ANALYZING THE IMPLICATIONS OF THE GRAND ETHIOPIAN RENAISSANCE DAM

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I. INTRODUCTION

Water is the most vital resource and access to freshwater is essential to the function of a modern state. Beyond access to drinkable water, states also use freshwater as a resource in agriculture and energy production. Climate change has also rendered water increasingly scarce. According to the United Nations, 1.8 billion people will live in countries experiencing water scarcity by 2025, and two-thirds of the world's population could live under water-stressed conditions by that time.[1] In 2020, the Chicago Mercantile Exchange (CME) began allowing for the trade of water futures.[2] This will allow municipalities to buy water futures in order to hedge against increased prices for water, and by extension for other goods such as crops, and to thus ensure that their communities retain access to increasingly scarce and expensive freshwater.[3]

The ways in states allocate their natural resources can often lead to disputes and disagreements among parties with conflicting interests. When the disputing parties are sovereign states, the conflict may intensify. As freshwater supplies diminish globally, states may begin to compete more aggressively for the remaining supplies.[4] Bodies of freshwater that lie between two or more states oftentimes engender such

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1. *See International Decade for Action 'Water for Life,'* United NATIONS (Nov. 24, 2014), https://www.un.org/waterforlifedecade/scarcity.shtml (describing how issues concerning scarcity of access to freshwater will increase in the coming years).

2. *See* Grace Perry, *The Futures of Water*, CHICAGO MAGAZINE (Jan. 15, 2021, 10:46 AM), https://www.legalbluebook.com/bluebook/v21/rules/18-the-internet-electronic-media-and-other-nonprint-resources/18-2-the-internet (explaining how water futures will allow cities and farmers to hedge against rising water prices in California in the event of a drought).

3. *See id.*

4. *See* Perry, *supra* note 2.

conflicts.[5] Where the body of water originates in one state and flows downstream into others, the upstream state's decisions can have drastic implications for all downstream states.

The situation unfolding around the construction and opening of the Grand Ethiopian Renaissance Dam (GERD) demonstrates the concerns and complexities of freshwater disputes between states. Ethiopia is finalizing the construction of a dam on the Blue Nile River, which flows downstream from Ethiopia into Sudan and Egypt.[6] Interested parties expect the GERD to have a drastic impact on the freshwater supplies of Sudan and Egypt in the short term, and to raise longer-term concerns over water management in the event of a drought.[7] Ongoing cooperation efforts and negotiations between the three countries over the past decade have highlighted challenges which may only become more common as global access to freshwater continues to diminish.

If an agreement over the operation of the GERD can be reached, Ethiopia, Egypt, and Sudan would position themselves to withstand any future issues arising from droughts and provide a blueprint for resolution to similar issues as they continue to arise globally. This annotation will examine the dispute between Ethiopia, Egypt and Sudan, as well as the interests all sides have in the GERD. Section I outlines the history of the GERD, as well as Egypt and Sudan's opposition to the GERD. Section II examines the GERD dispute as a Tragedy of the Commons in which Ethiopia has control over a shared finite resource that all sides have an interest in. Finally, Section III analyzes the solutions that have been attempted and proposed to resolve the dispute.

II. HISTORY OF THE GRAND ETHIOPIAN RENAISSANCE DAM

Diplomatic agreements regarding the Nile are nothing new for

5. *See* Nikki Kallio, *Aral Sea Neighbors Come Together to Resolve Conflicts over a Scarce Resource*, ROTARY, https://www.rotary.org/en/aral-sea-neighbors-resolve-conflicts-over-water (describing how

states bordering the Aral Sea collaborated to offset the effects of water loss).

6. *See Why is the Grand Ethiopian Renaissance Dam Contentious?*, ECONOMIST (Feb, 11, 2021), https://www.economist.com/the-economist-explains/2021/02/11/why-is-the-grand-ethiopian-renaissance-dam-contentious. (describing how the construction of the GERD has led to diplomatic conflict between the states of Ethiopia, Sudan and Egypt as the latter two states have expressed concerns over the GERD decreasing their water supply).

7. *Id.*

Ethiopia, Egypt, and Sudan. The Nile Waters Agreements of 1929 and 1959 between Egypt and Sudan grant those countries the exclusive right to use all of the water of the Nile River that flows between them.[8] Notably, the agreements give Egypt veto power over any upstream construction projects, including dams, but Ethiopia is not a party to these agreements and refuses to adhere to their provisions.[9] In the Cairo Cooperation Framework of 1993, Ethiopia and Egypt pledged not to undertake water projects harmful to the interests of the other country.[10] Ethiopia first announced the GERD, a proposed dam on the Blue Nile, in 2011.[11] Egypt has, until recently, acted as the primary opponent to the dam's construction.[12] Egypt obtains 95% of its water from the Nile River, and Egyptian leadership has expressed concern over Ethiopia having unregulated power to control how much water flows to Sudan and Egypt on the Nile.[13]

As the GERD nears completion, efforts to reach a diplomatic agreement over Ethiopia's usage of the dam have been unsuccessful. Egypt seeks a "legally binding agreement over river flows and demands that Ethiopia release certain amounts of water to top up the Nile, especially in the event of a drought, once the dam is operational,"[14] and has threatened to take military action to destroy the dam if the two sides are unable to come to an agreement.[15] Sudan's preferences were aligned with Ethiopia's until Ethiopia released a large amount of water from the GERD in November 2020, increasing fear among Sudanese officials that such releases could potentially overwhelm their own, smaller dam downstream of the GERD.[16] This newfound concern may

8. *Factbox: Nile River agreements and Issues,* REUTERS (July 27, 2009), https://www.reuters.com/article/us-egypt-nile-factbox-sb/factbox-nile-river-agreements-and-issues-idUSTRE56Q3MD20090727.

9. *See id.*

10. *See* REUTERS, *supra* note 8.

11. *See* ECONOMIST, *supra* note 6.

12. *See* Max Bearak & Sudarsan Raghavan, *Africa's largest dam powers dreams of prosperity in Ethiopia – and fears of hunger in Egypt*, WASH. POST (Oct. 15, 2020, 1:29 P.M.), https://www.washingtonpost.com/world/interactive/2020/grand-ethiopian-renaissance-dam-egypt-nile/ (outlining Egypt's opposition to the GERD).

13. *See id.*

14. ECONOMIST, *supra* note 6.

15. *See id.*

16. *See id.*; Khalid Abdelaziz, *Filling Ethiopia's Renaissance Dam in July threatens Sudan's security - minister*, REUTERS (Feb. 6, 2021, 1:46 P.M.), https://www.reuters.com/article/us-ethiopia-dam-sudan-idUSKBN2A60P3. (stating that Ethiopia filling the GERD by July 2021 is a "direct threat to Sudan's national security").

lead Sudan to adopt a more hardline approach to negotiations with Ethiopia, in line with Egypt.[17] Ethiopia wants to come to an agreement with both countries on legally nonbinding guidelines.[18] Instability within Ethiopia due to the Tigray conflict has increased the likelihood that these states will not reach a diplomatic agreement before the anticipated opening date for the GERD.[19]

III. AN ASYMMETRIC TRAGEDY OF THE COMMONS

The Tragedy of the Commons holds that where there is a shared finite resource, all individuals will act in self-interest by maximizing their own use of the resource, ultimately leading to its depletion and demise.[20] "Natural resources, including water and biodiversity, are subject to overexploitation when humans use them to their individual advantage without considering the good of society."[21] As climate change makes certain natural resources, such as water, more scarce, further issues are likely to unfold.[22] Some scholars have referred to climate change as "the greatest tragedy of the commons."[23] The Tragedy of the Commons is increasingly relevant to environmental conservation policy. The lack of internationally agreed-upon standards and regulations on common-pool resources[24] has created a strain on many resources. The shared usage of the Blue Nile River by Ethiopia, Sudan,

17. Samy Magdy, *Egypt Backs Call to Internationalize Ethiopia Dam Dispute*, WASH. POST (Feb. 24, 2021, 11:56 A.M.), https://www.washingtonpost.com/world/middle_east/egypt-backs-call-to-internationalize-ethiopia-dam-dispute/2021/02/24/30dd90e6-76c1-11eb-9489-8f7dacd51e75_story.html (noting that Sudanese concerns over Ethiopia's management of the GERD have led Sudan toward adopting a stricter approach to negotiating with Ethiopia).

18. *See id.*

19. *See Tigray Conflict Threatens the Grand Ethiopian Renaissance Dam*, POWER TECHNOLOGY (Jan. 6, 2021), https://www.power-technology.com/comment/tigray-conflict-grand-ethiopian-renaissance-dam (noting that internal instability has decreased the likelihood of a diplomatic agreement being reached in the GERD dispute).

20. Margaret E. Banyan, *Tragedy of the Commons*, ENCYCLOPEDIA BRITANNICA: SAVING EARTH, https://www.britannica.com/explore/savingearth/tragedy-of-the-commons.

21. *See id.*

22. *See id.*

23. Stephen Battersby, *News Feature: Can Humankind Escape the Tragedy of the Commons?*, PNAS (Jan. 3, 2017), https://www.pnas.org/content/114/1/7.

24. *See* Xavier Basurto, *Common-Pool Resource*, ENCYCLOPEDIA BRITANNICA, https://www.britannica.com/science/common-pool-resource (defining common pool resources as those "made available to all by consumption and to which access can

and Egypt presents a compelling Tragedy of the Commons case. However, unlike in the typical Tragedy of the Commons scenario in which individuals have equal access to the common-pool resource, the conflict over the GERD presents a situation in which one state has disproportionate control over the commons. All three states share the Blue Nile River, but Ethiopia maintains disproportionate control over the flow of water from its location upstream of Sudan and Egypt.

The GERD situation is not entirely unique. Some scholars have argued that in situations of asymmetric control over shared resources, exemplified by the GERD case, there exist three preconditions to effective allocation and coordination of the resource: collective decision-making, graduated sanctions for bad actors, and a means for users to make rules governing the resource.[25] Typical solutions proposed in similar conflicts have emphasized the importance of cooperation and coordination between states.[26] The dispute over the opening and operation of the GERD stands at odds with each of these principles,[27] as Ethiopia has total control over the dam and the land surrounding the dam, and remains unwilling to cede decision-making power to Egypt or Sudan. The Tragedy of the Commons playing out in the GERD conflict emblematizes diplomatic issues that commonly arise from climate change. In order to facilitate international cooperation that will allow greater prosperity and security for the entire region, one state must sacrifice some sovereignty over its natural resources.[28]

IV. ANALYZING PROPOSED AND ATTEMPTED SOLUTIONS TO THE GERD CONFLICT

Various solutions have been proposed for resolving the dispute between Ethiopia, Egypt, and Sudan over the GERD. As discussed above, Ethiopia and Egypt have conflicting proposals for how to resolve the dispute and the corresponding concerns over the GERD's

be limited only at high cost").

25. Battersby*, supra* note 23.

26. *Id.*

27. *See* Jennifer Jacquet, David Frank & Christopher Schlottmann, *Asymmetrical Contributions to the Tragedy of the Commons and Some Implications for Conservation*, 5 SUSTAINABILITY 1036, 1040 (2013), https://doi.org/10.3390/su5031036 (discussing the difficulties of achieving sustainability in circumstances where one party has control over a shared resource).

28. *See* G.A. Res. 1803 (XVII), ¶ 2 (Dec. 14, 1962) (emphasizing sovereignty over natural resources as an essential aspect of national sovereignty).

impact on the Blue Nile.[29]

The African Union and the United States have both offered to mediate the dispute, but formal mediation between the two sides has not yet been attempted or agreed upon.[30] Mediation would arguably produce the best outcome, as all three states cooperating to ensure the GERD does not interfere with Egypt or Sudan's access to water in the event of a drought would likely prevent future conflicts.

Although cooperation among the three states would likely lead to the best outcome, the parties may face difficulty finding common ground. As stated previously, Egypt desires a legally binding agreement so that in the event of a drought or other water shortage it can ensure that sufficient water is being provided to Egyptians.[31] Ethiopia would rather come to a nonbinding agreement over unenforceable guidelines for its usage of the GERD.[32] Foreign intervention in the form of sanctions has also proved unsuccessful. The United States suspended aid to Ethiopia in 2020 in response to Ethiopia's decision to move forward with the GERD without reaching an agreement with Egypt and Sudan.[33] Egypt and Sudan have called for international mediation by the European Union, the United States, the United Nations, and the African Union.[34]

Some scholars have proposed privatization as a solution in similar disputes over the allocation of water resources.[35] However, private organizations have their own motivations, including profit, and present a strong risk that the motivations of private actors may conflict with the interests of the people living in the region. Further, private management of the resource would still require Ethiopia to sacrifice its sovereignty over the dam by allowing non-state actors a say in the operation of the GERD. Ethiopia has therefore shown consistent opposition to privatization.[36] Ethiopia views the GERD as its opportunity to dramatically increase their prosperity, and has been unwilling to risk hand-

29. *See* ECONOMIST, *supra* note 6.
30. *Id.*
31. *Id.*
32. *Id.*
33. *Id.*
34. Magdy, *supra* note 17.
35. Battersby, *supra* note 23.
36. Magdy, *supra* note 17.

ing over the GERD, and their future, to a private entity that could potentially open the GERD to foreign control and influence.[37]

If the parties fail to reach a diplomatic solution, a potentially worse series of consequences may arise. Egypt and Sudan face serious concerns that, if Ethiopia does not manage the dam with consideration for their interests, they could suffer severe harm to the quality and quantity of water that they receive from the Blue Nile. First, Sudan has concerns over the amount of sediment in the water released so far,[38] and worries that too much water released from the GERD at once could overwhelm and damage or destroy Sudan's smaller Merowe and Roseires dams.[39] Additionally, both Sudan and Egypt have concerns over how much water Ethiopia would release from the GERD in the event of a drought. Evaporation losses on the Nile could increase by as much as 5.9%, which in turn could cause a severe famine in the event of a multi-year drought, the likelihood of which will only increase as the climate continues to change.[40] Additionally, Egypt has already threatened to take military action against Ethiopia to disable or destroy the GERD if it is opened before the parties agree to a diplomatic solution, and the opening of the dam without an agreement could also lead to a larger conflict between Ethiopia and Egypt arising from any Egyptian military incursion.[41]

V. CONCLUSION

The Grand Ethiopian Renaissance Dam poses new and complex challenges for Ethiopia, Egypt and Sudan. Similar issues have already unfolded in other parts of the world,[42] and will continue to arise elsewhere as the impacts of climate change intensify. As commonly shared resources become increasingly scarce, states will need to work together to meet the challenges brought about by climate change. Absent a dip-

37. WASH. POST, *supra* note 12.

38. ECONOMIST, *supra* note 6.

39. *Id.*

40. *See* Walaa Y. El-Nashar & Ahmed H. Elyamany, *Managing Risks of the Grand Ethiopian Renaissance Dam on Egypt*, 9 AIN SHAMS ENGINEERING J. 2383, 2384 (2018), https://www.sciencedirect.com/science/article/pii/S2090447917300837 (noting that the amount of water in the Nile River lost to evaporation will increase by 5.9% annually, which will limit the quantity and quality of water available to nations down river from GERD).

41. Magdy, *supra* note 17.

42. *See* Kallio, *supra* note 5 (describing how states bordering the Aral Sea collaborated to offset the effects of water loss).

lomatic solution in the GERD case, the effects of either a conflict between states competing for water or a drought worsened by the lack of effective cooperation and water resource allocation between the states could devastate all three states. By coming to a mutual agreement over the use of the GERD that balances international cooperation while allowing Ethiopia to maintain sovereignty over the GERD, Ethiopia, Egypt, and Sudan could better position themselves to withstand any future issues arising from droughts and provide a blueprint for resolving similar issues as they arise elsewhere in the world.