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I. INTRODUCTION

"Water may be the resource that defines the limits of sustainable development. It has no substitute, and the balance between humanity's demands and the quantity available is already precarious."[1] While it may appear that the Earth is covered with an abundance of water, in reality, only about 2.5% of the Earth's water is freshwater suitable for human use.[2] Of that 2.5%, nearly 98.8% is trapped in polar ice caps, glaciers, and groundwater, leaving only 1.2% of freshwater for all human uses including household, industrial, and agricultural.[3]

Additionally, the meager .03% of the Earth's water that is available for human use is not evenly divided around the world. For example, almost a quarter of this water is sitting in Lake Baikal in Siberia where it is not easily accessible.[4] Latin America also has twelve times more water per person than South Asia.[5] In 2006, the United Nations reported that approximately 700 million people around the world lived below the water-stress threshold of 1,700 cubic meters of water per capita.[6] While the water scarcity problem has not reached catastrophic proportions, population growth and increased demands on fresh water for industrial and agricultural uses could generate catastrophes sooner than expected. A recent study out of the Massachu-

1. U.N. POPULATION FUND, THE STATE OF WORLD POPULATION 5 (2001).

2. *The World's Water*, U S GEOLOGICAL SURVEY, http://water.usgs.gov/edu /earth wherewater.html (last visited Sept. 8, 2015).

3. *Id.*

4. U.N. DEV. PROGRAMME, HUMAN DEVELOPMENT REPORT 2006: BEYOND SCARCITY: POWER, POVERTY, AND THE GLOBAL WATER CRISIS 135 (Palgrave Macmillan 2006).

5. *Id.*

6. *Id.* at 14. Several methodologies have been developed through which a region or country can be classified as water-stressed or water-scarce based on the average annual freshwater availability per capita. The most widely used method is the *Falkenmark Indicator* with four classification levels (cubic meters/capita): >1,700—No Stress; 1,000–1,700—Stressed; 500–1,000—Scarcity; <500—Absolute Scarcity. *See* Amber Brown & Marty D. Matlock, *A Review of Water Scarcity Indices and Methodologies*, THE SUSTAINABILITY CONSORTIUM (Apr. 2011), https://www.sustainabilityconsortium.org/wp-content/themes/sustainability/assets/ pdf/white papers /2011_Brown_Matlock_Water-Availability-Assessment-Indices-and-Methodologies-Lit-Review.pdf

setts Institute of Technology shows that by 2050, 52%, or roughly five billion, of the projected 9.8 billion people will live in water-stressed areas.[7]

To exacerbate the problem, water is not a commodity that always sits still, remaining within one nation or state. There are "263 international river basins [that] cover 45.3 percent of Earth's land surface, host about 40 percent of the world's population, and account for approximately 60 percent of global river flow."[8] The Danube river basin alone is shared by seventeen countries.[9] Solutions to water scarcity cannot be unilaterally solved as what may be good for one country may not always be beneficial to downstream states.

This paper discusses the implications of upstream states' actions that significantly impair the ability of downstream states to provide the minimum necessary supply of water to their citizens. More specifically, this paper explores whether actions that cause immediate and significant harms to the ability to provide the minimum amount of water required can be considered armed attacks under the United Nations Charter paradigm and current *jus ad bellum* framework and justify a self-defense response by the harmed nation(s). Part II of this paper outlines the current framework of when an armed response in self-defense is justified in response to an armed attack. Part III will apply that framework to situations in which water is captured by one state in a manner that directly, immediately, and significantly harms another state. The paper will conclude in Part IV.

II. CURRENT FRAMEWORK FOR ARMED CONFLICTS AND SELF-DEFENSE

World War II changed the way the world looked at armed conflict. This shift was reflected in the newly formed United Nations and the content and structure of its Charter. The first line of the preamble to the Charter states that the United Nations' primary goal is "to save succeeding generations from the scourge of war, which twice in our lifetime has brought untold sorrow to mankind."[10] Continuing in chapter one, the Charter further states that the "[p]urpose[] of the

7. Alli Gold Roberts, *Predicting the Future of Global Water Stress*, MIT NEWS (Jan. 9, 2014) http://news.mit.edu/2014/predicting-the-future-of-global-water-stress.

8. .Wolf, et al. *State of the World 2005 Global Security Brief #5: Water Can Be a Pathway to Peace, Not War*, WORLDWATCH INSTITUTE (Aug. 30, 2015), www.worldwatch. org/node/79.

9. *Id.*

10. U.N. Charter preamble.

United Nations [is] to maintain international peace and security."[11] To fulfill this purpose, the primary obligation of Member Nations is to "refrain in their international relations from the threat or use of force against the territorial integrity or political independence of any state, or in any other manner inconsistent with the Purposes of the United Nations."[12] The Charter recognizes, however, that aggression may yet occur and established a framework under which one state can legally use force against another state or organized armed force.[13] This section will outline the circumstances within the United Nations framework when war, used as self-defense, is a legally viable option that could apply to circumstances in which water resources are withheld by a state to harm another.

Outside of responding to an armed attack in self-defense, there exists in the U.N. Charter only two other ways in which a state can use force against another state or even against a stateless organized armed group: internal domestic matters[14] or actions authorized by the Security Council.[15] For the purposes of this paper, internal domestic matters will not be discussed because one riparian state[16] harming another could never be purely internal. The U.N. Security Council has the authority to authorize the use of force by identifying "the existence of any threat to the peace, breach of the peace, or act of aggression"[17] and situations when actions short of the use of force are insufficient.

Outside response to an armed attack, internal conflict, or authorization by the U.N. Security council, there is no legal basis for a use of force. However, there is a sentiment growing in the international humanitarian law community that there should exist a framework that allows for force to be used in a humanitarian context. "Humanitarian intervention . . . can be defined as the use of force to protect people in another State from *gross and systematic human rights violations* committed against them, or more generally to avert a humanitarian catastrophe, when the target State is unwilling or unable to

11. *Id.* art. 1, ¶1.

12. *Id.* art. 2, ¶ 4.

13. *See id.* art. 2, ¶ 7; *see also id.* art. 51.

14. U.N. Charter art. 2, ¶ 7.

15. *Id.* art. 39.

16. "Riparian state" when used in this paper refers to a state that shares a watercourse with another state or states. In other words, when one watercourse or water system transcends the boundaries of a nation, those states will be riparian states/neighbors in regards to the states that share that same watercourse.

17. U.N. Charter art. 39.

act."[18] The concept that a state could and should intervene when human rights are involved has existed since the time of Grotius, but only in a scholarly form, and no states have ever used the concept pre-U.N. Charter as the sole justification to go to war.[19]

While other U.N. sanctioned paths lead to the justifiable use of force, this paper will limit its scope to actions authorizing the use of self-defense without U.N. Security Council intervention.

A. Self-Defense Under the United Nations Charter

The use of force is typically prohibited between states by the U.N., and Member Nations are obligated to respect the territorial and political independence of other states.[20] However, Article 51 of the U.N. Charter states that "[n]othing in the present Charter shall impair the inherent right of individual or collective self-defense if an armed attack occurs against a Member of the United Nations, until the Security Council has taken measures necessary to maintain international peace and security."[21] This inherent right, pre-dating the U.N. Charter itself, has only one prerequisite: there must be an armed attack to justify the use of force in self-defense. The International Court of Justice (ICJ) in *Nicaragua v. United States* stated, "[t]he Court therefore finds that Article 51 of the Charter is only meaningful on the basis that there is a 'natural' or 'inherent' right of self-defense, and it is hard to see how this can be other than of a customary nature . . . ."[22] The ICJ, in this sentence, clearly states the understanding that the framework of self-defense, as outlined in the U.N. Charter, is based on customary international law pre-dating the Charter. This further implies that what constitutes an armed attack is also governed by customary international law.[23]

Mary Ellen O'Connell has outlined four conditions that must be met before the use of self-defense is considered legally justified:

First, the defending state must be the victim of a significant armed

18. Vaughan Lowe & Antonios Tzanakopoulos, *Humanitarian Intervention*, *in* 5 MAX PLANCK ENCYCLOPEDIA OF PUBLIC INTERNATIONAL LAW 47,47 (Rüdiger Wolfrum ed., 2012) (emphasis in original).

19. *Id.* at 48.

20. *Id.* at 49.

21. U.N. Charter art. 51.

22. Military and Paramilitary Activities in and Against Nicaragua (Nicar. v. U.S.), Judgement, 1986 I.C.J. Rep. 14, ¶ 176 (June 27) [hereinafter Nicaragua].

23. Karl Zemanek, *Armed Attack*, *in* MAX PLANCK ENCYCLOPEDIA OF PUBLIC INTERNATIONAL LAW (Rüdiger Wolfrum ed., 2013), http://www. mpepil.com.

> attack. Second, the armed attack must be either underway or the victim of an attack must have at least clear and convincing evidence that more attacks are planned. Third, the defending state's target must be responsible for the significant armed attack in progress or planned. Fourth, the force used by the defending state must be necessary for the purpose of defense and it must be proportional to the injury threatened.[24]

These four conditions will provide the framework for the rest of this section of the article and will examine each condition beyond the standard view of armed attacks (physical use of weapons) and into the realm of international watercourses.

1. Victim of a significant armed attack

As simple as it may sound, what actually constitutes an armed attack, or use of force, has been heavily debated. This disagreement has been exacerbated by new and modern mediums that can be used by one state to cause harm in some form to another state, e.g., biological weapons and cyber-attacks.[25] The ICJ in *Nicaragua* established that not every harm caused by one state towards another is sufficient to rise to the level of an armed attack when the court said "it will be necessary to distinguish the most grave forms of the use of force (those constituting an armed attack) from other less grave forms."[26] As examples of the use of force that fall within the latter category of "less grave" the ICJ references United Nations General Assembly (UNGA) Resolution 2625 (XXV).[27] Resolution 2625 provides a non-exhaustive list of "less grave" uses of force including "violating international lines of demarcation," "organizing or encouraging the organization of irregular forces or armed bands," and "organizing, instigating, assisting or participating in acts of civil strife or terrorist acts in another State."[28] Such conduct would not constitute an armed attack and would not justify a self-defense response.

The ICJ has recognized that an armed attack sufficient for a self-defense reprisal would include "action by regular armed forces across

24. Mary Ellen O'Connell, *Lawful Self-Defense to Terrorism*, 63 U. PITT. L. REV. 889, 889–90 (2002).

25. *See generally* Emanuel Gross, *The Laws of War Waged Between Democratic States and Terrorist Organizations: Real or Illusive?*, 15 FLA. J. INT'L L. 389 (2003); Reese Nguyen, *Navigating Jus Ad Bellum in the Age of Cyber Warfare*, 101 CALIF. L. REV. 1079 (2013).

26. Nicaragua, *supra* note 22, ¶ 191.

27. *Id.*

28. G.A. Res. 2625 (XXV), ¶ 1 (Oct. 24, 1970).

an international border"[29] as well as "the sending by or on behalf of a State of armed bands, groups, irregulars or mercenaries, which carry out acts of armed force against another State."[30] The Court is using language specifically found in UNGA Resolution 3314 (XXIX), Definition of Aggression, to define what uses of force qualify as a "most grave form" and justify a self-defense action.

Article 1 of Resolution 3314 broadly defines an act of aggression as "the use of armed force by a State against the sovereignty, territorial integrity or political independence of another State, or in any other manner inconsistent with the Charter of the United Nations, as set out in this Definition."[31] Article 3 then lists several instances that would "qualify as an act of aggression" including invasion by the armed forces of a State, bombardment, blockade of ports, and sending armed bands to carry out acts of armed force.[32] However, to qualify as an act of aggression the instances must be "of such gravity as to amount to. . .[the State's] substantial involvement therein."[33] This list is not exclusive,[34] and there are numerous ways to meet the basic qualification found in Article 1 as long as the gravity threshold, which according to the ICJ is defined by customary international law,[35] has been crossed.

The key to an act of aggression under Resolution 3314 is that it must be against the sovereignty, territorial integrity, or political independence of a State. This paper's analysis will focus on acts of aggression against the territorial integrity of a nation. Traditionally, the concept of territorial integrity was directly tied with the idea of land capture, and therefore, if one state was not trying to seize the land or territory of another State, no act of aggression occurred.[36] This argument has been made to assert that targeted attacks against terrorist

29. Nicaragua, *supra* note 22, ¶ 195.

30. Nicaragua, *supra* note 22, ¶ 195 (quoting G.A. Res. 3314 (XXIX), art. 3, ¶ (g) (Dec. 14, 1974)).

31. G.A. Res. 3314 (XXIX), art. 1.

32. *Id.* art. 3.

33. *Id.*

34. *Id.* art. 4.

35. Nicaragua *supra* note 30, ¶ 195.

36. *See* Anthony D'Amato, *Agora: U.S. Forces in Panama: Defenders, Aggressors or Human Rights Activists: The Invasion of Panama was a Lawful Response to Tyranny*, 84, AM. J. INT'L L. 516, 520 (1990). (Professor D'Amato argues that "under our present understanding of international law the use of military force for the purpose of territorial aggrandizement or colonialism violates customary international law" but that the U.S. did not act against the territorial integrity of Panama as there "was never an intent to annex part or all of Panamanian territory, and hence the intervention left the territorial integrity of Panama intact.").

camps or cells located within foreign states are not violations of Article 2(4) as they are not directed against the host country and are not "designed to gain or hold territory."[37]

However, this historical perspective of territorial integrity has been eroding in the face of new mediums through which one state may harm another. States can easily compromise the territorial integrity of other states without entry on the territory of those states. For example, scholars have pointed out that even cyber-attacks originating from one territory that cause damage within another are attacks on that state's territorial integrity and sovereignty that justifies a self-defense response.[38] This is just one example of a way in which an armed attack to the territorial integrity of one nation from the territory of another can occur without any actual physical invasion.

Agreement on an exact definition of a threshold level which constitutes an attack on territorial integrity among scholars has not been forthcoming. There is no bright-line rule that a state can use to determine if it has been attacked and self-defense is justified. The totality of the circumstances must be looked at. However, in the context of harm through a watercourse caused by one riparian state to its riparian neighbor, the author suggests the following test: absent agreement, when the actions of State A, either outside its territory or completely within its own borders, change the natural state of a watercourse within State B in such a manner that imminent death or forced migration of State B's citizens results, State B's territorial integrity has been violated and the use of force in self-defense is justified.

2. *Armed attack must be underway or imminent*

This requirement is directly tied to the basic principle of self-defense that a response must occur in a timely manner in relation to the threat or harm a state has or may experience. "The idea is that the passage of time also may work to minimize the threat and as a result diminish the need for self-defense. Rather than self-defense, a

37. Gregory M. Travalio, *Terrorism, International Law, and the Use of Military Force*, 18 WIS. INT'L L.J. 145, 166 (2000).

38. Catherine Lotrionte, *State Sovereignty and Self-Defense in Cyberspace: A Normative Framework for Balancing Legal Rights*, 26 EMORY INT'L L. REV. 825, 853 (2012) ("[I]f State A knows of a plan to conduct cyber attacks from its territory that will cause damage within State B's territory . . . then State A forfeits its rights of sovereignty within its territory as State B's right of self-defense is activated.").

delayed response may look more like revenge or a reprisal."[39] It is generally agreed that there are two types of self-defense allowed under Article 51: reactive self-defense and anticipatory self-defense.

Reactive self-defense is the most basic and inherent form, and is postulated on the idea that "a nation cannot attack another nation in self-defense until it has been the object of an actual armed attack . . . ."[40] Article 51 states that self-defense is an inherent right "if an armed attack occurs."[41] The use of the word "if" implies that an armed attack is a prerequisite to any initiation of self-defense.

As noted above, it is important to distinguish an act of self-defense from an act of reprisal. Motives of the response are the driving factor in distinguishing between the two actions.[42] "[T]raditional self-defense, is restorative and protective, whereas armed reprisals are retributive and punitive."[43] In addition to the timeliness of the attack, if the counter strike or response is calculated to effectively eliminate current harm or stop harm that is immediate, it is justifiable as self-defense. Other attacks may appear to be motivated by revenge and punishment which is strictly prohibited under the U.N. Charter.[44]

However, this traditional requirement that a state must wait until after an attack has occurred to defend itself and its citizens is eroding and most nations currently accept the idea that no such requirement exists.[45] Anticipatory self-defense is therefore the concept that "if an attack is imminent, the potential victim can act in defense by anticipating that attack and taking action in advance of the attack."[46] This concept is not new. In 1837, a rebellion broke out against British rule in Canada in the area of present-day Ontario.[47] When the initial rebellion failed, men traveled to the United States to enlist support, request aid, and attack Canada from United States territory.[48] Because the United States did not stop the attacks to the satisfaction of Canada, Canada retaliated and destroyed the *Caroline*, a steamer which was

39. GEOFFREY S. CORN ET AL., THE LAW OF ARMED CONFLICT: AN OPERATIONAL APPROACH 20 (2012).

40. *Id.* at 22.

41. U.N. Charter art. 51.

42. Lucy Martinez, *September 11t , Iraq and the Doctrine of Anticipatory Self-Defense*, 72 UMKC L. REV. 123, 125 (2003).

43. *Id.*

44. *See* G.A. Res. 2625 (XXV), *supra* note 28, preamble.

45. CORN ET AL., *supra* note 39, at 22.

46. *Id.*

47. Martin A. Rogoff & Edward Collins, Jr., *The Caroline Incident and the Development of International Law*, 16 BROOK.J.INT'L.L. 493, 493 (1990).

48. *Id.* at 494.

hired to convey men and materials for the rebel forces. Two Americans were killed in the process.[49] Daniel Webster, in his role as Secretary of State, penned what came to be known as the Caroline Doctrine. Webster wrote to the British Government that such an attack would only be justified by showing a:

> necessity of self-defence, instant, overwhelming, leaving no choice of means, and no moment for deliberation. It will be for it to [show], also, that the local authorities of Canada, even supposing the necessity of the moment authorized them to enter the territories of the United States at all, did nothing unreasonable or excessive; since the act, justified by the necessity of self-defence, must be limited by that necessity, and kept clearly within it.[50]

Webster's requirement that the necessity of the self-defense be immediate, leaving no means for deliberation, is often viewed as the basis for the modern customary international law of anticipatory self-defense.[51]

3. Target must be responsible for the significant armed attack

"Establishing the need for taking defensive action can only justify fighting on the territory of another state if that state is responsible for the on-going attacks."[52] While this requirement may be difficult to establish against non-state actors and organized armed groups, this paper will be limited to discussions of harm caused by one state against another and therefore will not delve into that specific topic.

Establishment of the state's culpability must be made by clear and convincing evidence.[53] While in most cases this may be simple, there are some circumstances in which it may be more difficult to ascertain who is to blame for the harm. A prime example is the *State Sponsors of Terrorism* list maintained by the United States Department of State.[54] Currently three countries appear on the list as a result of Department

49. *Id.* at 495.

50. Letter from Mr. Webster to Mr. Fox (Apr. 24, 1841), *in* BRITISH DOCUMENTS ON FOREIGN AFFAIRS: REPORTS AND PAPERS FROM THE FOREIGN OFFICE CONFIDENTIAL PRINT, PART I, SERIES C, NORTH AMERICA,1837–1941, VOL. I, MCLEOD AND MAINE, 1837–1842, 153, 159 (Kenneth Burne, ed., 1986).

51. Katherine Slager, *Legality, Legitimacy and Anticipatory Self-Defense: Considering an Israeli Preemptive Strike on Iran's Nuclear Program*, 38 N.C.J. INT'L L. & COM. REG. 267, 275 (2012).

52. O'Connell, *supra* note 24, at 899.

53. *Id.* at 900.

54. U.S. Dept. of State, *State Sponsors of Terrorism*, STATE.GOV (Aug. 25, 2015), http://www.state.gov/j/ct/list/c14151.htm.

of State determination that these countries "have repeatedly provided support for acts of international terrorism": Iran (added January 19, 1984), Sudan (added August 12, 1993), and Syria (added December 29, 1979).[55] As stated in the Definition of Aggression Resolution, Article 3, an example of an act of aggression is "[t]he sending by or on behalf of a State of armed bands, groups, irregulars or mercenaries, which carry out acts of armed force against another State of such gravity as to amount to the acts listed above, or its substantial involvement therein."[56] Acts arising from terrorist activities from these specific states would be prime examples of this type of aggression and would have to be proved by clear and convincing evidence to allow a self-defense response against the state itself.

Afghanistan is the quintissential modern example of the connections a state had with an organized terrorist group, al Qaeda. Even though the Taliban, who controlled Afghanistan, and al Qaeda were two distinct and separate groups, the connections between the two were sufficient enough to justify a response of self-defense by the United States and her allies against the state of Afghanistan for the actions of the terrorist organization.[57]

4. Force used by the defending state must be necessary and proportional

Customary international law clearly maintains that when force is used in self-defense, that force must be necessary and proportional to the harm being defended against and no more: "There is overwhelming State practice supporting this position; indeed, State reference to necessity and proportionality in invoking self-defense is near universal and States responding to such invocations in general similarly refer to the requirements, either explicitly or through implicit application."[58] There are certain limits to the concepts of necessity and proportionality that will be applicable to this analysis.

"The concept of necessity in the context of exercising the right to self-defense requires the nation to have an objective necessity to respond with force in response to an attack or threat."[59] This means a

55. *Id.*

56. G.A. Res. 3314, *supra* note 30, art. 3.

57. Bob Dreyfuss, *The Taliban is Not al Qaeda*, THE NATION (Jan. 16, 2011), http://www.the nation. com /blog/160681/taliban-not-al-qaeda#.

58. James A. Green, *Docking the Caroline: Understanding the Relevance of the Formula in Contemporary Customary International Law Concerning Self-Defense*, 14 CARDOZO J. INT'L & COMP. 429, 449 (2006).

59. CORN ET. AL., *supra* note 39, at 20.

state can only use force against targets that would actually remove the harm or threat of harm from the nation. A prime example is the targeted bombings in Libya in 1986 after a terrorist bombing at a discotheque in Berlin which injured 200 people, including 63 American soldiers, one of whom was killed.[60] After receiving "solid evidence" that Libya was involved in the Berlin bombing,[61] the U.S. responded with Operation El Dorado Canyon targeting military barracks in several areas and a military airfield.[62] However, in addition to the military targets, the personal residence of Colonel Qaddafi was struck at Bab al-Azizia in Tripoli.[63] While it could be argued that attempting to strike and kill Qaddafi himself was a valid target because he allegedly instigated and supported the terrorist attacks; it could also be seen as unnecessary because destroying his personal home would likely not lead to any reduction in terrorist activities.

Self-defense does not become necessary until all other peaceful diplomatic measures have been exhausted. However, it is not always necessary for a state to resort to forceful self-defense immediately either. Using force as a "last resort" requires a state to "show either that it resorted to peaceful measures before using force or that it was not reasonable for it to do so."[64] Even harm or threat of harm against a state will not automatically justify a forceful reaction. The situation must be looked at in its totality to determine whether there was time to pursue diplomatic remedies and whether such remedies would have been effective.

To comply with the obligation of proportionality in self-defense, a state must ensure "that the force utilized in self-defense . . . be limited in scope, intensity, and duration to that which is reasonably necessary to counter the attack or neutralize the threat."[65] Accordingly, small attacks or incursions into a state cannot be met with large-scale bombings and retaliations. Additionally, proportionality requires the state exercising its right to self-defense to ensure that any reprisal does not cause an excessive loss of civilian life in relation to the mili-

60. GLOBALSECURITY, *Operation El Dorado Canyon*, http://www.globalsecurity. org/ military/ops/el_dorado_canyon.htm (last visited Nov. 3, 2015).

61. Bernard Weinraub, *U.S. Jets Hit 'Terrorist Centers' in Libya; Reagan Warns of New Attacks if Needed*, N.Y. TIMES, (April 15, 1986), http://www.nytimes.com/1986/04/15/politics /15REAG.html?pagewanted=1.

62. *Operation El Dorado Canyon* , *supra* note 60.

63. Weinraub, *supra* note 61.

64. Green, *supra* note 58, at 455.

65. CORN ET AL., *supra* note 39, at 20.

tary advantage gained.[66] Returning to the example of the U.S. response to the bombing in Berlin, where based on the death of one Americans, the U.S. responded with a full scale bombing of six different locations in Libya resulting in the death of forty-five Libyan soldiers and up to 30 civilians. Was this a proportional response? Again, it is important to look at the totality of the circumstances, including the threat of future attacks against the state.

Thus, to act in self-defense, four elements need to be met: the defending state is a victim of a significant armed attack; the armed attack is either underway or there is convincing evidence that more attacks are planned; the target is responsible for the armed attack; and the force used by the defending state is necessary and proportional. When all four of these requirements are met, a state has a strong legal argument under the U.N. Charter and customary international law to use force in self-defense to stop or prevent a harm or threat of harm from another state.

III. RIPARIAN STATES, WATER DEPRAVATIONS, AND THE USE OF SELF-DEFENSE

There are currently 263 water basins located around the world crossing the borders of two or more states.[67] Additionally, there is an increased demand on available water for those states which find themselves in areas designated as stressed[68] whose watercourses are international in nature. As populations continue to grow, the freshwater demand for industrial and agricultural uses will rise and difficulties in obtaining already limited freshwater resources for drinking or even basic survival needs will continue to increase. In such a future, it is conceivable that one state with first access to migratory water, in the form of rivers or underground water basins, may use its position to capture most if not all available freshwater from a normally shared water basin leaving little if any for the downstream state(s). The question this paper seeks to address is what options a downstream state has in responding to water stress caused by an upstream state. Specifically, if the actions of an upstream state cause a significant impact on the water available to the citizens of the downstream

66. Protocol Additional to the Geneva Conventions of 1949, and relating to the Protection of Victims of International Armed Conflicts (Protocol I), art. 51. para. 5, June 8, 1977 [hereinafter Additional Protocol I].

67. Wolf, et al., *supra* note 8.

68. *See* U.N. DEV. PROGRAMME, *supra* note 4.

state such that it creates a substantial risk to those citizens' health and safety, does the downstream state then have the right to use self-defense against the upstream state in order to restore the water supply to its country?

In order to fully understand this question, this section will outline the responsibilities riparian neighbors have to one another, describe how water is currently protected during armed conflict, define the circumstances necessary to reach the level this author believes is necessary to start looking to the option of self-defense, and then apply those circumstances to the current international law framework to evaluate whether current law would allow for self-defense.

A. Responsibilities of Riparian States

The Convention on the Law of Non-Navigational Uses of Watercourses defines a watercourse as "a system of surface waters and groundwaters constituting by virtue of their physical relationship a unitary whole and normally flowing into a common terminus."[69] When that system of water crosses over one or more boundaries, those watercourses become international watercourses imposing obligations on the riparian neighbors sharing the watercourse.[70] Such obligations can be divided into those involving navigation uses and those involving non-navigational uses. This paper will focus on the non-navigational obligations of riparian states.

1. Lac Lanoux arbitration

One of the first major international disputes that helped outline responsibilities between riparian states was the Lake Lanoux arbitration that occurred in 1957 between Spain and France.[71] After some border disputes in the 1850s, Spain and France entered into twelve years of negotiations to firmly establish the borders through treaty.[72] Three treaties and a final Additional Act were signed during the negotiations that addressed transboundary issues, including water flow-

69. G.A. Res. 51/229, Convention on the Law of the Non-Navigational Uses of International Watercourses, art. 2, (May 21, 1997).

70. Stephen C. McCaffrey, *International Watercourses*, *in* MAX PLANCK ENCYCLOPEDIA OF PUBLIC INTERNATIONAL LAW 201 (Rüdiger Wolfrum ed., 2012).

71. Lake Lanoux Arbitration (Fr. v. Spain), 12 R.I.A.A. 281 (1957) [hereinafter Lanoux]

72. Cesare P.R., *The Peaceful Settlement of International Environmental Disputes: A Pragmatic Appraoch*, *in* INT'L ENVTL LAW & POLICY SER. v. 57, 2000.

ing from France into Spain.[73] Years later, France wished to capitalize on the water flowing out of Lake Lanoux by constructing a hydroelectric dam.[74] This project would have diverted a small amount of water that normally flowed into Spain so France altered the plans to redivert the same amount of lost water back to Spain to completely compensate for any loss.[75] Spain disagreed with France's plan and argued that under the treaty and obligations of customary international law, France could not take any action without Spain's agreement.[76] Arbitration was agreed upon to settle the matter.[77]

The arbitration tribunal made rulings on France's obligations under the signed border treaties and under customary international law as a riparian neighbor of Spain.[78] The tribunal determined that France's scheme to restore an equal amount of water as was lost fulfilled any obligations they had to Spain under the treaty and because the treaty only required consultation, France was within its rights to move forward with the project after consulting with Spain.[79]

The tribunal also found that under international law the right of sovereignty is superior to all other obligations and what France did within its own borders could not be limited by requiring another state to provide its consent.[80] However, the tribunal did note that under customary international law, "France was obliged to inform the Spanish authorities and to enter into consultations as well as to take into consideration Spanish interests."[81]

The Lake Lanoux arbitration provided two fundamental concepts used when determining the obligations of riparian neighbors. First, when a treaty exists between two or more nations governing a shared watercourse, it will control and customary international law can only enter to solve any ambiguities in the treaty.[82] Treaties are therefore encouraged as the best available method of establishing clear guidelines and obligations between riparian states.

The second fundamental concept established by the Lake Lanoux

73. *Id.*
74. *Id.*
75. *Id.*
76. *Id.*
77. *Id.*
78. Astrid Epiney, *Lac Lanoux Arbitration*, *in* 6 MAX PLANCK ENCYCLOPEDIA OF PUBLIC INTERNATIONAL LAW 626 (Rüdiger Wolfrum ed., 2012).
79. *Id.*
80. *Id.*
81. *Id.*
82. Lanoux, *supra* note 71.

arbitration is that even though consent is not necessary for one state to exercise its inherent sovereignty, there must be good faith consultation and negotiations between riparian neighbors when one state wishes to undertake a project that could impact the rights of the other.[83] It also affirmed the idea that equitable utilization of shared natural resources by all states that have a claim on the resource is preferred so that each state can fairly protect its interests in the natural resource.[84]

2. Convention on the Law of the Non-Navigational Uses of International Watercourses

Codification of obligations involving non-navigable water use developed much slower than those for navigable uses. It was not until 1970 when the U.N. General Assembly recommended to the International Law Commission (ILC) that it commence a "study of the law of the non-navigational uses of international watercourses" that any form of unified codification existed.[85] Over the next twenty years, the ILC researched and studied the field of international watercourses and in 1994 sent draft articles to the U.N. General Assembly that became the U.N. Watercourses Convention.[86] It is important to note that the U.N. Watercourses Convention currently has only sixteen signatories and thirty-six parties and will not enter into force until after the thirty-fifth nation approves or accepts the Convention.[87] Even though not yet in force, it is considered to reflect customary international law and therefore its provisions reflect obligations all riparian states have to their riparian neighbors.[88]

The U.N. Watercourses Convention outlines three foundational principles of law concerning the non-navigational uses of international watercourses: equitable and reasonable utilization, prevention of significant harm, and prior notification of planned measures.[89] The first two principles are the most important for our analysis.

83. Epiney, *supra* note 78.

84. *Id.*

85. G.A. Res. 2669 (XXV), at 127 (Dec. 8, 1970).

86. McCaffrey, *supra* note 70.

87. *Status of Convention on the Law of the Non-Navigational Uses of International Watercourse*, UNITED NATIONS TREATY COLLECTION, https://treaties.un.org/doc/Publication/MTDSG/Volume%20II/Chapter%20XXVII/XXVII-12.en.pdf [hereinafter U.N. WATER COURSE CONVENTION].

88. McCaffrey, *supra* note 70.

89. *Id.* at 204.

Equitable utilization of a shared resource, in this case freshwater, requires a riparian state to "utilize a watercourse in a way that is equitable and reasonable vis-à-vis its co-riparian States . . . thus impl[ying] a fair balance of uses as between the different States sharing a watercourse."[90] The International Court of Justice (ICJ) similarly defined the principle as a "basic right to an equitable and reasonable sharing of the resources of an international watercourse."[91]

Within the Convention itself, articles five and six specifically address equitable utilization. Article 5 states that "an international watercourse shall be used and developed by watercourse States with a view to attaining optimal and sustainable utilization thereof and benefits therefrom, taking into account the interests of the watercourse States concerned . . . ."[92] This codifies the theory expressed in the Lake Lanoux arbitration that every watercourse state should take into account the interests of the other concerned watercourse states but does not require the approval from other watercourse states before acting.

Article 6 further clarifies this responsibility by outlining the factors a state must consider to ensure its use of the international watercourse is done in an "equitable and reasonable manner."[93] The factors are as follows:

> (a) Geographic, hydrographie, hydrological, climatic, ecological and other factors of a natural character;
>
> (b) The social and economic needs of the watercourse States concerned;
>
> (c) The population dependent on the watercourse in each watercourse State;
>
> (d) The effects of the use or uses of the watercourses in one watercourse State on other watercourse States;
>
> (e) Existing and potential uses of the watercourse;
>
> (f) Conservation, protection, development and economy of use of the water resources of the watercourse and the costs of measures taken to that effect;
>
> (g) The availability of alternatives, of comparable value, to a particular planned or existing use.[94]

90. *Id.* at 204–05.
91. Gabčíkovo-Nagymaros Project (Hung./Slovk.), 87, 1997 I.C.J. 7, 54 (Sept. 25).
92. U.N. WATERCOURSE CONVENTION, *supra* note 88 at art. 5, ¶ 1.
93. *Id.* art. 6.
94. *Id.*

The third paragraph of article 6 specifies that "[i]n determining what is a reasonable and equitable use, all relevant factors are to be considered together and a conclusion reached on the basis of the whole."[95] This codifies the idea that it is the totality of the circumstances that must be assessed, and one factor could be the most important in one situation but the least important in another.

It's also important to note that factor (g) asks a watercourse state to take into account alternatives that may be available but does not outline any requirements on how to select between the alternatives (i.e. economic, social, etc.).[96] When assessing alternatives, it is important to look back at the other factors outlined above and pick the alternative that weighs in favor of less damage to the other watercourse nations.

In addition to equitable utilization of watercourses, the Convention stresses the important principle of not causing significant harm to other nations. Article 7 of the Convention states that, "[w]atercourse States shall, in utilizing an international watercourse in their territories, take all appropriate measures to prevent the causing of significant harm to other watercourse States."[97] Another problem is that the Convention never defines what qualifies as a "significant harm." One scholar describes it as "an obligation of due diligence"[98] requiring the upstream state to, at a minimum, take all reasonable precautions to not cause harm to downstream states. However, even when all reasonable precautions are followed, harm can still occur either through a failure of the precautions taken or the fact that certain precautions were unreasonably expensive or impractical. In such a case, the Convention requires that "the States whose use causes such harm [to] . . . take all appropriate measures . . . to eliminate or mitigate such harm and, where appropriate, to discuss the question of compensation."[99]

There are strong obligations under customary international law that require riparian states to, at a minimum, consider how their actions in regards to international watercourses affect the other riparian states sharing the same watercourse.

95. *Id.* ¶ 3.
96. *Id.* ¶ 1, subdiv. g.
97. *Id.* art. 7, ¶ 1.
98. McCaffrey, *supra* note 70, at 205.
99. U.N. WATERCOURSE CONVENTION, *supra* note 87, art. 7, ¶ 2.

B. Water Protections under International Humanitarian Law during an Armed Conflict

"Because it is essential to survival, water is given specific protection under international humanitarian law."[100] While the concept of water protections between states is not yet very developed in customary international law, there are several protections already provided to water under international humanitarian law when an armed conflict is underway.

In the context of a Non-International Armed Conflict (NIAC), or conflicts between a sovereign nation and an organized armed force (either internally or externally), there are few protections that can be interpreted as providing protections to water sources. Under the Geneva Conventions of 1949, only Common Article 3 applies to NIACs.[101] Unfortunately, there is nothing in the text of Common Article 3 that specifically references water or provides water sources with any protection. There is also nothing in the text that could be construed as providing water any protection. Outside of Common Article 3, the only other source of law covering NIACs is Additional Protocol II to the Geneva Conventions.[102] There is only one reference to protection of water sources within Additional Protocol II which states: "Starvation of civilians as a method of combat is prohibited. It is therefore prohibited to attack, destroy, remove or render useless, for that purpose, objects indispensable to the survival of the civilian population, such as . . . drinking water installations and supplies and irrigation works."[103] While there is very limited protection provided during NIACs, this one provision ensures at the minimum that water needed by the civilian population is categorically non-targetable to ensure availability for basic needs at pre-conflict levels.

The protections in the context of International Armed Conflicts (IAC), or conflicts between sovereign nations, are very similar with several additional provisions that can be interpreted as covering water sources even though not explicitly referring to water. Article 54 of Additional Protocol I provides the same protections to civilians as Ar-

100. Int'l Comm. of the Red Cross [ICRC], *Water and War: ICRC Response*, 1, ICRC Doc. 0969/002 (Aug. 29, 2009).

101. Geneva Convention Relative to the Treatment of Prisoners of War art. 3, Aug. 12, 1949, 6 U.S.T. 3316, 75 U.N.T.S. 135.

102. Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of Non-International Armed Conflicts (Protocol II), June 8, 1977, 1125 U.N.T.S. 609 [hereinafter Additional Protocol II].

103. *Id.* art. 14.

ticle 14 of Additional Protocol II, namely that "[s]tarvation of civilians is . . . prohibited," and therefore, "[i]t is prohibited to attack, destory, remove or render useless . . . drinking water installations."[104] However, in IACs, this prohibition is limited and can be overcome with a sufficient showing of military necessity.[105] However, even military necessity has its limits and Additional Protocol I specifically states that "in no event shall actions against these objects be taken which may be expected to leave the civilian population with such inadequate food or water as to cause its starvation or force its movement."[106] Additional Protocol I considers no scenario possible where military necessity can overcome the starvation or forced migration of civilians in a proportionality analysis.

Two other provisions of Additional Protocol I can be interpreted as applying certain protections to water sources even though water is not specifically stated in the articles. Article 35, which outlines basic rules governing the methods and means of warfare, prohibits those "which are intended, or may be expected, to cause widespread, long-term and severe damage to the natural environment."[107] This provision requires a state to perform an assessment of the attack orders to determine whether severe and long-term damage could occur to the natural environment, including water sources, and if so, to refrain from such a method unless military necessity dictates otherwise. Similarly, Article 55 states that "[c]are shall be taken in warfare to protect the natural environment against widespread, long-term and severe damage."[108] This expands the environmental protections to require states to reduce as much collateral damage to the natural environment as possible when methods that could potentially damage the environment are deemed necessary. Both of these articles provide general obligations to minimize damage to the natural environment and can be considered as customary international law because of state practice treating them as such.[109]

At a minimum, in both the IAC and NIAC contexts, water is protected to ensure its availability at a level necessary to protect the civilian population from starvation and exodus from the area.

104. Additional Protocol I, *supra* note 66, art. 54, ¶¶ 1–2.

105. Eyal Benvenisti, *Water, Right to, International Protection*, *in* 10 MAX PLANCK ENCYCLOPEDIA OF PUBLIC INTERNATIONAL LAW 811, 818(Rüdiger Wolfrum ed., 2012).

106. Additional Protocol I, *supra* note 66, art. 54, ¶ 3.

107. *Id.* art. 35, ¶ 3.

108. *Id.* art. 55.

109. Benvenisti, *supra* note 105.

C. Circumstances in Which One Riparian State Significantly Harms Another

The main question this paper seeks to answer is whether one riparian state can, through actions affecting a shared watercourse, harm another riparian state to the level of committing an armed attack, thus giving the harmed riparian state legal justification to use force in self-defense. And if so, at what level does such force become legally justified. This author would propose that such a level does exist and that it should be based on the already codified standards of water protections laid out in Additional Protocol I, Article 54, and Additional Protocol II, Article 14.[110]

To reach this level of harm, a state would have to deprive another state of water below a level where starvation, drought, or forced exodus would be required.[111] This harm could be caused in any way, such as damming water sources and therefore stopping the water from continuing into downstream states, diverting the water, or just pulling too much water out of the system before it has a chance to continue in its normal path. This would also be a violation of the state's obligation under the U.N. Watercourses Convention to consider how its actions would impact riparian neighbors with whom it shares the international watercourse, according to the factors laid out in Article 6[112], and also violates the Article 7 obligation to avoid causing significant harm.[113] This significant harm, while not defined in the Convention itself, helps us understand the requirements in Articles 54 and 14 of the Additional Protocols I and II respectively, which strictly prohibits the starving of the civilian population.[114]

Depriving water from the neighboring riparian state in an inconvenient manner or in a manner inconsistent with any treaty negotiated between the countries would not, in itself, be sufficient to rise to the level to justify a self-defense action. Only deprivations of a level that would cause imminent death through starvation and dehydration or forced exodus from the area would provide the state with a justifi-

110. *See* Additional Protocol I, *supra* note 66, art. 54; Additional Protocol II, *supra* note 102, art. 14.

111. Additional Protocol I, *supra* note 66, art. 54; Additional Protocol II, *supra* note 102, art. 14.

112. UN WATERCOURSE CONVENTION, *supra* note 87, art. 6.

113. *Id.* art. 7.

114. Additional Protocol I, *supra* note 66, art. 54; Additional Protocol II, *supra* note 102, art. 14.

cation to protect its citizens through self-defense.

To determine if this type of response would be legally permissible under the current framework, the four conditions that must be met before the use of self-defense is considered legally justified, as outlined above, will be applied to a situation where one riparian state has deprived the neighboring riparian state of water resources normally enjoyed where that state can no longer provide a minimum level of water needed to avoid death to or mass exodus of its citizens.

D. Application of Self-Defense Framework

This section will go through each of the four requirements necessary to legally justify a response of force in self-defense: the state must be a victim of a significant armed attack, the armed attack must be underway or imminent, the target must be responsible for the significant armed attack, and the force used by the defending state must be necessary and proportional.[115]

1. *Victim of a significant armed attack*

The first place to look to determine if such an act would be considered a significant armed attack is U.N. Resolution 3314 on Definition of Aggression previously discussed.[116] The basis of all "[a]ggression is the use of armed force by a State against the sovereignty, territorial integrity or political independence of another [s]tate . . . ."[117] The threshold question then is whether such an action of water deprivation can be considered an armed attack of a non-kinetic nature (e.g. bullets and bombs). This is comparable to the recent expansion of the definition of armed attack to include harm felt in one state by attacks originating in another state through cyber warfare.[118]

Damming or diverting a water source in one state that causes a significant harm in another should qualify for the same self-defense response as kinetic attacks, guided by the important principles of necessity and proportionality as will be discussed below.[119] To be significant there must, as a result of the water deprivation, be a high risk of

115. O'Connell, *supra* note 24.
116. G.A. Res. 3314, *supra* note 30, art. 1.
117. *Id.*
118. *Supra* Part II.A.1.
119. *Infra* Part III.D.4.

death to the affected population due to starvation or dehydration to the point where the population would be forced to relocate.

The next question is whether this armed attack would encroach on the sovereignty or territorial integrity of the harmed nation. It can be deduced from the Lac Lanoux arbitration that there is a principle in customary international law requiring states to avoid causing substantial damage to the environment of other states, including their watercourses. If there is damage, then such damage must be substantial in order to break customary international law.[120] The arbitration tribunal also stated that this principle existed to protect the territorial integrity and sovereignty of the state.[121] Therefore we see that one state can causing substantial and significant harm to another state by depriving it of its shared right in an international watercourse can be sufficient to be considered an armed attack against the territorial integrity and sovereignty of that state.

Additionally, a depravation of water of this level would qualify as an attack on the territorial integrity of another state under the test outlined above.[122] If the natural state of the water source in the territory of the riparian neighbor has been altered in such a way as to make it impossible for that state to enjoy and use its territory as they always have, or in the manner they would like had the natural state been left as was, and as a result death or forced migration of the civilian population occurs, this constitutes an attack on the territorial integrity of the state.

2. Armed attack must be underway or imminent

As noted above, there are two broad categories of self-defense generally available to a state: reactive self-defense and anticipatory self-defense.[123] In the context of attacks on the water sources of a state, this author would propose that only reactive self-defense and not anticipatory self-defense be available in justifying the use of force.

Anticipatory self-defense is based in the concept that a state should not have to wait for an attack to occur to protect its citizens when the only alternative is to be struck first.[124] The real and substan-

120. Epiney, *supra* note 78, at 628.

121. *Id.*

122. *Supra* Part II.A.1.

123. *Supra* Part II.A.2.

124. Charles Pierson, *Preemptive Self-Defense in an Age of Weapons of Mass Destruction: Operation Iraqi Freedom*, 33 DENV. J. INT'L L. & POL'Y 150, 152 n.11 (2004) ("Preemption is a military strategy of striking an enemy first, with the expectation that the only alternative is to be

tial impact of harm from water deprivation generally takes several days to truly be felt and therefore the idea that a preemptive strike is necessary to save your citizens does not correlate to this situation.

Additionally, the fact that one riparian state has the means to cut off a water supply from another, but has not yet used that power is not a violation of customary international law or an attack on the territorial integrity or sovereignty of a state. As pointed out from the Lac Lanoux arbitration:

> [T]here is no rule in general international law which forbids a State from placing itself in a position which enables it in fact, in violation of its international obligations, to do even serious injury to a neighbouring State . . . the principle of non-intervention does not in principle forbid a State to undertake steps which allow it to exercise coercion on another State; only effective coercion is relevant.[125]

Therefore, until the coercion is effectuated, no violation has occurred. However, as soon as the coercion has gone beyond mere threat into action and becomes and remains effective, retaliation through force will be allowed to stop the ongoing harm.

3. Target must be responsible for the significant armed attack

This principle is fairly straightforward and warrants little discussion, especially in situations involving major deprivations of water such as dams or significant diversions. In the use of force against another state to eliminate the ongoing harm caused by the loss of valuable freshwater sources, the state is only allowed in its use of self-defense to target the state actually causing the harm. This concept could become important when more than two states share a watercourse and there may be some uncertainty as to which state is actually causing the harm or if more than one state is causing the harm. A state invoking the right of self-defense must ensure that it only targets a state that is directly causing harm to itself and not any others.

4. *Force used by the defending state must be necessary and proportional*

After it has been determined an armed attack occurred and self-defense is necessary, the obligations of necessity and proportionality are vital in what a harmed state is actually allowed to do under self-

struck first oneself.").

125. Epiney, *supra* note 78, at 629.

defense. In the situation of one state depriving another of a needed watercourse, the harmed state will be limited in doing only that which is necessary to restore the watercourse as it was before the harm occurred. It is strictly against international humanitarian law to use an attack and the subsequent use of self-defense as a pretense to seek other goals or benefits.[126]

For example, a hypothetical situation could occur in which a major watercourse is dammed and all water that normally flows from State A into State B is cut off and the water necessary for basic survival in State B is completely removed. In this hypothetical, State B has a legitimate right to use force in self-defense to restore the water to its citizens. However, it gets tricky because the only necessary force is to destroy the dam containing the water, which would restore its water source. Article 56 of Additional Protocol I specifically states that "[w]orks or installations containing dangerous forces, namely dams, dykes and nuclear electrical generating stations, shall not be made the object of attack, even where these objects are military objectives, if such attack may cause the release of dangerous forces and consequent severe losses among the civilian population."[127] Thus even if the dam is a military necessity, it would generally be a prohibited target. The key to Article 56 is that a strike on the dam would be allowed if the release of the dangerous forces, the water, would not result in a severe loss of life among the civilian population. In order to destroy the dam and restore its source of water, State B would have to take all reasonable measure to ensure the flood does not cause significant death among civilians. Only then could the necessity of destroying the dam to protect its own citizens override the protection outlined in Article 56.

Additionally, the requirement of necessity under the self-defense framework demands that as soon as the obstruction of the water source has been removed, the self-defense response must cease. No longer is there a necessity for a state to protect its citizens as the harm is no longer present. Proportionality further requires that the self-defense be limited in force to that used against them. In this case, a victim state would be prevented from fighting back by taking the perpetrating state's water, but would be authorized only to use the minimum amount of force and destruction necessary to remove the harm caused to its state.

126. Major Ronald M. Riggs, *The Grenada Intervention: A Legal Analysis*, 109 MIL. L. REV. 1, 57 (1985).

127. Additional Protocol I, *supra* note 66, art. 56, ¶ 1.

Therefore, if the water deprivation is of a significant nature to where it would cause starvation and forced exodus, self-defense can be legally valid to the extent necessary to end the harm.

E. Limitations and Counterarguments

Arthur Wolf and other professors have noted, however, that no country has ever gone to war solely over water and likely never will.[128] He states this is because "water is so important, [that] nations cannot afford to fight over it."[129] To support this hypothesis, Wolf and the professors compiled events of interactions between nations over water and showed that in the last half century, the 1,228 cooperative events far exceeded the 507 conflict-related events (of which only 37 involved violence).[130] In fact, scarce water resources shared by two countries is more likely to cause greater interdependence and cooperation than conflict.[131]

One need only look at India and Pakistan to support this conclusion. The Indus Water Treaty, signed in 1960, outlined the allocation of shared water basins in the Kashmir region between India and Pakistan.[132] "Since the conclusion of the Indus Waters Treaty no serious disputes have arisen between the parties. It is also noteworthy that even when the two countries have engaged in armed hostilities the provisions of the Indus Waters Treaty have been observed."[133] This is further evidence that water and war will likely never go together.

However, the world population is growing at an ever increasing rate while water availability is remaining the same or even decreasing. While cooperation has been the status quo and is ideal, the increased strain on available water will make cooperation much more difficult if not impossible. This author is not encouraging war as a viable solution to water distribution issues, but instead looks to support water management practices and cooperation between countries with the awareness that by not cooperating, one state may be inflicting significant harms on another nation with dire consequences for both sides.

128. Wolf, et al. *supra* note 8.

129. *Id.*

130. *Id.*

131. *Id.*

132. Surya P Subedi, *Indus River*, *in* 5 MAX PLANCK ENCYCLOPEDIA OF PUBLIC INTERNATIONAL LAW 157, 159 (Rüdiger Wolfrum ed., 2012).

133. *Id.*

Additionally, it should be noted that this paper is not addressing pollution or other environmental harms one state may cause to another through a shared watercourse. Generally, pollution or other environmental harms are gradual and build up over time and are not of the sudden and immediate nature discussed above that require an armed self-defense response. If however, environmental harm reached a level of being sudden and immediate, it could justify armed self-defense. However, any such response must meet the requirement of timeliness in which it will eliminate such future pollution harms. Therefore, it is unlikely there would ever be any situation in which pollution or other environmental harm reached the level necessary to justify an armed self-defense response.

IV. CONCLUSION

Water is one of the most valuable commodities in the world. Not in a price-per-gallon sense, but in its necessity to sustain all human life through drinking, food production, and other industrial uses. As almost every country in the world shares a watercourse with another nation, it is important, especially in water scarce regions, that such nations work together to ensure that the civilian populations of both states have a basic supply of water to sustain healthy human life. Cooperation and effective water management can reduce the need to resort to armed violence, a benefit for all states involved.

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