



Universiteit
Leiden
The Netherlands

Water cooperation or conflict? Transboundary waters as drivers of international cooperation, but also of domestic conflicts

Crul, Maarten

Citation

Crul, M. (2023). *Water cooperation or conflict?: Transboundary waters as drivers of international cooperation, but also of domestic conflicts.*

Version: Not Applicable (or Unknown)

License: [License to inclusion and publication of a Bachelor or Master thesis in the Leiden University Student Repository](#)

Downloaded from: <https://hdl.handle.net/1887/3564303>

Note: To cite this publication please use the final published version (if applicable).

Water cooperation or conflict?

Transboundary waters as drivers of international cooperation, but also of domestic conflicts



Maarten Crul

m.p.crul@umail.leidenuniv.nl

1980394

Master Thesis

Master International Relations: Global Conflict in the Modern Era

Supervisor: Dr. Lukas Milevski

Leiden University

December 9, 2022

Word count: 14,701

Table of Contents

Introduction	3
Literature review	5
Methodology	10
Independent variables	10
Dependent variable	11
1. Defining concepts with regards to water disputes: resource conflicts and hydropolitics	12
1.1. Resource conflicts: from colonial exploitations to neocolonial trade-offs	13
1.1.1. Historical background of resource conflicts.....	13
1.1.2. Types of resource conflicts	15
1.2. Hydropolitics: the politics over water resources, dam-building and water as power instrument.....	19
2. Transboundary tensions leading to international cooperation and increased domestic water conflicts: the cases of Paraguay, Pakistan and Syria	23
2.1. Paraguay-Brazil dispute over the Paraná river and the Itaipú Dam	24
2.2. The Indus River Basin makes Pakistan and India cooperate, but domestic water conflicts increase ..	27
2.3 Power relations leave Syria in despair with Türkiye	29
Conclusion	33
Bibliography.....	35

Introduction

One of the Sustainable Development Goals set in 2015 by the United Nations, is to “ensure availability and sustainable management of water and sanitation for all”.¹ Around the world, there are billions of people, who do not have easy, daily access to water resources. The access to water not only applies to people who use water for their own consumption, but also applies to those that need access to water in order to cultivate their land, feed the cattle, initiate sustainable ways of managing water and so on. Considering the fact that the average temperature on a global scale is rising at an alarmingly fast pace, the world population has just surpassed the mark of eight billion inhabitants, sea levels are rising and threatening the existence of many coastal areas, managing water is becoming increasingly important. Both at a domestic and an international level. Since some states, for various reasons, lack the capability of managing water properly to ensure water and sanitation for all, and also because clean water is a scarce resource, water is considered to be a *casus belli*. Although there, arguably, been no significant cases of interstate wars that started over water issues yet. Nonetheless, there is no general definition of the concept ‘war’ and, consequently, it is hard to argue that interstate conflicts over water have led to a full-scale war yet.

Even though there have not been any interstate wars over transboundary waters yet, there undeniably have been conflicts over transboundary waters in the past and present. According to my definition of ‘war’ which I will define in the first chapter of this thesis, I argue that there have not been full-scale wars whereby transboundary waters were the main cause of an escalation leading up to a war. However, interstate conflicts over transboundary waters have been catalysts of intrastate upheavals eventually leading to interstate wars.

Much academic research has been conducted over hydropolitics. In some cases, water is considered to be a political tool that could influence a relationship between several states that are all depending on the water coming from one specific source. The most common transboundary sources of water are rivers, but aquifers and lakes also fall within the meaning transboundary waters. According to the United Nations, more than 60% of the world’s freshwater resources are within these transboundary waters and therefore form a crucial part in the supply and accessibility of water to many citizens across the world.²

¹ “Ensure availability and sustainable management of water and sanitation for all,” United Nations Department of Economic and Social Affairs, accessed November 4, 2022, <https://sdgs.un.org/goals/goal6>.

² “Transboundary Waters,” United Nations Water, accessed November 4, 2022, <https://www.unwater.org/water-facts/transboundary-waters>

The previous paragraphs show that it is clear that the access to water is becoming increasingly important politically and diplomatically, and consequently academics have been conducting research on this relationship over the past few decades. Many scholars have come to the conclusion that there have been no full-scale wars over water yet. Nonetheless, there seems to be a consensus among scholars as well that it is just a matter of time before the first full-scale interstate war over a transboundary water will take place.

The reason why this thesis will matter is because it will propose a different view on the discussion of interstate wars over transboundary waters. In academia, not much has been written on some of the internal consequences transboundary waters have proposed to some sovereign nation-states. Conflicts between states have not led to direct interstate wars, but over the course of many years, these transboundary waters have been causing intrastate discontent. This intrastate discontent has often been caused by the management, or lack thereof, of states to provide and ensure the availability of freshwater to their citizens. If a population becomes dissatisfied because of state failures (of any nature), it becomes inevitable that, at some point, they will demand change. These intrastate tensions could destabilize a region and threaten the distribution of basic needs such as water, not only within that specific state but also others. Eventually, these tensions and a possible breakdown of a state causes may cause a negative spiral of oppression, lack of governance and sustainable handling of vital services such as the provision of food, clean water and shelter.

The relevance of this thesis is that it will be looking at tensions between states over transboundary waters, that did not escalate to full-scale wars just over water, where the number of domestic conflicts over transboundary waters has actually increased. It is often said that transboundary waters even lead to more cooperation between states, rather than conflicts. The theory that there is an inevitability of future water wars will, thus, be scrutinized by looking at historic examples that demonstrate that conflicts over transboundary waters actually lead to cooperation between states to mitigate tensions on the one hand, but are causes of intrastate conflicts on the other hand.

This thesis argues that transboundary waters will lead to international cooperation, but for also fuels domestic conflicts for several reasons. The main research question this thesis will try to answer is:

How do transboundary waters enhance international cooperation, but create domestic conflicts?

The structure of this thesis is as follows: firstly, there will be an extensive literature review on the topic of interstate water conflicts with possible theories and plausible answers to the research question. This section will be followed by a methodological section, where the methodology of this paper will be outlined. Here, I will discuss how three cases have been selected and through which I hope to come to conclusions in the end in order to answer the research question. In the third part of this thesis, I will look at two concepts that are key in understanding interstate and even intrastate relations with regards to water. The first concept is resource conflicts and the second concept is hydropolitics. Once these concepts have been discussed, three different cases from three different parts of the world will be described. The first case is about Paraguay and Brazil, the second one is on Pakistan and India and the last example is on Syria and Türkiye. After this, there will be the conclusion where I will relate the three cases to the concepts in order to present findings and an answer to the research question.

Literature review

Water covers the majority of our planet and is crucial for our existence. Global warming and the depletion of natural resources make that drinkable or usable water is becoming more scarce. Having access to water, either navigable or drinkable, creates opportunities for states and individuals to improve their living standards and economic situation. This not only applies at an individual level, but even more so at state level. Having access to sufficient water resources as a state could give significant advantages when opening up to the world market, for example. Already centuries ago, the United Kingdom, The Netherlands and France used their military and marine knowledge and wealth to sail the world seas and to obtain a very powerful position in the world's economy. More recently, China is investing enormous amounts of money into the construction of ports along their Maritime Silk Route to gain political and economic influence.³ At the same time, Egypt is depending for 80 percent of all their water usage on the water coming from the Nile river to irrigate its agricultural grounds.⁴

These are just a few examples of water playing a very important role both economically and politically. Many scholars have already written about water and with the

³ Flynn Murphy, "Rise of a new superpower: health and China's global trade ambitions," *BMJ* 360, no. 1 (February 2018): 1.

⁴ Miroslav Nincic and Matthew Weiss, "The Future of Transboundary Water Conflicts," *Political Science Quarterly* 131, no. 4 (October 2016): 726.

worrying environmental developments, water is prone to be a *casus belli*, i.e. a cause of war. There have already been several conflicts over water and some are still ongoing, even though there is no actual fighting involved. Aaron T. Wolf is using a study whereby over 1800 interactions between states have been documented over the past 50 years. Of these interactions, there have only been 37 conflicts including violence, of which Israel was involved 30 times. Besides that, there has never been fought a formal war over water according to Wolf, besides one occurring between two city-states in the Euphrates-Tigris basin actually more than 4,500 years ago approximately.⁵

Better known conflicts over water across the globe that caused tensions in the modern era are, for example, the United States and Mexico who are struggling with several border rivers, China, Cambodia and Vietnam having issues over the Mekong River. In the Middle East there have been disputes over the Euphrates and Tigris between Syria, Turkey and Iraq. The Nile River is a point of discussion between Ethiopia, Sudan and Egypt.⁶

However, there seems to be no general consensus on an encompassing reason for the absence of water wars until now. Moreover, the concept of ‘war’ or ‘conflict’ is even disputed and not fully clear. Wolf, as mentioned before, argued that there have been no wars over water yet, but only violent conflicts. It is hard to draw a line between ‘war’ and ‘conflict’ and in some cases an author might use a slightly milder or different definition in order to support an argument or theory.

The academic literature does thus not agree on why conflicts over water have never resulted in actual wars. The research question of this thesis will shed light on that academic argument. Why have there never been interstate wars over water, despite the great number of conflicts and tensions concerning water? Answering this question will shed light on the considerations states have historically been take into account to refrain from going into war. There are several rival theories that discuss interstate water conflicts and by analyzing and comparing them, this thesis contributes to the academic field.

A first potential answer to the research question is the theory that states do not let a conflict over water escalate to war, because of the economic imperative. Pearse-Smith discusses the Mekong Basin in Southeast Asia and argues that it is unlikely for these states to

⁵ Aaron T. Wolf, “Shared Waters: Conflict and Cooperation,” *The Annual Review of Environment and Resources* 32 (2007): 260.

⁶ Abdulsalam Amini, Hamidreza Jafari, Bahram Malekmohammadi and Touraj Nasrabadi, “Transboundary Water Resources Conflict Analysis Using Graph Model for Conflict Resolution: A Case Study – Harirud River,” *Discrete Dynamics in Nature and Society* (2021): 1-2.

go into war, because cooperation will eventually be the best solution for all, rather than interfering with the risk of totally losing the access to water.⁷

A second plausible theory is that there was never a real urge to have access to water and fight for it. Because the world population was never really considered too high, or the environmental change happening too fast, the access to water was not important enough to wage war. Literature on water wars has only emerged in the second half of the twentieth century and this already tells us that the need to prioritize water management has not been that high, whereas it is on top of the agenda now.⁸

A third possible answer to the research question is that the states that share a source of water were bound by treaties. Over the course of the twentieth century, multilateral treaties over water cooperation have been signed. Brochmann and Dinar, for example, have argued that water cooperation is more effective when it is done on the basis of treaties.⁸ This would then lead states to refrain from waging war, whilst not being on the same page as the other states.

As demonstrated above, there are multiple rival theories that could answer the research question and explain why states, thus far, have refrained from going into war over water. In the next chapter, this will be further elaborated on. Since water is becoming increasingly important and attitudes or decisions in the future might differ compared to the past, this may very well change. Since there are multiple rivalling explanations that could potentially answer the research question, it shows that this research can contribute to the academic debate and the existing knowledge on why states have not gone to war over water yet.

Having access to water is a crucial resource and those states that are dependent on others for the access to water are vulnerable. Across the globe there are multiple case studies that show the vulnerability of the states downstream some of the major rivers. The most prominent example might be the dispute over water in the Nile river. The (main) source of the river lies in Ethiopia and then crosses Sudan and Egypt before flowing into the Mediterranean Sea. The Mekong river is another river where tensions have arisen because of (the lack of) water. China, Cambodia and Vietnam have experienced serious tensions. The Euphrates and Tigris rivers have caused tensions between Turkey, Syria and Iraq, but this has also not led to

⁷ Scott W.D. Pearse-Smith, “‘Water War’ in the Mekong Basin?,” *Pacific Viewpoint* 53, no. 2 (August 2012): 147.

⁸ Isabela Battistello Espíndola and Wagner Costa Ribeiro, “Transboundary waters, conflicts and international cooperation – examples of the La Plata basin,” *Water International* 45, no. 4 (March 2020): 330.

war.⁹ When diving into the academic literature, there are several possible reasons and theories to explain the fact that states have not gone to interstate war over water.

The first theory, as mentioned above, is that the economic consequences of waging war are not worth actually going into war. Zeitoun and Warner have argued that control and disputes with regards to water are achieved through tactics and strategies related to hydropolitical power, rather than military power.¹⁰ Next to them, Mirumachi, Hussein and Mwangi also state that there are power asymmetries in the places where conflicts over water occur.¹¹ Consequently, the outcome of a war could be easily predicted. The conflicts over water have mainly occurred in the Middle East and Southeast Asian region, regions with their own hegemons such as Egypt and China, but both states are not actively involved in expanding their territory to obtain more access to water. This does not mean that there will never be wars over water. Yeganeh and Bakhshandeh also name several scholars who have argued that water scarcity will lead to war in the future.¹² The fact that oil scarcity has led to wars may be an omen of what will happen when water scarcity starts to really affect states to survive.

Pearse-Smith, again discussing Wolf, discusses the prerequisites for a state that considers interfering in another state over water and why this refrains states from doing so. Firstly, the aggressor would have to be stronger. Next to that, it must take into account that there might be negative consequences attached to the intervention. The water could be polluted by the upstream country in order to make sure that the aggressor is also experiencing negative consequences. This basically means that the aggressor would also need to physically occupy the target state.¹³ So, in order for a state to go into war over water, it must take all these factors into consideration and then decide whether it is beneficial to intervene and occupy the target state. Wolf himself also states that the costs of states not cooperating with one another leads to inefficient water management, not benefitting the downstream states.¹⁴

⁹ Adrien Detges, Benjamin Pohl and Stella Schaller, "Editor's Pick: 10 Violent Water Conflicts," *Climate Diplomacy*, August 20, 2017, <https://climate-diplomacy.org/magazine/conflict/editors-pick-10-violent-water-conflicts>.

¹⁰ Mark Zeitoun and Jeroen Warner, "Hydro-hegemony: A framework for analysis of transboundary water conflicts," *Water Policy*, 8, (2006): 436.

¹¹ Naho Mirumachi, *Transboundary Water Politics in the Developing World*, (New York: Routledge): 2015. Hussam Hussein, "Whose 'Reality'? Discourses and Hydropolitics along the Yarmouk River," *Contemporary Levant* 2 (no. 2): 1. Oscar Gakuo Mwangi, "Hydropolitics versus Human Security: Implications of South Africa's Appropriation of Lesotho's Highlands Water," *Daedalus, the Journal of the American Academy of Arts and Sciences* (no.4): 184.

¹² Yasaman Yeganeh and Ehsan Bakhshandeh, "Iran's Model of Water Diplomacy to Promote Cooperation and Prevent Conflict over Transboundary Rivers in Southwest Asia," *World Affairs* 185, no. 2 (Summer 2022): 334.

¹³ Pearse-Smith, "'Water war'," 148.

¹⁴ Wolf, "Shared Waters," 247.

The second plausible answer on why there have never been wars over water that can be found in academic literature has to do with the fact that, thus far, there has been no real water scarcity. As discussed in the paragraph before, the (economic) costs of going into war have not been outweighing the potential benefits of doing so. The use of water in combination with global warming, a rise in demand and the fact that water is a scarce resource, may very well change the balance and water is therefore prone to be a *casus belli*, a cause of war in the future. According to the World Economic Forum (WEF), water crises are in the top 5 of global risks by impact over the past ten years and are likely to stay there for the coming years.¹⁵ 60% of the global freshwater is in transboundary rivers that have the potential to escalate.¹⁶ The world has seen and continues to see an enormous population growth and the increasing demand for water makes it that states prioritize water more and more. Nincic and Weiss state that the regions where people will experience serious water shortage issues are likely to see more risk of instability, leading to tensions and conflicts.¹⁷ Thus far, states have more or less been able to provide their people with water, but with the increasing population and environmental changes, this is no longer a given. Battistello Espíndola and Ribeiro add to the debate that historical power asymmetries are being reproduced by the transboundary water resources.¹⁸ This will also be discussed more extensively later.

So, for years, states have been in some sort of harmony over the water resources, but with power asymmetries being reproduced this may now be in danger. States with large natural reserves are likely to become the center of new international disputes, because the interest in and the importance of water is increasing.

A third possible answer on why states have never been to war over water is because of the treaties and cooperation they signed and adhered to. Wolf argues that cooperation among states on transboundary waters is way more effective than conflicts. He then moves on to say that the institutions that have created or have managed the agreements among hostile states have proven to be very resilient.¹⁹ He gives examples of talks held between Israel and neighboring states, between India and Pakistan, and also the states around the Nile river.

¹⁵ World Economic Forum, "The Global Risks Report 2021," *World Economic Forum*, 2021, 14.

https://www3.weforum.org/docs/WEF_The_Global_Risks_Report_2021.pdf

¹⁶ Amini et al., "Transboundary Water Resources," 1.

¹⁷ Nincic and Weiss, "The Future of," 717.

¹⁸ Battistello Espíndola and Ribeiro, "Transboundary waters," 331.

¹⁹ Wolf, "Shared Waters," 261.

Through these agreements, states have made clear arrangements on how much water each state receives or at least what percentage of water.

Ribeiro, however, does not consider these agreements as clear examples of why wars have not occurred, because in stress situations, the upstream states could influence the amount of water unilaterally. Zeitoun and Jägerskog agree with Ribeiro and argue that, if a state upstream can gain some political control, it can do so without the downstream states being able to do anything about it nor is their assistance required.²⁰

Nonetheless, agreements have an official status and if an upstream state decides to radically change the water supply to downstream states, it is very likely that the international community will demand change in behavior. Also because it is worth more to cooperate on water than fight over it.

Methodology

In order to sufficiently substantiate the main arguments this paper is making, it will look at three different cases that show similarities between them, but have different contexts. Using three different cases from different parts of the world will strengthen the argument, rather than using a single example or examples from the same region, since the context in which the transboundary tensions over water arise would be the same. Within cross-case analyses, there are independent variables and there is a dependent variable. In this thesis, the dependent variable is the outcome that interstate tensions over transboundary water resources lead to interstate cooperation, but that there are intrastate conflicts. Independent variables are relevant cases that fit certain criteria in order to answer the research question. The outcome is a result all cases share, but there could be a difference in independent variables that might cancel the explanation. To translate this theoretical explanation of cross-case analyses into this paper might make it easier to understand why these specific cases have been chosen and why they are suitable to give plausible answers to the research question.

Independent variables

To answer the research question of this paper: “How do transboundary waters lead to international cooperation despite initial tensions, but fuel domestic conflicts?” there are a few independent variables that must be present. First and foremost, there needs to be a freshwater resource that flows through or is located in at least two states. Waters are not bound by

²⁰ Battistello Espíndola and Ribeiro, “Transboundary water,” 332.

territorial borders and it is therefore not hard to find examples of transboundary waters. However, the stream of rivers could be managed, directed and thwarted by states via various ways, such as dam-building which will be elaborated on later. The second independent variable that every case needs is that there should have been a dispute that was causing tensions between both states that make use of the same source of water. If there has not been any sort of tensions between two different states, it makes little sense to argue that there has been a shift from international tensions at first and cooperation in a later stage. The third independent variable that all cases should have, is that the transboundary water involved in the international cooperation has been one of the causes of domestic conflict in at least one of the states involved.

Dependent variable

The dependent variable or outcome in this paper is that a transboundary water issue has led to international cooperation, but has also been a reason for domestic conflict. All cases selected entail these variables, but differ in some other aspects that could have caused different outcomes. Hence choosing three cases from different political, economic, and environmental contexts all complement each other to come to findings that take these contexts into account. One of the aspects, for example, that all states share is that they are from the Global South. A contentious term that refers to developing states that over the course of the past few decades have tried to gain a more prominent position on the world stage. Inherently connected to states that want to gain more geopolitical power are tensions over resources that are crucial to be in charge of exercising this power.

The cross-case analysis is looking at multiple cases where the independent variables show strong commonalities. By looking at different cases, new findings or independent variables could be brought to light that explain the causes of the outcome. Additionally, cross-case analysis allows a research to look at multiple cases and see where they show commonalities, where they differ and tries to connect the events of the chosen cases to the outcomes that are the same. All cases, namely, started with an international dispute over a transboundary water, then the states involved decided to cooperate eventually resulting in domestic conflicts over the body of water in each case.

These three cases will be scrutinized and could present plausible answers to the research question. By looking at three different cases, across time and across the globe, this could offer new insights in the explanation of the absence of interstate transboundary water conflicts on the one hand and give the causes for domestic conflicts to erupt on the other

hand. Richard Nielsen is one of the scholars that uses a ‘most similar’ case approach to study and he assumes that a research based on qualitative grounds can credibly infer findings on the basis of this approach.²¹ However, because of the different contexts and regions between the three cases selected for this thesis, this approach would not be appropriate to use. Very likely, namely, there will be cases that are more similar to each other than the three cases selected. So, for this thesis the cross-case analysis will focus on the dependent variable and make use of process tracing practices to ultimately draw conclusions.

1. Defining concepts with regards to water disputes: resource conflicts and hydropolitics

This first chapter will elaborate two academic debates that play a vital role in gaining an understanding of concepts that are key to the processes around interstate transboundary waters in general. The aim of this first chapter is to give more insight in the academic debates that are present in the literature on two concepts. The two concepts that will be discussed are resource conflicts and hydropolitics. The concepts will not yet be linked to the cases selected, but are general remarks and general theories on the debate existing in the academic literature.

In the first subchapter resource conflicts will be extensively discussed. Conflicts over resources have been taking place in various forms over the past centuries and have also made a change with regards to their characteristics over the past decades. Interest in resources has always been a driver of conflicts, albeit mainly between a colonial power and a suppressed population or because of economic interests deemed crucial to a states’ economy. Natural resources are scarce and therefore of value, especially if a states’ desire is to get hold of a resource that they do not have on their own soil. With the environmental changes, overconsumption, a rising world population and extractive practices on the world stage, water has become a more prominent issue on each states’ agenda. By discussing the concept of resource conflict and by showing the academic debate there is around the concept, this can create a good basis to connect it to the three cases.

The second subchapter will discuss the concept of hydropolitics. The politics of water are, as mentioned before, becoming a more prominent concept in International Relations and the reason for this is simple. Water and water security are crucial for states in their development. Access to sources of water could be used for economic purposes, such as the construction of ports, for political purposes to put pressure on other states by threatening to

²¹ Colin Elman, John Gerring and James Mahoney, “Case Study Research: Putting the Quant Into the Qual,” *Sociological Methods & Research* 45, no. 3 (2016): 381.

cut off their access to water, but also for social purposes by ensuring the population receives enough potable water. Some scholars argue that water wars are inevitable in the near future and, even though it might turn out differently, the concept of hydropolitics needs to be understood in order to dive deeper into the cases that will be discussed later.

1.1. Resource conflicts: from colonial exploitations to neocolonial trade-offs

This subchapter is divided into two sections to explain the history of resource conflicts first to get a notion of the processes surrounding the concept. The second section of this subchapter will discuss the different and prevalent theories that are now considered to be influential. The purpose of this subchapter is to familiarize the reader with the concept of resource conflict.

1.1.1. Historical background of resource conflicts

The concept of resource conflict has been present for centuries and has been investigated by many scholars to explain the nature and causes of such conflicts. By talking about conflicts over resources, this paper only talks about natural resources. That is, resources that can be found in nature and which are there without humans having to do anything in order to obtain or produce it. Examples of high-value natural resources are oil, diamonds, gold and uranium, whereas timber, sunlight and water are considered to ‘just’ be natural resources without any prefix. There are plenty more examples of resources, but this is just to give an idea what natural resources actually are.

As mentioned before and as pointed out in the subtitle of this part, resource conflicts have been present for ages even though interstate relations at the time used to be very different. Schellens and Diemer have stated that the interstate relation over resources was one characterized by an asymmetrical relationship between the dominant, European power and the dominated, other regions of the world.²² Prominent examples of European colonizers that have been extracting resources at large scale in the past are the Spaniards taking away silver from Bolivia and the Brits plundering diamonds from Africa. Both examples contain high-value resources and this is also one of the main characteristics of a resource conflict.

According to Schellens and Diemer, a resource conflict is a conflict that is driven by a dispute

²² Marie K. Schellens and Arnaud Diemer, “Natural Resource Conflicts: Definition and Three Frameworks to Aid Analysis,” in *Partnerships for the Goals*, edited by Walter Leal Filho et al. (Switzerland: Springer, 2020), 1-3.

over the access to and the management of resources whereby the more powerful actor is yielding benefit at the expense of the other.²³

Despite resource conflicts could occur everywhere and anytime, they have long not been considered as such, since the states that were colonized by European powers formally belonged to their colonizers and the power asymmetries were so extreme. Due to a lack of almost everything, colonized states had no chance of taking control over their own natural resources and to develop them, because they did not have any means to do so let alone that they were enabled to control and develop them. They were not sovereign and were bound by the rules imposed by their colonizers. This changed when (former) colonies started decolonizing from their European sovereigns. A major wave of decolonization occurred after the Second World War, when a large amount of states, especially in Africa and Asia became independent from their European rulers. The 1950s and 1960s were the highlight of decolonization and this brought along new power relationships where the Global South states that had just gained independence in Africa and Asia alongside Latin American states that had already done so over a century earlier, sought to gain more prominence on the world stage.²⁴

Due to the wave of decolonization, states had now become sovereign over their own territory and were in charge of managing the economy, politics and development including their natural resources that were formerly exploited by the colonizing powers. These newly formed states were now standing on their own feet, but they faced many challenges regarding their place on the global stage. Since these Global South states had been serving the developed states to expand their wealth during colonial times and because they did not have the opportunity to develop and establish trade relationships with other states, economic activities and ties remained connected to their former rulers. Tony Smith relates to this relationship by arguing that, even though the physical presence of developed countries had gone, there was still a very clear division whereby the state from the Global South found themselves in a subordinate position and these Global South states even further weakened because of their weak political-administrative structures.²⁵

These weak political-administrative structures and close economic ties to developed economies from the Global North saw the rise of Dependency Theory. Dependency Theory

²³ Schellens and Diemer, "Natural," 1.

²⁴ Poppy Cullen, Steve McCorriston and Andrew Thompson, "The "Big Survey": Decolonisation, Development and the First Wave of NGO Expansion in Africa After 1945," *The International History Review* 44, no. 4 (2022): 721.

²⁵ Tony Smith, "Changing configurations of power in North-South Relations since 1945," *International organization* 31, no. 1 (1977): 1-2.

describes the relationship between developing and developed states and, generally, argues that developing states' economies are incorporated into developed states' economies.²⁶ This interconnectedness between the 'center' states in the Global North and the 'periphery' in the Global South shaped new sorts of economic imperatives that connect again to the causes of resource conflicts. Global North states, namely, were still interested in the natural resources their former colonies contained. There are serious critiques on Global North actors' behavior in this time of history, mainly by critical theories such as Marxism.

Schellens and Diemer discuss the work of Samir Amin who wrote that a Marxist critique on Global North actors was that these Global North actors, both states and non-governmental organizations continued plundering the Global South states and that there was barely a shift in relationship, other than the one that already existed before gaining independence.²⁷ Marxists blame the Global North for the exploitation of states in the Global South and this has resulted in the underdevelopment of these states in the Global South.

More recent developments in geopolitics have seen the rise of China, which is now establishing new trade relationships with countries in the Global South. It could very well be argued that China is exercising similar methods to increase possession over natural resources in exchange for the construction of infrastructural projects. The Belt and Road Initiative aims to connect the developing world and enhance economic development within the Global South. So, it is also very interesting to see what China is doing and how they try to get hold of natural resources, especially in Africa.

The struggle for resources has played a crucial role in this relationship and the next section will touch on the different types of resources that have or can cause interstate conflicts.

1.1.2. Types of resource conflicts

As mentioned before, decolonization has not fundamentally changed the (economic) relationship between developing Global South and developed Global North states. The most noteworthy difference since a large wave of decolonization took place, is that the dominant economic powers were no longer the sovereign rulers of the territories. Particularly driven by economic motives, the Global North actors did not withdraw entirely from the Global South as they were still interested in the natural resources these areas contained. Because the Global

²⁶ Andrés Velasco, "Dependency Theory," *Foreign Policy* 133, (November/December 2002): 44-45.
<https://doi.org/10.2307/3183555>

²⁷ Schellens and Diemer, "Natural," 3.

North actors could not physically demand the natural resources any longer, they had now been devoted to trading and cooperating with these Global South states in order to obtain the desired natural resources. However, since natural resources give a potential boost to a states' economy and the political-administrative structure of the new states were still weakly institutionalized, this gave room to other actors, such as rebel organizations and other non-state actors to try to get hold of the resources, causing different forms of resource conflicts.

Many scholars have been conducting research on the relationship between natural resources and violent conflicts and also multilateral institutions such as the United Nations are interested in this relationship in order to prevent such conflicts to continue. According to the United Nations Environment Programme (UNEP), intrastate conflicts over the last 60 years have, for at least 40 per cent, linkages to natural resources.²⁸ These resources are either high-value added resources such as oil and minerals, or resources that are scarce and needed for people in their everyday life such as water and land.

Two of the scholars that have conducted research on the relationship between natural resources and violent conflict are Brunnschweiler and Bulte. They argue that a states' dependence on resource extraction becomes larger when there is an ongoing conflict, because the economy is disrupted and that it is more likely for a conflict to continue if there is an abundance of a specific resource.²⁹ They assess the pre-existing literature on the natural resource curse and aim to find out whether the three dimensions being slower economic growth, violent civil conflict and undemocratic regimes that resources are associated with are possibly inter-related.³⁰

The natural resource curse is a concept in the field of Dependency Theory that suggests that having plenty natural resources could turn out to be a curse for the development of the state. One of the arguments is that, by exporting natural resources, the currency of a state is appreciating and states fail to diversify their economies. By the appreciation of the local currency, this means that living standards are also on the rise, but very few people enjoy from the income generated by the state. Next to that, natural resource prices on the world market are extremely volatile and if these prices collapse and a states' economy is fully built around the export of these natural resources, this means that all the social services that a state

²⁸ "Conflict and Natural Resources," United Nations Environment Programme (UNEP), accessed November 8, 2022, 18, <https://www.unep.org/resources/publication/addressing-role-natural-resources-conflict-and-peacebuilding>.

²⁹ Christa N. Brunnschweiler and Erwin H. Bulte, "Natural resources and violent conflict: resource abundance, dependence, and the onset of civil wars," *Oxford Economic Papers* 61, (2009): 651.

³⁰ Brunnschweiler and Bulte, "Natural resources," 651-652.

could provide thanks to the high world price of oil, for example, cannot longer be paid for. Another argument claiming that natural resources form a curse to a state and also related to the previous argument is that natural resources reinforces corrupt practices and civil conflict, because of the tentative prospects of such incomes. Especially if a states' institutions are bad, this is a pattern that is very likely to occur.³¹ The most well-known example of a state suffering from the natural resource curse in the current time is Venezuela.

Brunnschweiler and Bulte base their arguments partly on a prominent research that had been done by Collier and Hoeffler which is considered to be very influential when looking at the interrelatedness between natural resources and civil wars. Collier argues in a different paper for the World Bank that states whose economies rely heavily on the export of natural resources and whose national income is low are very prone to violence performed by non-state actors.³² Additionally, Collier argues that objectives measures do not have an effect on the risk of civil war, but this rather happens if state opponents are organizing themselves and are financially viable to really challenge the state.³³ If these groups are not able to finance a potential conflict, there is no way they are going to be able to challenge the state.

Possessing natural resources means that rebel groups can derive income from the resource and Brunnschweiler and Bulte also argue that, if such groups depend on the income derived from natural resources, then the so-called "lootability" of resources is important.³⁴ Lootability refers to natural resources and how easy it is to overtake control over this resource and make money of it. However, among scholars there is no consensus on the links between lootable and non-lootable resources and the onset of conflicts. Nonetheless, there is a general consensus on the fact that possessing resources form a crucial part in power politics and that every actor that wants to exert power tries to get hold of natural resources. Whether there are too many or too little resources can both cause conflicts.

Schellens and Diemer, again, discuss the academic debate on natural resources and conflict, where they list a lot of scholars adhering to one of the two schools beforementioned. Some scholars are more on the side of scarcity being the cause of conflict, definitely important for the analysis later on in this paper, others are more focusing on the abundance of resources as a cause of conflict.

³¹ Frederick van der Ploeg, "Natural Resources: Curse or Blessing?," *Journal of Economic Literature* 49, no. 2 (2011): 366.

³² Paul Collier, "Economic causes of Civil Conflict and Their Implications for Policy," *World Bank*, June 15, 2000, <https://web.worldbank.org/archive/website01241/WEB/IMAGES/ECONONMI.PDF>.

³³ Collier, "Economic causes," 2.

³⁴ Brunnschweiler and Bulte, "Natural resources," 653.

Homer-Dixon is one of the authors who looks at the side of scarcity and argues that multiple factors contribute to the scarcity of renewable resources, including water. The first is environmental change. Due to depletion of renewables, there are fewer sources available to consume. The second factor is population growth. Demographic patterns in the past show that the birth rate in developing countries is relatively high and people live longer compared to a few decades ago. This makes the world population larger and all these people do need resources like water to live. This means that more people will need to share the same resources available to us. That directly brings us to the third factor Homer-Dixon is referring too, namely the unequal social distribution of resources.³⁵

This third factor is not only true geographically, but also socio-economically. When purely looking at the geographic distribution of natural resources, it is easy to see that some countries possess more natural resources than others. Socio-economically speaking, it is more difficult to really measure how natural resources are being distributed, but it is undeniable that societies in the Global North consume way more scarce resources than people in the Global South. Historical relationships still play a big role in this aspect, whereby the Global South is the supplier of goods demanded and paid for by the Global North, such as agricultural products, but also raw materials used in, for example, all kinds of electronic products. Due to the cultivation of agricultural products, which do not have a very high value, and the enormous amount of water required to grow these agricultural products to supply the Global North, developing Global South states are exhausting their own soil and managing their resources seems to be difficult in combination with the other two factors explained by Homer-Dixon.

Resource conflicts can also erupt due to having too many resources. As mentioned before, the resource curse is a well-known phenomenon that argues that states where there are plenty of natural resources, paradoxically, did not grow economically as fast as states that did not have these resources. Moreover, states that did have these natural resources, were more likely to go into violent conflict, argues Lujala.³⁶ He also argues that, if the natural resource can be found in the area where the conflict is taking place, this prolongs the durability of the conflict since rebel groups, drawing on Brunnschweiler and Bulte's argument that this provides economic possibilities and viability.³⁷

³⁵ Thomas F. Homer-Dixon, "Environmental Scarcities and Violent Conflict: Evidence from Cases," *International Security* 19, no. 1 (1994): 9.

³⁶ Päivi Lujala, "The spoils of nature: Armed civil conflict and rebel access to natural resources," *Journal of Peace Research* 47, no. 1 (2010): 15.

³⁷ Lujala, "The spoils," 15.

There are four mechanisms for abundance theorists that they find credible to explain conflicts occurring in resource-rich states. The first one being greed, where regions with high-value resources such as oil are appealing to individuals, leaders, states to control. Secondly, resource-rich states tend to have more authoritarian regimes that do not distribute the wealth derived from the resource equally among the people, who could be dissatisfied and start a conflict. A third mechanism is that there is little value to add to natural resources. This makes it a very straightforward product that generates money, but does not allow for many people to work on the process of obtaining the natural resource. The weak political-administrative systems that many states have could result in upheaval, because the people are discontent again since they are not seeing any progress in their own development. Lastly, by entering the global market with a precious resource, prices go up for the average citizen and this makes other industries more expensive which then deteriorates the economic situation for citizens again, leaving them disappointed and pose a potential cause of intrastate uprisings.³⁸

This section has looked at resource conflicts and how historical power relationships between the Global North and Global South have played a big role in struggles over resources. This section has discussed the fact that there are different drivers that could cause conflict over resources to erupt. Arguments applying to theorists adhering to the abundance theory, but also theories of scarcity being a driver of conflict have definitely set foot on the ground. It will be interesting to see what scholars are arguing in one of the scarce natural resources, as long as it is mismanaged, water. In the next subchapter, the politics of water will be looked at. Not only at a national level, but also between states. The term used for this is hydro-politics.

1.2. Hydro-politics: the politics over water resources, dam-building and water as power instrument

This section will look at a concept within international relations that is being studied more intensively over the past few decades: hydro-politics. Different theories of hydro-politics have been formed lately and will be discussed in this part more extensively. It is interesting to see the different viewpoints on the importance of water resources and one of these theories will later be linked to the case studies in the analytical chapter.

³⁸ Schellens and Diemer, "Natural," 4.

Almost all scholars agree upon the fact that transboundary bodies of water will be a main cause of future conflicts. Nonetheless, they also notice that, thus far, there have been no real interstate wars where water was the sole cause. As discussed in the section before, population growth, environmental changes and an unequal distribution of resources form new struggles that could increase or intensify the tensions between states that share a source of water. Former Egyptian President Anwar Sadat and former Egyptian Foreign Minister Boutros Boutros-Ghali, before he was the Secretary-General of the United Nations said that the only issue Egypt would go to war for is water.³⁹ Egypt shares the Nile River Basin with multiple states and this causes tensions because of the uncertainty for Egypt if a state, like Ethiopia or Sudan, decides to undertake action to obtain more water security.

The United Nations is trying to prevent conflicts from happening in general, but water has drawn their particular attention. As mentioned in the very beginning of this paper, one of the United Nations Sustainable Development Goals is to ensure access to water for all people. Numbers are varying but the United Nations claim that around 60 per cent of the world's bodies of water are transboundary waters, with the exception of seas and oceans, and that most of these bodies lack mutual agreements on the flow of rivers between states. This, inevitably, leads to tensions when one state decides to unilaterally undertake action by, for example, building a dam or by diverting the flow of the river, even though there might be agreements or treaties between states.⁴⁰

In this thesis, hydropolitics is defined as a mix of power politics. States want to get hold of natural resources in order to gain a geopolitically, stronger position and pressure others that do not possess these water resources. States' water actions regarding their geopolitical position are a form of hydropolitics. This does not necessarily mean that these actions always deal with water in situations of scarcity, but can also be the case with water in situations of abundance. Obtaining control over the Suez canal, for example, is a very prominent depiction of politics over water whereby Egypt, as well as the United Kingdom, aims to enhance its geopolitical position. Another example of states exerting hydropolitics in situation of abundance is by building dams in order to manage water flows more easily and also in order to generate hydro-electric power that serves national economies.

³⁹ Patricia Kameri-Mbote, "Water, Conflict and Cooperation: Lessons from the Nile River Basin," *Environmental Change and Security Program*, no. 4 (2007): 1.

⁴⁰ United Nations Water, "Transboundary Waters," *UN Water* <https://www.unwater.org/water-facts/transboundary-waters>

Evidently, there is a lot of competition between states over the control of water resources and if a state has control over a resource without sharing this with other states, this makes it easier for states to survive, manage and ensure that all of its own people have the access to water and that agriculture within their own boundaries can flourish with the amounts required to cultivate the land. Water is a crucial resource for each state to have in order to survive.

Hydropolitics is not just a playing field on an intergovernmental level, it can be found in all levels of society and this makes it very difficult to manage (transboundary) bodies of water. Feiock has drafted a very clear table on cooperation over bodies of water that are to be shared between multiple actors. Moore describes in his book that Feiock looks at the level of cooperation and the degree of institutionalization over shared water resources and shows that formal institutions, such as regional authorities have a high degree of institutionalization. This means that actors in this cooperative relationship are bound by jurisdictional measures and could see their power over the resource be constrained. On the other end of the spectrum, there are informal networks where there is basically no agreement between individuals and this relationship is purely built upon trust.⁴¹

This shows that for states cooperation is definitely a pathway that is desirable, since cooperation agreements increase the behavior of others. Within the own state, however, it is seldom that there are agreements over the use of a shared water resource. Within the own state, however, it is seldom that there are agreements over the use of a shared water resources. If environmental changes, population growth and an unjust distribution of water then occurs in a state that does not have the capacity to ensure that everyone gets enough access to water, this could definitely erupt in violent domestic conflicts. These conflicts do not necessarily have to be directed at the central government, to the extent there is one in place, but these domestic conflicts are very likely to erupt at a much lower, local level where there are no agreements. Due to competition over the same body of water, the aim for more power over water is fought for at a lower level of hydropolitics.

As mentioned in the previous paragraph, states are more likely to go for cooperation and adhere to the agreements. The risk for states to acquire more power over a transboundary water by waging war with another state is that it might lose access to the water resource at all. Especially riparian states are vulnerable to be denied access to the transboundary water,

⁴¹ Scott Moore, *Subnational hydropolitics: conflict, cooperation, and institution-building in shared river basins* (New York: Oxford University Press): 1985.

because states upstream can fairly easy manipulate or divert the flow of the river or decide to build hydroelectric dams to generate power that is sustainable as well.

Dam-building is one of the most popular actions undertaken by states in order to secure water and also to generate cheap and sustainable energy. However, it is also a controversial measure to build a dam, because states that are downstream fear that they will be negatively experiencing the negative consequences of the dam built upstream. Even domestically, dam-building is controversial because of the displacement of people and because of the consequences on the nature it could cause. This could result in scarcity of water in periods of drought whereby the state upstream decides to hold more water in store with the possible consequences for countries downstream that will try to secure enough water too.

Recently, Ethiopia has decided to construct the Grand Ethiopian Renaissance Dam in the Nile Basin, a measure that has been strongly condemned by Egypt, that is afraid of a shift in the allocation of water from the Nile. Remarkably, there is already a longstanding agreement between countries where the Nile flows through. However, the distribution of the water in this agreement is very unjust and apportioned almost 90 per cent to Sudan and Egypt, decided in 1959. Some of the upstream countries, like Ethiopia where 86 per cent of the water in the (Blue) Nile originates, is not included in the agreement. Ethiopia therefore recently unilaterally decided to take up action in response to their domestic population growth and challenges by constructing this enormous dam.⁴² Even though Egypt is strongly opposing this unilateral action undertaken by Ethiopia, there is not so much Egypt can do, because it not only relies on Ethiopia on water passing through the Nile, but also from all the other riparian states. Egypt is, thus, hydrologically in a vulnerable position when it comes down to this issue. Egypt has long been refusing renegotiations on the shared waters of the Nile, but sees no other way than making concessions, because fighting other states over the water of the Nile would make them extremely vulnerable to these states if Egypt fails to acquire more control over the Nile. Obviously, Egypt refrains from interfering because this would meet the resistance not only from riparian states, but also from the international community.

This is one of the most well-known examples of hydropolitics at an intergovernmental level, but there are more examples where agreements between states have been signed, although they were definitely not living on good terms with their neighbors. In the next chapter, three cases where international tensions over transboundary waters led to more

⁴² Ashok Swain, "The Nile River Basin Initiative: Too Many Cooks, Too Little Broth," *SAIS Review* 22, no. 2 (2002): 295.

cooperation, rather than escalation will be contextualized. However, in these cases domestic conflicts over water have emerged and increased due to different causes. The background and justification for the cases selected will form part of the second chapter.

2. Transboundary tensions leading to international cooperation and increased domestic water conflicts: the cases of Paraguay, Pakistan and Syria

This second chapter will provide a historical context of the cases that have been selected for this thesis. As described in the methodology section, there is a pattern that each of the cases selected have gone through and the aim of this chapter is to provide an overview of the events surrounding the interstate tensions that eventually led to cooperation, where one might have expected conflict to arise over the transboundary water. Consequently and, possibly as a cause of these agreements or other forms of cooperation, domestic conflicts over the particular bodies of water are rising in these countries for various reasons.

The first subchapter will look at the case of a transboundary water shared by Paraguay and Brazil. The Paraná River forms part of the Río de la Plata basin that stretches from Bolivia to Uruguay and also covers parts of Argentina, Paraguay and Brazil. Dating back to colonial times, borders were drawn by the Spanish and Portuguese empires and these borders have been reassessed by Brazil that wanted more control of the river in the second half of the twentieth century. Paraguay, however, managed to push back Brazil and they both agreed to sign the Iguacu Act which promoted cooperation.

The second subchapter will discuss the history and context of the Indus River Basin that flows among others through Pakistan and India. Both countries gained independence just after the Second World War and even though there have always been serious tensions over some contested border areas, up until today, the Indus River Basin flows played a pivotal role in ameliorating the relationship between the two states that have recently seen more domestic conflicts over water arise than between them. The Indus River Treaty is, definitely, an important treaty on the water security of both states, as well as other tributaries that make use of the water coming down from the Himalayas. Every now and then, tensions between the states come to a boiling point, but no war has erupted. Among Pakistani, there are many conflicts over water though, more than often leading to casualties.

The third subchapter and case is on the Euphrates-Tigris River Basin. These rivers find their source in Türkiye and then flow through Syria and Iraq for the biggest part. Originally, these countries were sharing the waters from the rivers in a way, where no real disputes took place and they trusted each other without any legal treaties on water. However, Türkiye wanted to diversify its economy, since the oil prices dropped in the 1970s and since they were not bound by any agreements, they unilaterally decided to focus on developing with the help of water resources coming from the Euphrates and Tigris. This led to tensions between the riparian states, that did seek to find solutions, rather than go to conflict with each other. However, domestic unrest in Syria and Iraq has made cooperation hard to accomplish. Hence domestic conflicts aggravate.

2.1. Paraguay-Brazil dispute over the Paraná river and the Itaipú Dam

Latin America is one of the regions in the Global South where states gained independence much earlier than in Asia and in Africa. For centuries the continent was dominated by Spanish and Portuguese colonizers, who exploited the continent from many valuable resources, such as silver and gold. Boundaries were drawn centuries ago between Spain and Portugal where the division between the Spanish and Portuguese speaking parts of the continent were decided. The continent has been relatively stable when it comes down to interstate conflicts or wars since most of them became sovereign in the nineteenth century. Paraguay and Brazil have been neighboring each other since they had become independent and one of the geographical disadvantages of Paraguay is that it is landlocked. They have no access to the sea or ocean, but they do have two major rivers flowing through the country, namely the Paraná and the Paraguay River. Both rivers originate in Brazil and these are the only waterways Paraguay has, making them extremely important for them but they are also very important to Brazil.

Murphy and Sabadell describe that Brazil wanted to diversify its resources in the second half of the twentieth century in order to become less vulnerable for shortages on other natural resources such as oil.⁴³ In the border region between the two states, there used to be the Guairá Falls, which disputedly belonged to Paraguay. Brazil, however, saw the potential of the Guairá Falls in order to generate hydroelectric power and had already established dams

⁴³ Irene L. Murphy and J. Eleonora Sabadell, "International river basins: A policy model for conflict resolution," *Resources Policy* 12, no. 2 (1986): 137.

in the region. When Paraguay, for obvious reasons, rejected a claim by Brazil that the Guairá Falls belonged to Brazil, this increased the tensions between the two states. The strategy that Brazil then pursued was remarkable, but turned out to be efficient. Brazil did two things. Firstly, they invaded the region that could generate hydroelectric power militarily. Secondly and at the same time, they made Paraguay an offer to join Brazil on equal terms to reach the full potential that the Paraná river had.⁴⁴

Paraguay accepted the offer to join Brazil in investigating the potential options that the source of water provided and in that led to the bilateral signing of the Act of Iguazú in 1966. Since the Paraná river covers around 200 kilometers on the border of Paraguay and Brazil, they first had to investigate where a dam would be most feasible to be built. When they concluded that Itaipú, Paraguay would be the best place to construct the dam they signed the Itaipú Treaty in 1973. The dam would be the biggest in the world at the time and would be equally split between Paraguay and Brazil. The energy that would be generated by the dam was equivalent to a quarter of Brazil's hydropower capacity and Brazil would pay a fixed price for the energy that Paraguay would sell to Brazil for the duration of 50 years. How would this dam and cooperative agreement then lead to domestic conflict, even though the tensions were taken away and no more military threat was exercised?

The answer to this can be related to theories of abundance, but this will be done in the next chapter. However, in order to understand why this has occurred in Paraguay, it is useful to look at the terms of the agreement and also to see to what extent conflict has really erupted in Paraguay. The main criticism scholars and Paraguayans have is that the terms of the Treaty were very beneficial to Brazil and undermined the Paraguayan development. Brazil was backed by the United States in the claim over the piece of land where the dam could be placed. Blanc argues in his piece that this border conflict gave rise to Brazil's power, because militarily Paraguay would have no chance against Brazil and by accepting their proposed terms, this would be the only way to see some form of development.⁴⁵ One of the parts of the Treaty stipulates that both countries share the production derived from the dam and if one state does not fully use the capacity within its own borders, this state must sell it to the other party at a very low rate. Paraguay, according to Elder, has only been using 10 percent of the capacity and was, thus, forced to sell the rest to Brazil at a very low price. Elder refers to an

⁴⁴ R. Andrew Nickson, "The Itaipú Hydro-Electric Project: The Paraguayan Perspective," *Bulletin of Latin American Research* 2, no. 1 (1982): 4.

⁴⁵ Jacob Blanc, "Itaipu's Forgotten History: The 1965 Brazil-Paraguay Border Crisis and the New Geopolitics of the Southern Cone," *Journal of Latin American Studies* 50, no. 2 (2017): 384.

economist who has calculated that Brazil, by including this article, has underpaid Paraguay around 75 billion US Dollars from 1984 to 2018.⁴⁶

Moreover, Stroessner, Paraguay's leader at the time, contentious in general and befriended with the military dictatorship in Brazil allowed Brazilians to come and settle in Paraguay around the dam and they now form over 10 percent of Paraguay's total population, inevitably influencing policy.⁴⁷ Almost all terms benefited not only the Brazilians, but also Stroessner and his friends. By keeping warm relations with Brazil and exercising corrupt practices around the construction and revenues of the dam, some in Stroessner's inner circle became very rich, but most of the Paraguayans are suffering, because they are still paying relatively high prices for energy, because the country is still repaying a loan granted by Brazil to finance the dam.

By agreeing to all of the terms Brazil proposed, the entry of Brazilian farmers, electricians and engineers in areas where indigenous communities used to live, by using relatively very little energy generated by the dam and, recent closed-door renegotiations by both states on the agreement, Paraguayan people feel like they have been selling out the potential of the Paraná River to Brazil.

Renegotiations in 2019 took place behind closed doors and were kept secret until some of the points were leaked. One of the points that struck Paraguayans was that the higher price of electricity from the dam would cost 250 million US Dollars for the Paraguayan company involved in the agreement. Paraguay's president Mario Abdo Benítez has almost been impeached for this and multiple Paraguayan officials have already resigned over the crisis.⁴⁸ Negotiations will have to restart with more demands from the Paraguayan people who prefer not to see their country's sovereignty being ruled by Brazil.

This first case has discussed how the relationship between Paraguay and Brazil was tense given the border dispute in Guairá. The pressure from Brazil almost forced Paraguay to cooperate with Brazil over the Paraná River. Criticism from within the country has slowly started to emerge and completely erupted recently when the closed door renegotiations of the treaty became public and it became apparent, that Brazil would gain even more power over the Itaipú Dam. The Paraguayan people feel like the president(s) are selling out Paraguay to Brazil for their personal benefits and are now advocating for more sovereignty.

⁴⁶ Alanna Elder, "The Dam that (Almost) Brought Down Paraguay's President," *NACLA*, August 13, 2019, <https://nacla.org/news/2019/08/13/dam-almost-brought-down-paraguays-president>.

⁴⁷ Murphy and Sabadell, "International river basins," 140.

⁴⁸ Elder, "The Dam that," <https://nacla.org/news/2019/08/13/dam-almost-brought-down-paraguays-president>.

2.2. The Indus River Basin makes Pakistan and India cooperate, but domestic water conflicts increase

The second case for this research looks at the relationship between Pakistan and India and how they are dealing with the water that flows through the Indus River Basin.

Historically, relations between Pakistan and India have always been complicated and, arguably, hostile. When the Brits left the region just after the Second World War, they dissolved their empire in three states in South Asia, being Pakistan, Bangladesh and India. Tensions between the two states can mainly be ascribed to their varying religious beliefs and claims on the disputed territories in several border areas, Kashmir and Jammu in particular.

Especially Kashmir is a very contentious region, that is claimed by both states and even some parts of it might belong to China. As mentioned before, the Brits left the region and back then they left the choice to Kashmir and Jammu to decide whether they would agree to join Pakistan or India. Demographically, it would be more logical to join Pakistan since the majority of the people living in the region were Muslim, like in Pakistan. The leader of the Kashmir region at the time, maharaja Hari Singh was a Hindu himself, making it a very difficult consideration for him whether to join Pakistan or India. Pakistani forces, however, decided to take matters in their own hands and they invaded Kashmir. The maharaja Singh then made an appeal to India to help him combating the Pakistani supported invaders. India would be willing to help Kashmir, but since it was considered to be neutral it would be unjust to invade since Pakistan could do the exact same thing and a full war was likely to emerge. Hence India agreed to help the maharaja, on the condition that Kashmir would join India and not Pakistan, which he agreed on. Within the course of a few days, Kashmir was invaded by Pakistani tribes, the maharaja appealed to India for help, India agreed to do so in exchange for formal accession to India so India would not interfere in a state that was considered to be neutral. Because of the conditions imposed by India to assist Singh and because the Pakistani invaded the region, Singh hastily decided to agree that Kashmir would join India.⁴⁹

This is just a very brief summary over the first tensions over the region that would lead to a hostile relationship between Pakistan and India, but this does form the basis and is key in understanding why there are so many tensions between them.

⁴⁹ Victoria Schofield, *Kashmir in Conflict: India, Pakistan and the Unending War* (London: Bloomsbury Publishing, 2021), 54-56.

However, the strategic importance of Kashmir due to its fertile lands and many rivers in the Indus River Basin is also crucial to the development of both Pakistan and India.

Considering the hostile relation that the states had just after gaining independence, there was also need to cooperate on several grounds in order to accomplish some developments and to make sure these were well documented in a Treaty. The World Bank stepped in to mediate and search for solutions regarding the six rivers that together from the Indus River Basin, resulting in the Indus Water Treaty. Maqbool writes that the idea of the Indus Water Treaty was created in order to stop water disputes between the two states and even to create a cooperative agreement so both states would be ascribed a share of the water flowing through India to Pakistan.⁵⁰ The terms of the Treaty are ascribing the three western rivers to Pakistan and the three eastern rivers were given to India. Both states agreed to this division and also set up a Commission with observers from both sides to control the flow of the river and see if no changes were discovered. If, for some reason, both states did not know what to do with regards to the Treaty and they could not come up with a mutual solution, the World Bank would step in again to solve the issue.⁵¹

Setting up this Commission and by allowing a third party, the World Bank, to resolve potential issues regarding the criteria or allocations of water disputes, cooperation between the two states have been an extremely good example of a working agreement. Considering the fact that both states have fought two more wars since signing the Indus Water Treaty in 1970 but that the rivers comprising the Indus River Basin have not been involved or manipulated in any way during these wars is definitely an accomplishment on its own.

It is fair to conclude that Pakistan and India live in peace with regards to its transboundary waters since they both abide by the terms agreed upon in 1970. Nevertheless, do these rivers then form a cause of conflict within Pakistan.

Pakistan is currently experiencing one of the most severe water crises across the globe. Pakistan relies for a great part on water coming from transboundary waters through India before it can be distributed among the different Pakistani regions in order to irrigate the land and provide the people with drinkable water. Pakistan is accounting for 78% percent of its renewable water resources from other states, making Pakistan vulnerable to changes. Besides that, Pakistan is consuming enormous amounts of water that is can be extracted from the Indus Basin aquifer, but the enormous challenge that this offers is that groundwater resources

⁵⁰ Alizeh Maqbool, "The Indus Waters Treaty: Pakistan's Case for a Revision," *Environmental Policy and Law* 47, no. 2 (2017): 78.

⁵¹ Maqbool, "The Indus Water," 78-79.

are scarce and cannot be reused in contrary to renewable water resources such as rivers. According to NASA, the aquifer is even the second-most overstressed aquifer in the world and this poses great threats to environmental changes in Pakistan.⁵² Managing the water resources in Pakistan is a big issue. Over 80 percent of the water resources the country has are used to cultivate rice, wheat, sugarcane and cotton, even though these products just account for 5 percent the states' GDP.⁵³ Since Himalayan Glaciers are also slowly disappearing, these aquifers will not be refilled much longer.

This bad management of renewable water resources and the exhaustion and depletion of grounds that have been using the groundwater from the aquifers lead to problems in all regions. In 1991, the provinces of Pakistan agreed to a Water Accord which distributes a fixed amount of water to each province. There is even a mechanism in place what to do when a province is having an excess amount of water, but there is not a mechanism that discusses distribution in times of shortages. This has caused water conflicts between several provinces in Pakistan whereby the upstream states are in a more powerful position since they obtain the water first before it reaches downstream areas where there is an acute problem of water scarcity. Especially between Punjab and Sindh there have been intrastate conflicts over water and ideological ideas. As a result Punjab has built dams in order to increase its water security and management and also to gain a more powerful geopolitical position compared to Sindh that again is, without any agreements in times of shortages, dependent on Punjab, causing great tensions between the provinces, also because of ideological differences.⁵⁴

This second case has shown how Pakistan and India were on the verge of war, which led to an, arguably, extremely successful agreement on the distribution of water which, up until today is abided by. These institutional agreements are to a lesser extent in place in Pakistan's domestic sphere where different provinces are in conflict over the distribution of water. The extreme water scarcity in Pakistan due to bad management, climate change and a rapid population growth form a serious cause of conflict for provinces in the downstream areas of the Indus River Basin.

2.3 Power relations leave Syria in despair with Türkiye

⁵² "Study: Third of Big Groundwater Basins in Distress," NASA, June 16, 2015, <https://www.nasa.gov/jpl/grace/study-third-of-big-groundwater-basins-in-distress>.

⁵³ Nazam Maqbool, "Water Crisis in Pakistan: Manifestation, Causes and the Way Forward," *PIDE Knowledge Brief* 60 (2022): 5.

⁵⁴ Majed Akhter, "Infrastructure Nation: State Space, Hegemony, and Hydraulic Regionalism in Pakistan," *Antipode* 47, no. 4 (2015) 849.

The third case where this research looks at will elaborate on the relationship between Türkiye and Syria with regards to the Euphrates-Tigris Basin. In the first two cases, tensions that arose between two states over geopolitical issues, including hydropolitical ones formed the foundation for these states to cooperate on transboundary waters. Due to varying causes, states involved in these conflicts have seen their own domestic conflicts arising over issues of water. In the Middle East region, the political and environmental context is very different from the previous two examples, but show similarities as well. It would take ages to discuss why Syria is facing domestic issues since there are so many actors and factors at play in their civil war. However, climatological issues also play a significant part in their misery. This section looks at their (historic) relationship with Türkiye on shared water resources and tries to show how the relationship is influenced by both parties.

The Euphrates-Tigris River Basin originates in the Turkish mountains and the rivers flow through Syria and Iraq among other riparian states. This makes Türkiye the upstream state and that really helped them in their development in the second half of the twentieth century. In order to move away from the dependency on the import of oil, Türkiye decided to develop within their own borders and did so by making use of their own natural resources. The oil crisis in the 1970s served as a moment of reflection in Türkiye, realizing that it had to start doing something. They decided to, unilaterally, initiate the Southeastern Anatolia Project which involved the construction of dams and hydropower plants to irrigate agricultural lands in the region of Anatolia after they already been working on other projects before that turned out to be efficiently benefiting their economy and energy supply.⁵⁵

Syria, depending for almost two thirds on the Euphrates river's surface water, and Iraq were also taking matters in their own hands and started constructing dams as well in the same period. Without any cooperation in place, these three states all started building dams and were not aligning their policies or ideas with regards to the division of water. Inevitably, disagreements between the states arose and were not considered too important in the eyes of the leaderships, since they were occupied with other matters they deemed more important.⁵⁶

Tensions, like in the other cases, led to talks over the water distribution and Türkiye and Syria even signed a bilateral agreement in 1987 where Türkiye would agree to a certain amount of water flowing through to Syria in exchange for Syria's support in the struggle

⁵⁵ Aysegul Kibaroglu and Waltina Scheumann, "Evolution of Transboundary Politics in the Euphrates-Tigris River System: New Perspectives and Political Challenges," *Global Governance* 19, (2013): 284.

⁵⁶ Kibaroglu and Scheumann, "Evolution," 285.

against the Kurds. However, Türkiye has the great advantage compared to Syria that its economy and military are substantially bigger than Syria's. So, if Türkiye would like to change the outflow and volume towards Syria, it can fairly easy do so without any consequences leading to an interstate war over water. This is exactly what happened between the two states in the years after the signing of the bilateral agreement. Türkiye did not abide by the minimum volume that was agreed on in the agreement.⁵⁷

Syria, militarily and economically inferior to Türkiye, did not have real advantages for Türkiye to bring to the table when negotiating over the distribution of water resources, because Türkiye could unilaterally decide how much water would go through to Syria. By building all these dams, the Turkish bargaining position was even becoming stronger and, hydrologically, they were in a supreme position. In the lead up to the signing of the bilateral agreement in 1987, Syria did have some influence on Türkiye because it supported Kurdish operations within Türkiye, but by demanding some water allocation flowing to Syria, they could manage to have some say in the bilateral talks.⁵⁸

These two issues, the Kurds and distribution of water established the relationship between the two states and slowly, Türkiye reduced its flow to Syria by around the 40 percent. Due to climatological changes and as a result of Turkish measures, much less water was flowing into Syria.

So, if there is some cooperation but hardly any bargaining power, how does Syria secure its hydrological position in order to ensure their people with enough water? The very simple answer to that question is that Syria fails to do so. The Syrian state has faced domestic conflict over historical, religious, economic and environmental issues and has been unable to manage the water properly. One of the main causes of the conflict was due to the socioeconomic crisis in Syria that was fueled by severe droughts in the region. Since a lot of people in Syria lived in rural areas and work in the agricultural sector, lots of water was required from the Euphrates to cultivate the land. Since the significant reduction of water Türkiye lets through and because of the environmental changes left rural communities without water, alongside many other political disasters, Syria found itself in a devastating civil war. The conflict only deteriorated the water infrastructure due to the complete chaos over the control of the state.

⁵⁷ Marwan Daoudy, "Asymmetric Power: Negotiating Water in the Euphrates and Tigris," *International Negotiation* 14: (2009): 376.

⁵⁸ Daoudy, "Asymmetric Power," 379-80.

At a certain moment, even the Kurds could control some of the dams in Northern Syria, which led to the intervention of Türkiye that was fighting the Kurdish groups. The efforts that have been made to regulate water management failed to work out. Moreover, Syria has been in such a vulnerable position hydropolitically that the slightest change in domestic affairs would give Türkiye enough reason to turn off the tap and leave Syria in complete despair.

Even though there are bilateral agreements between Türkiye and Syria, the lack of a trilateral agreement, also including Iraq has failed to combat the impact of the dams on the basin. The water itself becomes more polluted through chemicals upstream and the water becomes useless in downstream areas, making Syria and its people even more desperate in their search for drinkable water where everyone can benefit from.

Additionally, Türkiye's power position leaves Syria hopeless, since Türkiye is also not very keen on sharing the water of the Euphrates and Tigris as they do not consider to be sharing the water with downstream riparian states. This, evidently, has to do with a lack of political will to comply with Syria and Iraq.⁵⁹

The development in the second half of the twentieth century made all three riparian states from the Euphrates-Tigris Basin build dams in the two main rivers. Due to national security challenges in the region, tensions could arise over topics such as water and ethnic groups like the Kurds. However, the supreme position Türkiye found itself in, being the biggest state militarily and economically and because the source of the Euphrates and Tigris river can be found within its borders, power relations have predetermined the destiny of Syria. Without any possibly strategic important advantages it could offer to Türkiye, this state could unilaterally decide over their own development, even with environmental changes. Syria is left in despair as a cause of political unrest partly caused by water scarcity for the people to cultivate their land and survive.

⁵⁹ Yoseph Hamid, "Mitigating Conflict over Water in the Euphrates-Tigris Basin," Arab Center Washington DC, December 15, 2020, <https://arabcenterdc.org/resource/mitigating-conflict-over-water-in-the-euphrates-tigris-basin/>.

Conclusion

This thesis has looked at several cases in different parts of the world where interstate tensions over transboundary waters not led to an armed conflict, but to international cooperation. These agreements, however, were one of the causes that domestic conflicts over the same body of water arose in several states. Due to different hydropolitical relations, however, causes of domestic conflicts were different. What all three cases and the relations between them showed, is that states that find themselves in the downstream region of the rivers are much more vulnerable to changes and do not possess real sovereignty over the river, even though they desire this. In order to answer the research question:

How do transboundary waters enhance international cooperation, but create domestic conflicts? three cases were looked at to come to insightful conclusions.

One thing that showed all three cases, is that states involved in each of the cases looked to gain more water security in order to become less dependent on the import of other resources that contributed to their energy supply. Becoming the sovereign rulers over own energy and water resources is one of the main drivers that initially created tensions between the countries in each of the cases. However, by cooperating with other riparian states, agreements could mitigate the tensions. These tensions were a consequence of insecurities on water or other security issues in downstream states. All upstream states in these cases could use water as a tool to threaten the downstream states to comply with the agreements or they would face the consequences. Because states are acting rational and considering their chances over the disputed areas, complying with the agreements would increase development, whereas an escalation of the conflict would negatively impact their geopolitical position. These ‘threats’ and differences in hydropolitical power (or lack thereof) ensured cooperation that was mostly benefiting the upstream states.

So how do these transboundary waters then cause domestic conflicts? In the case of Paraguay, people feel like there were corrupt practices and only a few Paraguayans benefited at the expense of many from the deal with Brazil. People were not seeing any developments and the renegotiations behind closed doors provoked a serious political conflict.

In the case of Pakistan, the waters in the Indus River Basin experience serious depletion and aquifers, which are non-renewable sources of water, are running out of water. The water stress has caused chaos within the country and because there is no shared agreement between the provinces upstream and downstream, domestic conflicts arise because the distribution is not done fairly.

In the case of Syria, its powerless hydropolitical position to Türkiye, political unrest and environmental changes affecting the livelihoods of the agricultural sector, made the people revolt, because they could no longer survive and it is even argued that this has been the first civil war caused by environmental changes.

So, transboundary waters have resulted in very successful cooperation agreements on water management. However, the lack of institutional agreements within states on how to distribute the water to “ensure availability and sustainable management of water and sanitation for all,” states need to work together with other states it shares water resources with and, to prevent domestic conflict to arise, it should be transparent in the distribution of water within the state, possibly with a third party to mediate in disputes, since water is crucial for people and states.

Bibliography

- Akhter, Majed. "Infrastructure Nation: State Space, Hegemony, and Hydraulic Regionalism in Pakistan." *Antipode* 47, no. 4 (2015) 849-870.
- Amini, Abdulsalam, Hamidreza Jafari, Bahram Malekmohammadi and Touraj Nasrabadi. "Transboundary Water Resources Conflict Analysis Using Graph Model for Conflict Resolution: A Case Study – Harirud River." *Discrete Dynamics in Nature and Society* (2021): 1-12.
- Battistello Espíndola, Isabela and Wagner Costa Ribeiro. "Transboundary waters, conflicts and international cooperation – examples of the La Plata basin." *Water International* 45, no. 4 (March 2020): 329-346. <https://doi.org/10.1080/02508060.2020.1734756>
- Blanc, Jacob. "Itaipu's Forgotten History: The 1965 Brazil-Paraguay Border Crisis and the New Geopolitics of the Southern Cone." *Journal of Latin American Studies* 50, no. 2 (2017): 383-409.
- Brunnschweiler, Christa N. and Erwin H. Bulte. "Natural resources and violent conflict: resource abundance, dependence, and the onset of civil wars." *Oxford Economic Papers* 61, (2009): 651-674.
- Collier, Paul. "Economic causes of Civil Conflict and Their Implications for Policy." *World Bank*, June 15, 2000. <https://web.worldbank.org/archive/website01241/WEB/IMAGES/ECONONMI.PDF>.
- Cullen, Poppy, Steve McCorriston and Andrew Thompson, "The "Big Survey": Decolonisation, Development and the First Wave of NGO Expansion in Africa After 1945." *The International History Review* 44, no. 4 (2022): 721-750.
- Daoudy, Marwan. "Asymmetric Power: Negotiating Water in the Euphrates and Tigris." *International Negotiation* 14: (2009): 361-391.
- Detges, Adrien, Benjamin Pohl and Stella Schaller. "Editor's Pick: 10 Violent Water Conflicts," *Climate Diplomacy*, August 20, 2017. <https://climate-diplomacy.org/magazine/conflict/editors-pick-10-violent-water-conflicts>.
- Elder, Alanna. "The Dam that (Almost) Brought Down Paraguay's President." *NACLA*, August 13, 2019. <https://nacla.org/news/2019/08/13/dam-almost-brought-down-paraguays-president>.

- Elman, Colin, John Gerring and James Mahoney. "Case Study Research: Putting the Quant Into the Qual." *Sociological Methods & Research* 45, no. 3 (2016): 375-391.
- Gakuo Mwangi, Oscar. "Hydropolitics versus Human Security: Implications of South Africa's Appropriation of Lesotho's Highlands Water." *Daedalus, the Journal of the American Academy of Arts and Sciences* (no. 4).
- Hamid, Yoseph. "Mitigating Conflict over Water in the Euphrates-Tigris Basin." Arab Center Washington DC, December 15, 2020. <https://arabcenterdc.org/resource/mitigating-conflict-over-water-in-the-euphrates-tigris-basin/>.
- Homer-Dixon, Thomas F.. "Environmental Scarcities and Violent Conflict: Evidence from Cases." *International Security* 19, no. 1 (1994): 5-40.
- Hussein, Hussam. "Whose 'Reality'? Discourses and Hydropolitics along the Yarmouk River." *Contemporary Levant* 2 (2017): 103-115.
- Kameri-Mbote, Patricia. "Water, Conflict and Cooperation: Lessons from the Nile River Basin." *Environmental Change and Security Program*, no. 4 (2007): 1-6.
- Kibaroglu, Aysegul and Waltina Scheumann. "Evolution of Transboundary Politics in the Euphrates-Tigris River System: New Perspectives and Political Challenges." *Global Governance* 19, (2013): 279-305.
- Lujala, Päivi. "The spoils of nature: Armed civil conflict and rebel access to natural resources." *Journal of Peace Research* 47, no. 1 (2010): 15-28.
- Maqbool, Alizeh. "The Indus Waters Treaty: Pakistan's Case for a Revision." *Environmental Policy and Law* 47, no. 2 (2017): 78-88.
- Maqbool, Nazam. "Water Crisis in Pakistan: Manifestation, Causes and the Way Forward." *PIDE Knowledge Brief* 60 (2022): 1-8.
- Mirumachi, Naho. *Transboundary Water Politics in the Developing World* (New York: Routledge): 2015.
- Moore, Scott. *Subnational hydropolitics: conflict, cooperation, and institution-building in shared river basins*. New York: Oxford University Press, 1985.
- Murphy, Flynn. "Rise of a new superpower: health and China's global trade ambitions." *BMJ* 360, no. 1 (February 2018): 1-4. <https://www-bmj-com.ezproxy.leidenuniv.nl/content/bmj/360/bmj.k595.full.pdf>
- Murphy, Irene L. and J. Eleonora Sabadell. "International river basins: A policy model for conflict resolution." *Resources Policy* 12, no. 2 (1986): 133-144.
- NASA. "Study: Third of Big Groundwater Basins in Distress." June 16, 2015, <https://www.nasa.gov/jpl/grace/study-third-of-big-groundwater-basins-in-distress>.

- Nickson, R. Andrew. "The Itaipú Hydro-Electric Project: The Paraguayan Perspective." *Bulletin of Latin American Research* 2, (no. 1): 1-20.
- Nincic, Miroslav and Matthew Weiss. "The Future of Transboundary Water Conflicts." *Political Science Quarterly* 131, no. 4 (October 2016): 717-748.
<https://doi.org/10.1002/polq.12531>
- Pearse-Smith, Scott W.D.. "'Water War' in the Mekong Basin?," *Pacific Viewpoint* 53, no. 2 (August 2012): 147-162.
- Prokurat, Sergiusz. "Drought and water shortages in Asia as a threat and economic problem." *Journal of Modern Science* (March 2015): 244.
- Schellens, Marie K. and Arnaud Diemer. "Natural Resource Conflicts: Definition and Three Frameworks to Aid Analysis." in *Partnerships for the Goals*, edited by Walter Leal Filho et al. 1-17. Switzerland: Springer, 2020)
- Schofield, Victoria. *Kashmir in Conflict: India, Pakistan and the Unending War*. London: Bloomsbury Publishing, 2021.
- Smith, Tony. "Changing configurations of power in North-South Relations since 1945." *International organization* 31, no. 1 (1977): 1-27.
- Swain, Ashok. "The Nile River Basin Initiative: Too Many Cooks, Too Little Broth." *SAIS Review* 22, no. 2 (2002): 293-308.
- United Nations Department of Economic and Social Affairs. "Ensure availability and sustainable management of water and sanitation for all." Accessed November 4, 2022.
<https://sdgs.un.org/goals/goal6>.
- United Nations Environment Programme. "Conflict and Natural Resources." Accessed November 8, 2022. <https://www.unep.org/resources/publication/addressing-role-natural-resources-conflict-and-peacebuilding>.
- United Nations Water. "Transboundary Waters." Accessed November 4, 2022.
<https://www.unwater.org/water-facts/transboundary-waters>.
- Van der Ploeg, Frederick. "Natural Resources: Curse or Blessing?." *Journal of Economic Literature* 49, no. 2 (2011): 366-420.
- Velasco, Andrés. "Dependency Theory." *Foreign Policy* 133, (November/December 2002): 44-45. <https://doi.org/10.2307/3183555>
- Wolf, Aaron T.. "Shared Waters: Conflict and Cooperation." *The Annual Review of Environment and Resources* 32 (2007): 241-269.
<https://doi.org/10.1146/annurev.energy.32.041006.101434>

World Economic Forum. "The Global Risks Report 2021." *World Economic Forum*, 2021.

https://www3.weforum.org/docs/WEF_The_Global_Risks_Report_2021.pdf.

Yan, Ziming, Xiaojuan Qiu, Debin Du and Seamus Grimes. "Transboundary Water Cooperation in the Post-Cold War Spatial Patterns and the Role of Proximity." *International Journal of Environmental Research and Public Health* 19, no. 1503 (January 2022): 1-19. <https://doi.org/10.3390/ijerph19031503>

Yeganeh, Yasaman and Ehsan Bakhshandeh. "Iran's Model of Water Diplomacy to Promote Cooperation and Prevent Conflict over Transboundary Rivers in Southwest Asia." *World Affairs* 185, no. 2 (Summer 2022): 331-358.

Zeitoun, Mark and Jeroen Warner. "Hydro-hegemony: A framework for analysis of transboundary water conflicts." *Water Policy* 8, (2006): 435-460.