. See generally *Kagera River Transboundary Integrated Water Resources Management and Development*, NILE INFO. SYS., <http://nileis.nilebasin.org/content/kagera-river-tansboundary-integrated-water-resources-management-and-development> (last visited Feb. 12, 2016).

86. Shih & Stutz, *supra* note 1, at 10791, 10795. This Agreement is considered a “blatant disregard” of the 1929 and 1959 Agreements. *Id.* at 10795. The 1929 Agreement, Egypt has the sole veto power to any projects on the Nile, and the 1959 Agreement gave such veto power to Egypt and Sudan. *Id.* But this Agreement made no mention of the two agreements and effectively ignored these provisions of the previous agreements. *Id.*

87. *Id.* at 10795-96. The Framework promoted “good neighbourliness.” Every article is “equally evasive and fail[s] to set concrete terms for utilizing the Nile River.” *Id.* “Article 4 does not set up a commission or even specify the experts to be used in negotiations.” *Id.* Article 5 prohibits both countries from causing “appreciable harm to the interests of the party.” *Id.* Despite the vagueness of the Agreement, it is the first time since the 1902 Agreement the two States resumed negotiation over the use of the Nile. *Id.* Notwithstanding Ethiopia’s continued rejection of the 1902 Agreement, Egypt is using this 1993 Framework to argue that by entering into it, Ethiopia is agreeing to preserve its “status quo” on the Nile water issues. *Id.*

88. William Andrew Shutkin, *International Human Rights Law and the Earth: The Protection of Indigenous Peoples and the Environment*, 31 VA. J. INT’L L. 479, 480 (1991).

dependent upon a healthy environment.⁸⁹ The prolonged dispute over the Nile water usage causes diverse impacts on riparian States with the concern that the conflict might also spread to a regional level. These concerns are environmental, human rights, and health related with economic consequences on States bordering the Nile.

A. *Environmental Pollutants of the Nile Water*

Water is an essential resource for human development. “Water is critical for sustainable development, including environmental integrity and the eradication of poverty and hunger, and is indispensable for human health and well being.”⁹⁰ However, there are differing priorities in water management among the riparian States.⁹¹ Without basin-wide cooperation, the Nile water will continue to be depleted and polluted, and continue to cause more water-related health consequences in the riparian States.⁹²

Many pollutants contribute to the degradation of the Nile water. Agriculture, industries, and municipalities are the three main sources of pollution of the Nile.⁹³ Human wastewater is one of the main municipal

89. *Id.*

90. Shreevani Suvarna, *Development Aid in an Environmental Context: Using Microfinance to Promote Equitable and Sustainable Water Use in the Nile Basin*, 33 B.C. ENVTL. AFF. L. REV. 449, 457 (2006). See Hans Cathcart, *Future Demands on Nile River Water and Egyptian National Security*, AM. U., (May 15, 2007), <http://www1.american.edu/ted/ice/nile-2020.htm> (“Water pollution in Egypt is increasing over time[.] The low level of sanitation service especially in rural areas (7% at most) makes nearby streams (either canals or drains) the perfect places for inhabitants to dispose their sewage. Many of the Industrial establishments do not comply with the law, dumping their wastewater untreated into surface water bodies as well as injecting it into groundwater.”). All of these impact Egypt’s national security, the environment, and the health of the people.

91. See Suvarna, *supra* note 90, at 457.

92. See *id.* at 458.

93. Rifaat A. Wahaab & Mohamed I. Badawy, *Water Quality Assessment of the River Nile System: An Overview*, 17 BIOMEDICAL & ENVTL. SCI. 87, 88, 91 (Mar. 2004) (“Agricultural is the major non-point source pollution, with a number of potential impacts on the environmental and human health. In many agricultural areas, local surface and groundwater contamination has resulted from leaching of nitrates from fertilizers, and bacteria from livestock and feed wastes. Agricultural pesticides are both a potential diffuse source of water contamination. The major impacts of agriculture on water quality in Egypt: (i) changes in salinity, (ii) deterioration of quality due to fertilizers and pesticides and (iii) possible eutrophication of water bodies due to an increase in nutrients from fertilization.”). Egypt’s drainage water has a higher salinity level that contributes to an increase of salinity of the River Nile along its course from the High Aswan Dam to the Delta. *Id.* Egypt is facing an increasingly deteriorating situation with surfact and groundwater discharges from heavily polluted domestic and industrial effluents into its

pollutants, especially in the more impoverished cities along the Nile banks. Wastewater treatment can be expensive and difficult at times,⁹⁴ especially with the drastic population growth experienced in most of the riparian States.⁹⁵ “Diseases and parasites” are common in human wastewater, and without proper treatment, it is detrimental to the living organisms in the Nile.⁹⁶ Population growth causes agricultural runoff to contain “salts, nutrients (phosphorus and nitrogen) and pesticide residue”⁹⁷ It may come from “anywhere in a region,”⁹⁸ making it extremely difficult to prevent, especially when agriculture is an essential part of people’s livelihood. With 700 industrial facilities along the Nile, the industrial wastewater is “often highly toxic, containing heavy metals that can combine with the suspended solid in domestic wastewater to form an impossible to manage sludge.”⁹⁹ Waste dumping from fishing boats, river transport, and tourism are also some of the main pollutants of the Nile River.¹⁰⁰

The construction of dams can also lead to water pollution. For example, the construction of the Aswan High Dam caused many unintended consequences that threaten the environmental well being of the Nile.¹⁰¹ Annual floods used to carry nutrient-rich silt onto the downstream

waterways. *Id.* This is also due to the use of excessive pesticides and fertilizers in agriculture. *Id.* See also NILE INFO. SYS., *supra* note 85.

94. See Wiebe, *supra* note 6, at 742 (“[R]aw sewage and untreated municipal wastes are dumped into the Nile even though Egypt does have applicable anti-pollution laws. Population growth . . . creates a cyclical water predicament: as demand for usable water increases, so does sewage and other urban waste, that is then flushed into the population’s primary source of freshwater.”).

95. See Wiebe, *supra* note 6, at 736.

96. See *id.*

97. *Pollution in the Nile River*, WATER POLLUTION IN THE NILE RIVER, (Mar. 27, 2013), <http://waterpollutioninthenileriver.blogspot.com/>.

98. *Id.* There are “increased regulations concerning the use of agrochemicals.” *Id.*

99. *Id.*; see Wiebe, *supra* note 6, at 741 (“A recent report estimates that 500 million cubic meters of industrial waste are dumped in the Nile by Egyptian plants.”).

100. Tafline Laylin, *Nile Water Kills 17,000 Egyptian Children Each Year*, GREEN PROPHET (Oct. 11, 2010), <http://www.greenprophet.com/2010/10/nile-water-kills-17000/>.

101. Wiebe, *supra* note 6, at 737-40. See also Michigan Universality, *Aswan Dam’s Negative impact on the African continent*, FELEGE GUIHON INT’L (July 8, 2013), <http://www.guihon.org/372/aswan-dams-negative-impact-on-the-african-continent/> (confirming that there is overwhelming evidence that both past and present human activities have affected the Nile River. When the Nile River is affected, all of the plants, animals, and humans that depend on the river are also negatively affected. Human activities such as introducing exotic species, pollution of the natural land systems, and damming a river that provided essential nutrients and minerals all have made the Nile River a place of concern).

floodplain, making it “some of the most fertile soil in Africa.”¹⁰² The construction of the Aswan High Dam curtailed the floods, thus creating a need to use artificial fertilizer, which further pollutes the Nile water with chemical-heavy runoff.¹⁰³ The lack of silt nutrients also reduced fish and shrimp populations, and in some cases wiped out species altogether.¹⁰⁴ Additionally, Egypt is concerned that Ethiopia constructed the Grand Ethiopian Renaissance Dam to divert the flow of the Nile.¹⁰⁵ However, without any prior environmental impact assessment on flooding and water shortage risks for the neighboring nations, it has heightened the tensions in the region, especially with Egypt.¹⁰⁶ The construction of dams is driven mainly by social and economic considerations, rather than environmental ones. The lack of cooperation amongst the riparian States, the lack of considerations for others, and the lack of environmental impact studies make these self-interest dams a pollutant of the Nile.

The effects of the Nile water degradation are extensive and include “serious human health problems, damage to crops and fisheries, and human displacement.”¹⁰⁷ The pollution of the Nile, above all, is causing serious public health consequences.¹⁰⁸ Human health and welfare, food security, industrial development and the ecosystems on which they depend are all at risk because of the pollution of the Nile waters. All riparian States must understand the concept of “do no harm,” meaning that the upstream States must not drastically harm the water quality and quantity of the water for the downstream States.¹⁰⁹

102. Wiebe, *supra* note 6, at 737.

103. *Id.* at 737-38.

104. *Id.* at 738.

105. Abebe, *supra* note 33, at 32.

106. Peter Heinlien, *The Nile River Dispute Between Egypt, Ethiopia Sparks Tensions*, VOICE OF AM., (May 30, 2013, 3:45 PM), <http://www.voanews.com/content/nile-river-dispute-sparks-tensions-between-ethiopia-egypt/1671748.html>.

107. Wiebe, *supra* note 6, at 736.

108. See Wahaab & Badawy, *supra* note 93, at 88; M. El-Fadel, Y. El-Sayegh, K. El-Fadl, & D. Khorbotly, *The Nile River Basin: A Case Study in Surface Water Conflict Resolution*, 32 J. NAT. RESOUR. LIFE SCI. EDUC., 107 (2003) (discussing the conflict and how pollution of the Nile waters impacts food security in Egypt).

109. Christina M. Carroll, *Past and Future Legal Framework of the Nile River Basin*, 12 GEO. INT'L ENVTL. L. REV. 269, 285 (1999). See Julie M. Smith, *Nine Nations. One Nile*, <http://www.umich.edu/~csfound/545/1996/smith.html>. (last visited Feb. 13, 2016).

B. *The Public Health Consequences of the Nile Water Degradation*

Water pollution has serious public health consequences. Poor water and sanitation conditions are directly linked to about 80% of illnesses in developing countries.¹¹⁰ Water-borne and water-based diseases continue to cause extensive morbidity and mortality.¹¹¹ Infants and youth are especially susceptible to water-based diseases because of their weaker immune systems.¹¹² According to the Egyptian Organization for the Advancement of Children, about 17,000 children die each year in Egypt alone because of the poor quality of their drinking water.¹¹³

There are many other water and sanitation-related diseases. Diarrheal disease is the most devastating public health problem directly related to water conditions.¹¹⁴ In developing countries, there are about 1.8 million deaths directly related to diarrheal diseases; among 90% of these deaths are children under the age of five.¹¹⁵ Arsenicosis may be caused by long-term exposure to low concentrations of arsenic in drinking water.¹¹⁶ Millions of people are at risk from arsenic poisoning that can cause skin, lung, bladder, and kidney cancers.¹¹⁷ Cholera is an acute bacterial infection in the intestinal tract, which is primarily caused by contaminated drinking waters.¹¹⁸ Without treatment, it could quickly lead to acute dehydration and death.¹¹⁹ In 2010, Zimbabwe had 98,309 reported cases of cholera, with some 4,283 deaths.¹²⁰ “Guinea worm disease is a parasitic infection” that can be contracted by drinking

110. *Improving Health in Africa...begins with access to safe Water*, THE WATER PROJECT, <http://thewaterproject.org/health> (last visited Feb. 13, 2016).

111. H.A. Musa et al., *Water Quality and Public Health in Northern Sudan: a study of rural and Peri-urban Communities*, 87 J. APPLIED MICROBIOLOGY 676 (1999).

112. *Improving Health in Africa*, *supra* note 110.

113. Laylin, *supra* note 100. It is important to note that citizens of countries with sanitation and clean water problems have little or no recourse to legal remedies from the state for any violations of their rights to clean water unlike in countries where remedies are available at common law and under statute. See William J. Curran, *Water Pollution in a State Park: The Government's Liability* 60.3 AM. J. PUB. HEALTH & NATION'S HEALTH 557, 557-58 (1970).

114. *Water, Sanitation, and Hygiene*, UNICEF (June 17, 2003), http://www.unicef.org/wash/index_wes_related.html.

115. *Id.*; CYNTHIA BOSCHI-PINTO ET AL., DISEASE AND MORTALITY IN SUB-SAHARAN AFRICA (Dean T. Jamison et al. eds., 2nd ed. 2006).

116. *Water, Sanitation, and Hygiene*, *supra* note 114.

117. *Id.*

118. *Id.*

119. *Id.*

120. *Zimbabwe Cholera 'to top 100,000'*, BBC NEWS (May 26, 2009; 11:39 AM), <http://news.bbc.co.uk/2/hi/africa/8068232.stm>.

contaminated water.¹²¹ It is an endemic disease that affects South Sudan and Ethiopia.¹²²

“Schistosomiasis . . . is a disease caused by parasitic worms.”¹²³ “[W]orms, [bacteria,] and toxins pollute existing fish that are then consumed by humans.”¹²⁴ Poor families “continue to eat [polluted fish] out of simple need and perhaps because they do not realize it is polluted. Egyptians today cannot safely use Nile waters domestically without extensive treatment.”¹²⁵ Despite the USAID investment of over \$2 billion in wastewater infrastructure, “the situation remains dire, especially in urban areas.”¹²⁶ In addition to schistosomiasis, over half of the patients at a specialized hospital in Damietta have liver and kidney diseases.¹²⁷ Outbreaks of schistosomiasis are highly correlated with the completion of large dams (including the Sennar Dam, Aswan High Dam, and earlier dams), but small dam projects do not significantly correlate.¹²⁸

Trachoma is another water-related eye infection, found in the Nile States, that can lead to blindness.¹²⁹ It is spread by lack of clean water and found

121. *Guinea Worm Eradication Program*, THE CARTER CTR., http://www.cartercenter.org/health/guinea_worm/index.html (last visited Feb. 13, 2016).

122. *Id.*

123. *Water, Sanitation, and Hygiene*, *supra* note 114. According to the World Health Organization, an estimated 160 million people are affected by schistosomiasis, a disease strongly related to unsanitary excreta disposal and absence of nearby sources of safe water; man-made reservoirs and poorly designed irrigation schemes are main drivers of schistosomiasis expansion and intensification. The disease causes tens of thousands of deaths in Sub-Saharan Africa alone every year. *Water Sanitation, and Health*, WORLD HEALTH ORG., http://www.who.int/water_sanitation_health/facts2004/en/ (last visited Feb. 13, 2016). Egypt has had a long history of schistosomiasis and the government has undertaken control efforts for over sixty years. Michael R. Reich et al., *International Strategies for Tropical Disease Treatments: Experiences with Praziquantel*, WORLD HEALTH ORG. 53 (Jan. 1998), <http://apps.who.int/medicinedocs/en/d/Jwhozip48e/>. Schistosomiasis is a disease caused by parasite worms carried by snails found in contaminated freshwater. *Parasites—Schistosomiasis*, CTRS. FOR DISEASE CONTROL & PREVENTION, http://www.cdc.gov/parasites/schistosomiasis/gen_info/faqs.html (last visited Feb. 13, 2016). The parasite leaves the snail and enters the water where it can survive for about forty-eight hours, infecting people who are wading, swimming, bathing, or washing in contaminated water. *Id.*

124. Wiebe, *supra* note 6, at 138.

125. *Id.* at 139.

126. *Id.*

127. *Id.*

128. *Id.*

129. *Water-related Diseases: Trachoma*, WORLD HEALTH ORG., http://www.who.int/water_sanitation_health/diseases/trachoma/en/ (last visited Feb. 13,

predominately in Ethiopia and Sudan.¹³⁰ Typhoid fever is a bacterial infection caused by consumption of contaminated water or food.¹³¹ It is common in Ethiopia because of the lack of sanitation and clean water supply.¹³² The problems caused by polluted water are extensive.

Toxic chemicals dumped by various industrial operations are also responsible for harmful effects, most clearly noted in decreasing wildlife fertility, birth defects, changes in body chemistry, and other illnesses. Suspended particulate and lead pollution rates in Cairo are the highest in the world's largest cities and cause an additional 10,000 to 25,000 deaths a year.¹³³

These serious public health consequences resulting from the lack of quantity and quality of freshwater are alarming. Millions of lives are lost each year due to the lack of access to clean water. Scarce water resources, "environmental concerns, poverty alleviation, and health and sanitation should serve as the new priorities of [the] Nile River governance."¹³⁴ A heavier focus should be placed on water management and pollution-prevention in a basin-wide cooperation, instead of the ancient old allocation and ownership rights disputes.¹³⁵

The current focus on ownership rights and allocation of water is mainly self-driven. The riparian States choose to be oblivious to the existing and increasingly alarming health, sanitation, and environmental concerns of the Nile water. Conversely, if the focus shifts to collective water management instead of individual ownership rights, the cycle of poverty, poor health and sanitation, and low economic productivity might be broken. The public health concerns of the Nile are not just regional; they are global. Each year, the tens of thousands of tourists who visit Egypt are exposed to the high risk

2016) ("Trachoma is an infection of the eyes that may result in blindness after repeated re-infections. It is the world's leading cause of preventable blindness and occurs where people live in overcrowded conditions with limited access to water and health care."). See *Trachoma—Sub-Saharan Africa*, AM. ACAD. OF OPHTHALMOLOGY (Nov. 2013), <http://www.aao.org/topic-detail/trachoma--subsaharan-africa>.

130. *Trachoma—Sub-Saharan Africa*, *supra* note 129.

131. *Water, Sanitation and Hygiene*, *supra* note 114.

132. Samuel Kariuki, *Typhoid Fever in Sub-Saharan Africa: Challenges of Diagnosis and Management of Infections*, 6 J. INFECTION IN DEVELOPING COUNTRIES 443 (2008), <http://www.jidc.org/index.php/journal/article/view/19745521/77>.

133. Wiebe, *supra* note 6, at 739-40 (citation omitted).

134. Valerie Knobelsdorf, Note, *The Nile Waters Agreements: Imposition and Impacts of A Transboundary Legal System*, 44 COLUM. J. TRANSNAT'L L. 622, 646-47 (2006).

135. *See id.*

of diarrhea, schistosomiasis, rabies, and other diseases.¹³⁶ As evidenced by the Ebola epidemic in 2014, one country's virus can shake up the entire world. Therefore, it is imperative that not only the riparian States need to cooperate to find a resolution to this century-long dispute, but the rest of the world and international governmental organizations must contribute to better facilitate the process of dispute resolution.

PART IV. RESOLUTION OF THE NILE CONFLICT: THE ROLE OF INTERNATIONAL ORGANIZATIONS

One obvious benefit of resolution is the prevention of war, the likelihood of which increases as the environmental and economic situations worsen.¹³⁷ A healthy resolution to the conflict would meet “the immediate needs of all riparian[] [States] suffering water shortage.”¹³⁸ Indeed, addressing water shortage and enabling efficient water usage and cooperation among riparian nations is essential to “[a]verting future conflict in the region.”¹³⁹ Resolution would provide upstream countries like Ethiopia and Uganda the “opportunity to expand their economies and raise the standard of living for their citizens.”¹⁴⁰ Better water management would “reduce the amount of water lost to natural environmental effects, such as evaporation.”¹⁴¹

A. *Analysis of the Legal Frameworks and States' Claims*

The disproportionate allocation of the resources of the Nile, as well as water scarcity and other economic and environmental factors, mandates a legal and a diplomatic solution, especially since Egypt has repeatedly refused to denounce its “historic right to the lion's share of the Nile's waters.”¹⁴² The importance of the Nile waters to Egypt cannot be overemphasized. The Nile river is the only source of water for about 40 million farmers in Egypt, and threats from upstream states, such as Ethiopia, “to dam the Nile or otherwise

136. Ann M. Buff, *Travelers' Health: Egypt & Nile River Cruises*, CTRS. FOR DISEASE CONTROL & PREVENTION, <http://wwwnc.cdc.gov/travel/yellowbook/2016/select-destinations/egypt-nile-river-cruises> (last visited Feb. 15, 2016).

137. Laudicina, *supra* note 4, at 236; see also Scott O. McKenzie, Note, *Egypt's Choice: From the Nile Basin Treaty to the Cooperative Framework Agreement, an International Legal Analysis*, 21 *TRANSNAT'L L. & CONTEMP. PROBS.* 571, 597-98 (2012).

138. Wiebe, *supra* note 6, at 754.

139. *Id.*

140. McKenzie, *supra* note 137, at 597.

141. *Id.*

142. Shih & Stutz, *supra* note 1, at 10786.

utilize its waters have been met with Egyptian threats to wage war.”¹⁴³ Sitting at the bottom of the river, Egypt has jealously guarded its claim to the Nile waters with its military and economic superiority.¹⁴⁴ However, upstream States largely perceive such statements as political bluster, unconvinced that Egypt would actually go to war over the Nile.¹⁴⁵

Egypt’s position is based on the universal succession theory—“when a state is extinguished, the succeeding state inherits the predecessor’s legal personality, including all rights, obligations, and property interests.”¹⁴⁶ However, this position “has failed to garner widespread acceptance in international fora[.]”¹⁴⁷ and has been criticized as “a legal ploy intended to mitigate the deleterious effects of decolonization on imperial powers and their beneficiaries.”¹⁴⁸ Tanzania posits the opposing theory: the clean slate principle, or Nyerere Doctrine, which says that “successor states are not bound by the treaty obligations of their predecessors,”¹⁴⁹ but contains the controversial exception for “territorial, real, dispositive, or localized treaties.”¹⁵⁰ Uganda, Burundi, Kenya, and Rwanda all adopted a similar approach when they gained independence.¹⁵¹

B. *The Role of the United Nations and International Law*

Many of the riparian States denounced the pre-independence treaties as unenforceable under the doctrine of state succession.¹⁵² The Vienna

143. *Id.*

144. Wiebe, *supra* note 6, at 731.

145. *See id.*

Egypt adamantly maintains that the treaty’s provisions remain binding not only on those riparian countries on whose behalf Britain ostensibly concluded the agreement—Kenya, Sudan, Tanzania, and Uganda—but on Ethiopia as well (even though it was a sovereign state in 1929), thus lending legitimacy to the colonial era’s legal order.

Azarva, *supra* note 13, at 470 (citation omitted). *See* TERJE TVEDT, THE RIVER NILE IN THE AGE OF THE BRITISH: POLITICAL ECOLOGY AND THE QUEST FOR ECONOMIC POWER 48 (2008).

146. Azarva, *supra* note 13, at 470.

147. *Id.* at 470-71.

148. *Id.* at 471.

149. *Id.*

150. *Id.* at 471-72 (explaining that in 1961, Tanzania declared that it would regard the treaties entered not by the independent government of Tanzania as “null and void.” In 1962, it repudiated the binding nature of the 1929 Nile Waters Agreement specifically in a note sent to Egypt’s government).

151. *Id.* at 472.

152. Carroll, *supra* note 109, at 278.

Convention on Succession of States in respect to Treaties (the “Convention on State Succession”) distinguished between “newly independent states” and “cases of separation of parts of a state.”¹⁵³ Under article 16 of the Convention on State Succession, newly independent states receive a “clean slate,” meaning that the new state is free from the treaty obligations assumed pre-independence by the colonial power.¹⁵⁴ This clean slate doctrine is more widely accepted by states that have recently gained independence.¹⁵⁵ Under article 34(1) of the Convention on State Succession, all other new states must abide by the treaties entered by their predecessors.¹⁵⁶ This concept of universal succession is heavily promoted by Egypt.¹⁵⁷ Regardless of Egypt’s stand, most of the riparian States fall within the “newly independent states” definition outlined by the Convention on State Succession.¹⁵⁸ Therefore, under the Convention on State Succession, the riparian States may rightfully denounce any treaties entered into during the colonial-era.

Aside from the United Nations’ role in the development of customary international law and international consensus on humanitarian, economic,

153. Vienna Convention on Succession of States in respect to Treaties art. 3, Aug. 23, 1978, 1946 U.N.T.S. 3 [hereinafter “Succession of States”]. Egypt ratified the Convention on July 17, 1986, Ethiopia ratified on May 28, 1980, and by ratification the countries established their consent to be bound by the provisions of the treaty. See Vienna Convention on the Law of Treaties 23 May 1969, 1155 U.N.T.S. 331, <https://treaties.un.org/doc/Publication/MTDGS/Volume%20II/Chapter%20XXIII/XXIII-1.en.pdf>.

154. *Id.* at art. 16.

155. McKenzie, *supra* note 137, at 587.

156. Succession of States, *supra* note 153. Article 34(1) provides:
Succession of States in cases of separation of parts of a State

1. When a part or parts of the territory of a State separate to form one or more States, whether or not the predecessor State continues to exist:

(a) any treaty in force at the date of the succession of States in respect of the entire territory of the predecessor State continues in force in respect of each successor State so formed;

(b) any treaty in force at the date of the succession of States in respect only of that part of the territory of the predecessor State which has become a successor State continues in force in respect of that successor State alone.

Id.

157. McKenzie, *supra* note 137, at 587.

158. Succession of States, *supra* note 153, at art. 2(f) (“‘newly independent State’ means a successor State the territory of which immediately before the date of the succession of States was an dependent territory for the international relations of which the predecessor State was responsible”).

and environmental concerns, the United Nations has a role to play in dispute settlement and conflict avoidance.¹⁵⁹ “[T]he [International Court of Justice (“ICJ”)] has not yet adjudicated disputes concerning transnational African river basin management and development”¹⁶⁰ However, the most applicable ICJ case to the enforceability of the Nile treaties is the Gabčíkovo-Nagymaros Project case, which centered around Hungary’s withdrawal from a project on the Danube River and the resulting dispute with Slovakia.¹⁶¹ The Danube river is the second longest river in Europe.¹⁶² The objectives of the project were to produce hydroelectric power, control flooding, and improve navigation on a 200-kilometer stretch of the Danube between the two countries.¹⁶³ Both countries signed a treaty in 1977 to regulate the project.¹⁶⁴ Hungary backed out of the project in 1989 claiming economic and environmental reasons.¹⁶⁵ Czechoslovakia, the predecessor of Slovakia, immediately protested.¹⁶⁶ After failed negotiations, Czechoslovakia unilaterally decided to divert the Danube river to its territory.¹⁶⁷

The ICJ held that “mere unwillingness to continue” was not a sufficient reason to suspend the treaty.¹⁶⁸ It applied the 1969 Vienna Convention on the Law of Treaties and stated that the recognizable reasons for the suspension of a treaty include “(1) the existence of a state of necessity, (2) the impossibility of performance of the Treaty, (3) the occurrence of a fundamental change in circumstances, (4) the material breach of the Treaty by Czechoslovakia, and (5) the development of new norms of international environmental law.”¹⁶⁹ The ICJ also recognized the environmental implications of the project and stated that the parties must take the current environmental standards into consideration so that the project does not affect the quality and quantity of water in the river.¹⁷⁰ The ICJ ordered the two parties to negotiate and, if they failed to reach a resolution, stated that they could submit to the Court again after six months for an additional

159. Okaru-Bisant, *supra* note 4, at 358.

160. *Id.*

161. Peter H.F. Bekker, *Gabčíkovo-Nagymaros Project*, 92 AM. J. INT’L L. 273, 273 (1998).

162. *Id.*

163. *Id.*

164. *Id.*

165. *Id.*

166. *Id.*

167. *Id.*

168. McKenzie, *supra* note 137, at 588.

169. Bekker, *supra* note 161, at 274-275.

170. *Id.* at 276.

judgment.¹⁷¹ This case has far reaching implications for all of the riparian States, as they could apply the Court's reasoning as grounds to suspend the treaties.¹⁷²

The United Nations has a potentially large role to play, given the ability of the General Assembly to help create and reflect customary international law in the context of international water disputes,¹⁷³ although this is significantly undermined in the absence of universal consensus and presence of active dissenters. The United Nations Convention on the Law of Non-Navigable Uses of International Watercourses (the "Convention on International Watercourses") is of immediate legal relevance to the Nile crisis.¹⁷⁴ Although some scholars¹⁷⁵ have found various problems with applying the Convention

171. *Id.* at 278.

172. McKenzie, *supra* note 137, at 588.

173. Aaron Schwabach, *The United Nations Convention on the Law of Non-Navigational Uses of International Watercourses, Customary International Law, and the Interests of Developing Upper Riparians*, 33 TEX. INT'L L.J. 257, 259-260 (1998).

174. The Convention "established two key principles to guide the conduct of nations regarding shared watercourses: 'equitable and reasonable use' and 'the obligation not to cause significant harm' to neighbours." *Transboundary waters*, UNITED NATIONS DEP'T OF ECON. AND SOC. AFF. (UNDESA), http://www.un.org/waterforlifedecade/transboundary_waters.shtml (last visited Feb. 20, 2016). See Carolin Spiegel, *International Water Law: The Contributions of Western United States Water Law to the United Nations Convention on the Law of the Non-Navigable Uses of International Watercourses*, 15 DUKE J. COMP. & INT'L L. 333, 334 (2005). See also Gabriel Eckstein, *Application of International Water Law to Transboundary Groundwater Resources, and the Slovak-Hungarian Dispute over Gabčíkovo-Nagymaros*, 19 SUFFOLK TRANSNAT'L L. REV. 67, 73 (1995); Alex Grzybowski et al., *Beyond International Water Law: Successfully Negotiating Mutual Gains Agreements for International Watercourses*, 22 PAC. MCGEORGE GLOBAL BUS. & DEV. L.J. 139, 139-142 (2010); Schwabach, *supra* note 173, at 257-58; Paul R. Williams, *International Environmental Dispute Resolution: The Dispute Between Slovakia and Hungary Concerning Construction of the Gabčíkovo and Nagymaros Dams*, 19 COLUM. J. ENVTL. L. 1, 45 (1994).

175. Carroll, *supra* note 109, at 276-291 (giving a useful overview of regional agreements on the use of the Nile, dividing the analysis into colonial agreements, post-colonial agreements, and the inadequacy of the current Nile legal regime. The author also discusses various problems with applying the 1997 Convention on the Law of Non-Navigational Uses of International Watercourses to the Nile River situation. Background information on the technical and legal capability of Nile States to deal with management of the Nile River is also given, focusing specifically on Egypt, Sudan, Ethiopia, and Uganda. Lastly, the author focuses on the role of international organizations in resolving the conflict and presents a proposed Nile agreement.). See also Fasil Amdetsion, *Scrutinizing the Scorpion Problematique: Arguments in Favor of the Continued Relevance of International Law and A Multidisciplinary Approach to Resolving the Nile Dispute*, 44 TEX. INT'L L.J. 1 (2008) (advocating a multidisciplinary approach to equitable allocation of Nile resources is more appropriate); Jutta Brunnée & Stephen J. Toope, *The Changing Nile Basin Regime: Does Law Matter?*, 43 HARV. INT'L L.J. 105, 109-11 (2002); Takele Soboka Bulto, *Between Ambivalence and Necessity: Occlusions on the Path Toward a Basin-Wide Treaty in the Nile Basin*, 20 COLO. J. INT'L ENVTL.

on International Watercourses to the Nile situation, it “does provide a guide for interpreting and possibly predicting the actions of most states with respect to international watercourses.”¹⁷⁶ It is possible that in the future the Convention on International Watercourses may be applied “to questions involving states which have not ratified or acceded to it.”¹⁷⁷

The Convention on International Watercourses directly focused on water resource governance.¹⁷⁸ It entered into force on August 17, 2014, in accordance with article 36(1); however, none of the Nile riparian States are signatories.¹⁷⁹ Nonetheless, it is considered to codify customary principles of international water law.¹⁸⁰ This convention rejects the principle of unlimited water use by riparian States.¹⁸¹ It means that all riparian States have the right to an equitable share of the water.¹⁸² The Helsinki Rules on the Uses of the

L. & POL'Y 291, 295 (2009); Dellapenna, *supra* note 4, at 60; Donald T. Hornstein, *Environmental Sustainability and Environmental Justice at the International Level: Traces of Tension and Traces of Synergy*, 9 DUKE ENVTL. L. & POL'Y F. 291, 294 (1999); Knobelsdorf, *supra* note 134, at 635; McKenzie, *supra* note 137, at 586 (providing an overview and history of Nile treaties and multilateral agreements); Dereje Zeleke Mekonnen, *The Nile Basin Cooperative Framework Agreement Negotiations and the Adoption of a 'Water Security' Paradigm: Flight Into Obscurity or a Logical Cul-de-Sac?*, 21 EUR. J. INT'L L. 421, (2010); Shih & Stutz, *supra* note 1, at 10787-88 (reviewing a history of treaties within the Nile Basin, reviewing upstream riparian arguments that colonial treaties are void after independence. The authors conclude that laws of state succession uphold the territorial treaties governing the Nile, but regardless, “the stark deprivation of vital human needs in the upstream countries sufficiently voids the colonial-era treaties.”); Lisa M. Jacobs, Comment, *Sharing the Gift of the Nile: Establishment of a Legal Regime for Nile Waters Management*, 7 TEMP. INT'L & COMP. L.J. 95, 95 (1993). Cf. Keith Hayward, *Supporting Basin-Wide Reforms With an Independent Assessment Applying International Water Law: Case Study of the Dnieper River*, 18 COLO. J. INT'L ENVTL. & POL'Y 633, 633 (2007); A. Dan Tarlock & Patricia Wouters, *Are Shared Benefits of International Waters an Equitable Apportionment?*, 18 COLO. J. INT'L ENVTL. L. & POL'Y 523 (2007).

176. Schwabach, *supra* note 173, at 279.

177. *Id.*

178. McKenzie, *supra* note 137, at 590.

179. Stephen V. McCaffrey, *Convention on the Law of the Non-Navigational Uses of International Watercourses*, U.N. AUDIOVISUAL LIBRARY OF INT'L L. 1, 2 (May 21, 1997), <http://legal.un.org/avl/ha/clnuiw/clnuiw.html>. For a status of the Convention and a list of states that have signed and ratified the Convention, see *United Nations Treaty Collection*, UNITED NATIONS TREATY COLLECTION, https://treaties.un.org/Pages/ViewDetails.aspx?src=IND&mtdsg_no=XXVII-12&chapter=27&lang=en (last visited Feb. 13, 2016).

180. Grzybowski et al., *supra* note 174, at 141; McKenzie, *supra* note 137, at 590.

181. McCaffrey, *supra* note 179.

182. McKenzie, *supra* note 137, at 590-91 (explaining that a state has the right to exploit its own natural resources as long as it is not explicitly prohibited. This principle is known as the Lotus principle named after the Lotus case decided by the Permanent Court of

Waters of International Rivers (“Helsinki Rules”) describe this equitable use as each state is “entitled, within its territory, to a reasonable and equitable share in the beneficial uses of the waters of an international drainage basin.”¹⁸³ The Helsinki Rules also contemplate many variables such as geography or population to determine what is “reasonable and equitable” for each state.¹⁸⁴

This possible formula may balance the needs of all riparian States.¹⁸⁵ For example, Egypt claims that the Nile is its only water source while the rest of the riparian States have other access to water.¹⁸⁶ The Helsinki Rules will take this into consideration to determine Egypt’s equitable share of the Nile. A basin wide cooperation should not focus solely on the economic implication of these water rights, but also on the promotion of “development, social equity, and environmental protection in a fair and sustainable manner . . .”¹⁸⁷ This is endorsed by the ICJ in the Gabčíkovo-Nagymaros Project case.¹⁸⁸ By granting each state the right to an equitable share, all states are forced to consider the future to ensure that the water resources can benefit future generations.¹⁸⁹

International Justice between France and Turkey. This abandoned principle was recently revived by the ICJ in its Advisory Opinion on the Unilateral Declaration of Independence in Respect of Kosovo. The Court “point[ed] out that the Lotus principle goes against a general shift in international law to recognize principles of equality and fairness that transcend the ‘four corners’ of the basic document.”)

183. Helsinki Rules on the Uses of the Waters of International Rivers, art. 4, (Aug. 14-20, 1966).

184. *Id.* at art. 5.

185. *See* McKenzie, *supra* note 137, at 591-92.

186. *The Nile Basin*, FOOD & AGRIC. ORG. OF THE UNITED NATIONS, <http://www.fao.org/docrep/w4347e/w4347e0k.htm> (last visited Feb. 20, 2016).

187. McKenzie, *supra* note 137, at 592 (citing A. Dan Tarlock & Patricia Wouters, *Are Shared Benefits of International Waters an Equitable Apportionment?*, 18 COLO. J. INT’L ENVTL. L. & POL’Y 523, 536 (2007)).

188. *Id.*

189. *Id.*; Carroll, *supra* note 109, at 283.

C. *The Nile Basin Initiative*

The Nile basin States are different from African basin states¹⁹⁰ in the lack of formal regional agreements that include all affected parties.¹⁹¹ Most of the agreements are poorly enforced since key nations are typically excluded, and there exists a lack of genuine commitment to enforcement, and absence of well-defined boundaries and principles governing boundaries.¹⁹² Several international laws on water resources are pertinent in addition to the UN Convention listed above, including the International Law Association's 1966 Helsinki Rules,¹⁹³ the International Law Commission's draft rules,¹⁹⁴ and the Stockholm Principle 21.¹⁹⁵

The African Union ("AU") is a continental union in Africa which was established in 2002 and consists of fifty-three states.¹⁹⁶ However, there is no commission specially addressing the Nile conflict amongst the ten riparian States who are members to the AU.¹⁹⁷ Realizing the pertinent need to work together, the ten riparian States—Burundi, DRC, Egypt, Ethiopia, Kenya,

190. Okaru-Bisant, *supra* note 4, at 348 (explaining that agreements concerning the Niger River basin, the Senegal River basin, the SADC protocol, and the Zambezi River basin all included a dispute resolution clause to "promote cooperation in transnational water resources development and management.").

191. *Id.*

192. *Id.* at 349.

193. Helsinki Rules on the Uses of the Waters of International Rivers, (Aug. 14-20, 1966). See also Stephen C. McCaffrey, *Water, Politics, and International Law in WATER IN CRISIS: A GUIDE TO THE WORLD'S FRESH WATER RESOURCES* 92, 98 (Peter H. Gleick ed., 1993).

194. Int'l Law Comm'n, *Draft Articles on the law of the Non-Navigational Uses of International Watercourses*, U.N. GAOR, 43rd Sess., U.N. Doc. A/CN.4/L.463/Add.4 (1991), reprinted in 3 COLO. J. INT'L ENVTL. L. & POL'Y 1 (1992). See also McCaffrey, *supra* note 193, at 98-99.

195. Salzburg Resolution on the Use of International Non-Maritime Waters, available in 49-II Annuaire de l'Institut de Droit International, Salzburg Sess., Sept., Basel, 381-84 (1961); Athens Resolution on the Pollution of the Rivers and Lakes and International law, available in 58-I Annuaire de l'Institut de Droit International, Athens Sess., Sept., Basel/Munich, 197 (1980). See also McCaffrey, *supra* note 193, at 98.

196. *History of the OAU and AU*, AFRICAN UNION <http://www.au.int/en/history/oau-and-au> (last visited Feb. 25, 2016).

197. The Chairperson of the Africa Union Peace and Security Commission calls for dialogue and cooperation on the issue of the Nile river water management. *The African Union Commission Calls for Dialogue and Cooperation on the Issue of the Nile River Water Management*, AFRICAN UNION (June 6, 2013), <http://www.au.int/en/newsevents/11408/african-union-commission-calls-dialogue-and-cooperation-issue-nile-river-water>; Africa Union Peace and Security Commission, *The African Union Commission Calls for Dialogue*, <http://www.peaceau.org/en/article/the-african-union-commission-calls-for-dialogue-and-cooperation-on-the-issue-of-the-nile-river-water-management> (last updated June 12, 2013).

Rwanda, South Sudan, Sudan, Tanzania, and Uganda established the Nile Basin Initiative (“NBI”) in 1999.¹⁹⁸ This “regional inter-governmental partnership” is an all-inclusive platform for the States to work together toward “regional peace and security.”¹⁹⁹ The goal of the NBI is to develop the water resources of the Nile Basin sustainably and seek cooperation between the riparian countries.²⁰⁰ NBI developed the Nile Basin Sustainability Framework (NBSF) through a participatory, consultative process.²⁰¹ NBI States also developed a Benefit Sharing Framework in 2009.²⁰² One scholar called the launching of the NBI “an unprecedented breakthrough” and a “significant departure in the hydro-political history of the basin” from hegemonic control towards shared control.²⁰³

Upper riparian States opened the Nile Basin Cooperative Framework Agreement for signatures in 2010, and the agreement “claims to announce the rights of upper riparian States to use the waters of the Nile”—rights that have been ignored in many previous agreements.²⁰⁴ The treaty “is best explained as a first step to counter and undo the hegemonic actions of Egypt.”²⁰⁵ It is predicted that while the agreement alone is unlikely to unseat Egyptian hegemony, it could turn the tide.²⁰⁶ Conflict resolution is multi-layered. It includes biblical standards that conform with the international legal system of cooperation and mediation.

198. *Nile Basin Initiative*, <http://www.nilebasin.org/index.php/about-us/nile-basin-initiative> (last visited Feb. 28, 2016). See Grzybowski et al., *supra* note 174, at 152.

199. *Nile Basin Initiative*, <http://www.nilebasin.org/index.php/about-us/nile-basin-initiative> (last visited Feb. 28, 2016) (“NBI was conceived as a transitional institution until the Cooperative Framework Agreement (CFA) negotiations were finalized and a permanent institution created. The highest decision and policy-making body of NBI is the Nile Council of Ministers (Nile-COM), comprised of Ministers in charge of Water Affairs in each NBI Member State. The Nile-COM is supported by the Nile Technical Advisory Committee (Nile-TAC), comprised of 20 senior government officials, two from each of the Member States.”).

200. *Id.*

201. *NBSF, NILE BASIN INITIATIVE* <http://nileis.nilebasin.org/content/nbsf> (last visited Feb. 28, 2016).

202. See Grzybowski et al., *supra* note 174, at 152.

203. Mekonnen, *supra* note 175, at 440.

204. Ibrahim, *supra* note 73, at 284.

205. *Id.*

206. *Id.* at 312.

D. Benefits of Resolving the Nile Conflict from a Biblical Perspective

As stated in the introductory paragraph in this article, when God created mankind,²⁰⁷ He blessed them and said:

Rule over the fish in the sea and the birds in the sky and over every living creature that moves on the ground. Then God said, "I give you every seed-bearing plant on the face of the whole earth and every tree that has fruit with seed in it. They will be yours for food. And to all the beasts of the earth and all the birds in the sky and all the creatures that move along the ground—everything that has the breath of life in it—I give every green plant for food."²⁰⁸

God gave man dominion and control over the earth. However, this is not an unfettered right that man can exploit.

The Nile River is God's gift to mankind and to the riparian States. It is up to the States to be faithful stewards of God's grace and not fall into the temptation and love for money and power. God instructed on conflict resolution long ago.²⁰⁹ If any one of the riparian States refuses to be a good steward, there are a few steps the other States could take.

If your brother sins against you, go and tell him his fault, between you and him alone. If he listens to you, you have gained your brother. But if he does not listen, take one or two others along with you, that every charge may be established by the evidence of two or three witnesses. If he refuses to listen to them, tell it to the church.²¹⁰

If a state fails to follow treaties or customary international laws, then the affected state or states should engage in negotiation with that state. If negotiation fails, the affected states could take the dispute to the ICJ or other international tribunal, such as the Permanent Court of Arbitration for a ruling. If that state still refuses to abide by the ruling, then the affected states

207. *Genesis* 1:26 (NIV). The Bible says in 1 *Timothy* 6:6-10 (NIV):

But godliness with contentment is great gain. For we brought nothing into the world, and we can take nothing out of it. But if we have food and clothing, we will be content with that. Those who want to get rich fall into temptation and a trap and into many foolish and harmful desires that plunge people into ruin and destruction. For the love of money is a root of all kinds of evils. Some people, eager for money, have wandered away from the faith and pierced themselves with many griefs.

208. *Genesis* 1:28-30 (NIV).

209. *Matthew* 18:15-17 (KJV).

210. *Id.*

could bring the dispute to the attention of a regional or global governance body, such as the African Union or the United Nations, and in turn the Security Council, for binding resolutions and regional or international pressure. The affected states are required under these principles to work with each other in good faith.

PART V. RECOMMENDATIONS AND CONCLUSION

There are already comprehensive international laws and biblical principles that are applicable to the Nile water conflict. The riparian States must be willing to work together and focus on collective benefits instead their individual needs. The Nile water belongs to no one, as each riparian State has the right to an equitable share of the Nile. The reasons for cooperation are clear.

Water is so important, nations cannot afford to fight over it. Instead, water fuels greater interdependence [and cooperation]. By coming together to jointly manage their shared water resources, [riparian States, with the help of the neutral international community,] can build trust and prevent conflict.²¹¹

Water can be the means for negotiation and can offer a communication lifeline connecting countries in the midst of crisis.²¹²

To do that, there must be Nile basin-wide cooperation. The ICJ in the Gabcikovo-Nagymaros Project case stated that all states must engage in good faith negotiation. Eritrea, for example, is not acting in good faith. It is the only Nile basin state that has not participated in any negotiations at the NBI.²¹³ It only participated in the meeting of the Council of Ministers as an observer.²¹⁴ Without all affected States' participation in negotiations, no equitable and all-inclusive agreement can be reached. Therefore, regional cooperation is needed and all States must look to customary international law to develop a cooperative framework. The principle of sustainable development for the common good should be applied by all states for the benefit of their citizens. The undisputed importance of water leads to the conclusion that water can be a pathway to peace and not war.

211. Aaron Wolf et al., *Water can be a Pathway to Peace, Not War (No. 1)* WILSON CTR. (July 7, 2011), <https://www.wilsoncenter.org/publication/water-can-be-pathway-to-peace-not-war-no-1>.

212. *Id.*

213. See Grzybowski et al., *supra* note 174, at 153 n.49.

214. *Id.*