

# **GEOPOLITICS OF WATER CONTROL**

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## Introduction

Water, the source of life, has always played a crucial role in shaping human societies and civilizations. However, of all the water on Earth, more than 99 percent of Earth's water is unusable by humans and many other living creatures. Indeed, less than 3 percent of Earth's water is freshwater and, according to the U.S. Geological Survey, most of that 3 percent is inaccessible: more than 68 percent of the freshwater on Earth is found in icecaps and glaciers, and just over 30 percent is found in groundwater. Only about 0.3 percent of our freshwater is found in the surface water of lakes, rivers, and swamps (National Geographic, 2024). Therefore, water (from now on, “water” will refer to “freshwater”), a natural resource that supports all life on our planet, is scarce and as populations grow, urbanization increases, and climate change accelerates, the geopolitical significance of its control becomes increasingly apparent.

Water is an essential natural resource and has a strategic value, making it an instrument and an important aspect of geopolitics, even more so during the recent decades. Here we understand geopolitics as how the geographic characteristics of a State (which in this case is for example its access and control over water resources) shape its international policies and attitudes. Water is becoming increasingly scarce, and this impacts relationships among states, hinders economic stability damaging water-dependent sectors and industries, and is a threat for entire communities that see their access to such a vital resource being threatened. Therefore, the importance of water control is essential for the prevention of intra-state and inter-state conflicts. States are indeed pushed to compete over this precious resource and so the use of international law and international dispute settlement mechanisms may allow for the peaceful resolution of potential hostilities.

Moreover, businesses, entire economic sectors, and industries are also affected by increasing water scarcity. On the one hand, businesses may directly be affected by water scarcity as it can disrupt their global value chains and impact their manufacturing processes. On the other hand, businesses may be indirectly affected through reputational and regulatory risks when operating in areas with high levels of water stress.

How does water scarcity affect businesses and increase the centrality of water control in geopolitical relations between countries?

Through this report, we want to explore the different implications that the geopolitics of water control can have for states and businesses, examining the challenges posed by water scarcity, the potential for conflict, and the imperative of cooperation. Through a comprehensive analysis, we will first delve into the geopolitical importance of water control and how it can be a source of both conflict and cooperation. Second we will analyze its implications for businesses and economies, and the complexities of water geopolitics. To close this report, we will be using the Nile River as a case study in our third part as we believe that it illustrates the various types of conflicts related to water and explores potential avenues for cooperation.

## **I. The importance of water control in geopolitics**

### **A) The essential nature for human societies and its strategic value make water an important aspect of geopolitics**

“Sufficient water of adequate quality is an essential precondition of human life, socioeconomic development, and environmental sustainability” (Global Water Security Assessment, 2023).

First, access to safe and clean water is essential for human life. As a consequence, the human right to safe drinking water was first recognized by the United Nations in 2010, and the human right to sanitation was explicitly recognized as a distinct right by the United Nations in 2015 (UN Water). In addition, access to water is critical for human activity, such as agriculture, industry, and energy production, and is critical for economic development, making water security a key issue for countries. A constraint on water resources can restrain a country's growth: countries with abundant water resources can use them to promote agricultural production, energy generation, and industrial activities, while countries lacking water resources may become reliant on importing water or water intensive goods, making them vulnerable to the economic power of water-rich nations. Finally, according to the United Nations (2013), water security is “the capacity of a population to safeguard sustainable access to adequate quantities of acceptable quality water for sustaining livelihoods, human well-being, and socio-economic development, for ensuring protection against water-borne pollution and water-related disasters, and for preserving ecosystems in a climate of peace and political stability” (United Nations, 2013) (Figure 1.1). Thus, the necessity of ensuring water security makes the control over water sources, such as rivers, lakes, and aquifers, a critical issue for countries. In order to increase and accelerate the efforts to meet water security challenges, the UN General Assembly declared 2018-2028 the Water Action Decade for Sustainable Development, which complements the 2030 Agenda for Sustainable Development (Global Water Security Assessment, 2023).

Moreover, water has been recognized as a powerful tool for asserting geopolitical influence and control. Indeed, the control over water sources can provide a strategic advantage to nations, particularly in regions where water scarcity is a pressing issue, and often directly corresponds with territorial sovereignty. Indeed, many rivers, lakes or aquifers cross national boundaries, forcing states to negotiate usage rights. Transboundary water issues have become one of the major sources of issues to the bilateral or multilateral relations among the riparian countries. The desire to control transboundary water sources can be driven by the will to ensure water security, or as a source of power. It is often translated by the construction of infrastructures such as dams (Figure 1.2), reservoirs or irrigation systems, that provide countries with greater control over water resources, and bargaining power. For example, countries that have control over water sources such as major rivers or underground aquifers have an advantage: they can influence the quantity and quality of water reaching downstream countries, by restricting or diverting water flows. It grants them the power to exert influence over downstream states' economies and pressure in geopolitical disputes. This creates a power dynamic that can influence geopolitical relationships.

### **B) The importance of the geopolitics of water control is increasing due to several factors**

Water security faces threats from the competition of rapidly developing states and global economies, while also being jeopardized by persistent conflicts and the impacts of climate change. Indeed, water scarcity and the stress of the water crisis have increasingly become pressing concerns



for upstream and downstream river basin countries in many parts of the world. Even in countries with adequate water resources, water scarcity is becoming more and more common. Although this is due to several factors — industrialization, urbanization, collapsed infrastructure and distribution systems, pollution, conflict, or poor management of water resources — it is clear that climate change and the rapid growth of the population are increasingly denying many people their right to safe water and sanitation. The rapid growth of the world population is increasing the demand for freshwater (Figure 1.3). Furthermore, the escalating impacts of climate change lead to heightened occurrences of droughts and floods (Figure 1.4), intensifying the challenges of water scarcity and competition. As an example, agriculture, which represents 70% of the annual water consumption, is profoundly influenced by shifts in precipitation patterns (Washington Post, 2023). Even in regions where the average precipitation remains consistent, droughts and floods are becoming more prevalent. Rainfall may be delayed for extended periods before arriving suddenly, rather than being evenly distributed throughout the growing season. This unpredictability complicates agriculturists' reliance on rainfall for crop irrigation and underscores the necessity for enhanced water storage and irrigation systems (Washington Post, 2023).

As of today, approximately 2.2 billion people do not have access to safe drinking water, and almost 50% of the global population do not have access to sanitation facilities. Moreover, Unicef states that 4 billion people experience severe water scarcity for at least one month each year, over 2 billion people live in countries where water supply is inadequate, and 700 million people could be displaced by intense water scarcity by 2030. According to the World Wildlife Fund, by 2025 two-thirds of the world's population could be under “water stress”, which is defined by the European environmental agency as the situation “when the demand for water exceeds the available amount during a certain period or when poor quality restricts its use”, and 1.6 billion people will be living in regions with absolute water scarcity (Figure 1.5). The most water-stressed regions are the Middle East and North Africa, where 83% of the population is exposed to extremely high water stress, and South Asia, where 74% is exposed (World Resource Institute, 2023). An analysis of newly released data from the World Resources Institute (WRI) shows that by 2050 an additional billion people will be living in arid areas and regions with high water stress, where at least 40 percent of the renewable water supply is consumed each year. Two-fifths of the world's population — 3.3 billion people in total — currently live in such areas (Washington Post, 2023).

Water scarcity can have far-reaching geopolitical implications, affecting relations between countries, regional stability, economic development, and environmental sustainability. First, water scarcity can hamper agricultural production — leading to food shortages, and economic instability, even famines — industrial activities, and energy generation, affecting the economic stability and the development of the country. In particular, countries heavily reliant on agriculture and water-intensive industries may face big economic and social challenges. This, in turn, can trigger population displacement and migration, both internally and across borders. Indeed, water scarcity can force communities to migrate in search of better water sources, which can exacerbate existing social and political tension. Moreover, governments may face challenges in managing water resources, meeting the needs of their populations and of businesses, and maintaining political stability, which can have broader geopolitical implications. Water scarcity can exacerbate existing political tensions and instability within countries, and scarce water resources can lead to increased competition between countries sharing transboundary water sources, potentially leading to shifts in trade patterns and geopolitical alliances (see C). On the other hand, water scarcity can also incentivize countries to engage in cooperative efforts to manage shared water resources more effectively. Hydro-diplomacy

and regional cooperation initiatives may emerge as countries seek to address water scarcity and mitigate potential conflicts, influencing geopolitical dynamics in the process (see D). Finally, water scarcity can lead to the over exploitation of water resources, which contributes to environmental degradation, including the depletion of ecosystems, loss of biodiversity, and desertification.

These environmental impacts can exacerbate social and economic vulnerabilities, leading to further geopolitical complexities.

**C) The importance of water control can be the source of intra-state as well as inter-state conflicts that may escalate into a hot war**

The geopolitics of water control can lead to geopolitical tensions, disputes, and potentially conflicts, shaping geopolitical relations in affected regions. This is particularly the case in the context of competition for water resources between nations in regions where water sources are scarce or contested. As water resources become more scarce, the competition between riparian states (states in which the river is running through) can intensify. This leads to disagreements in the allocation of water, especially when demand exceeds supply or during periods of droughts. In an ongoing effort to understand the connections between water resources, water systems, and international security and conflict, the Pacific Institute initiated a project in the late 1980s to track and categorize events related to water and conflict, which has been continuously updated since. The database, most recently updated in November 2023, presents the information on 1634 water conflicts as a chronology and map (World Water, 2023) (Figure 1.6). According to the World Water Reserve (2023), conflicts involving water sources can be of three types: water as a cause, weapon, or casualty of conflict

First, water can be a trigger or the root cause of a conflict, when there is a dispute over the control of water or water systems, or where economic or physical access to water, or scarcity of water, triggers violence. For example, the dispute over the sharing of the Indus River waters exemplifies how water can be the root cause of a conflict (Britannica, 2024). The Indus River is one of the longest rivers in Asia, flowing through India and Pakistan. It serves as a vital water source for both countries, supporting agriculture, industry, and domestic use. The conflict dates back from the partition of British India in 1947, which led to the creation of India and Pakistan, and the conflict over the Indus River. In 1960, the Indus Waters Treaty was brokered by the World Bank to address water sharing between the two countries, and the waters of the Indus River and its tributaries were divided between India and Pakistan, with India gaining control over the eastern rivers (Ravi, Beas, and Sutlej) and Pakistan over the western rivers (Indus, Jhelum, and Chenab). Despite the treaty, disputes and tensions over water sharing have persisted between India and Pakistan. Indeed, both countries have accused each other of violating the treaty by constructing dams and other water infrastructure that could potentially affect the flow of water to downstream areas. For example, Pakistan affirms that India's construction of hydroelectric projects on the western rivers, such as the Baglihar Dam on the Chenab River, could disrupt the flow of water to its agricultural region in the Punjab province (Figure 1.7). Another example of conflict that originates from water control disputes is the Nile River (see III).

Second, water resources or water systems can be used as a weapon of conflict. One example of water resources being used as a weapon of conflict is the case of the Mosul Dam in Iraq. The dam, located on the Tigris River and operational since 1986, is the largest dam in Iraq and represents a crucial water resource for irrigation, hydroelectric power generation, and municipal water supply. When ISIS (Islamic State of Iraq and Syria) militants seized control of the Mosul Dam in 2014, there

were fears that they could use the dam as a weapon of war, by either releasing large amounts of water downstream, which would cause flooding and devastation to areas under Iraqi government control, or by withholding water, causing drought and depriving downstream populations of water resources. Thus, control of the dam became a strategic objective for both ISIS and Iraqi government forces, leading to intense fighting in the region. While ISIS was eventually driven out of the area and control of the dam was regained by Iraqi government forces, the episode highlighted how water infrastructure can be exploited as a tool of conflict, with the potential to cause significant harm to civilian populations and exacerbate existing conflicts in the region (Figure 1.8).

Third, water resources or water systems can be intentional or accidental casualties of a conflict. Critical water infrastructure such as dams, pipelines, treatment plants, and pumping stations may be intentionally targeted or inadvertently damaged as a result of military operations. This can lead to severe disruptions in water supply, sanitation, and irrigation, affecting civilian populations and exacerbating humanitarian crises. For example, after the annexation of Crimea by Russia, Ukraine voluntarily cut off the water supply to Crimea. The dam irrigating Crimea was blocked which led to severe water shortages on the peninsula that ended only after Russian forces seized the canal when they invaded Ukraine in 2022 (Reuters, 2023) (Figure 1.9).

#### **D) Water plays a key role in shaping the diplomatic and strategic interests of riparian states**

Water relations are often marked by the simultaneity of conflict and cooperation. States are capable of being in conflict but still cooperate in practice. Water relations can be an example of this coexistence of conflict and cooperation as international law sets objectives and aligns the strategies of the different actors. So, how are cooperative processes enabled, and what role does international law play?

'Water cooperation' entails various players and sectors working together towards a common goal to peacefully manage and use freshwater resources at the local, national, regional and international levels (UN Water for Life Decade, 2013). Partnerships exist at all geographic scales, some are more wide-ranging, some are more specific. Indeed, water has an intersectoral nature: as mentioned, it affects agriculture, energy, industry or health. Therefore, partnerships for water cooperation involve a variety of actors engaged in diverse sectors, and while some partnerships focus solely on water, others link to other subject matters. Examples include multi-stakeholder partnerships, corporate partnerships, academic/research partnerships, public-private partnerships (PPPs), basin organizations that involve multiple countries as partners, water user associations (WUAs), and water operator partnerships, among many others (UN-Water, 2020). One example of successful multi-stakeholder collaboration is the 2030 Water Resources Group (2030 WRG), a global public-private-civil society partnership hosted by the World Bank that helps countries accelerate reforms to ensure sustainable water management.

It must be noted however that while partnerships and cooperation can develop naturally among parties, others need enabling and promoting. Each party has different interests and objectives that sometimes can lead to disagreements on priorities and strategies, making it more difficult to reach agreements or common grounds for understanding. In those cases, international law can provide a framework for addressing water-related challenges and disagreements across scales, sectors, and disciplines. Indeed, the use and protection of water resources shared by two and more countries are governed by prescribed international legal rules, providing principles and guidelines for equitable and

sustainable management and allocation of shared water resources. These legally binding norms can be found in numerous international treaties and rules of customary international law. Among the most important global instruments are the 1997 UN International Watercourses Convention (UNWC) and two resolutions adopted by the UN General Assembly, one on the Right to Water and Sanitation and another related to transboundary aquifers. At the regional level, the two most relevant legal documents contributions are the UNECE Water Convention and the 2000 SADC Revised Protocol on Shared Watercourses (SADC Revised Protocol). States have also concluded a large number of water-related agreements for sharing the same river or lake. A concrete example is the The 1995 Mekong Agreement which was signed by Cambodia, Lao PDR, Thailand and Vietnam and established the Mekong River Commission (MRC) which focus is on the sustainable development and management of the Mekong River Basin's water and related resources (see III).

Moreover, in addition to treaty law, rules of customary international law confer some general legal entitlements and impose obligations on riparian States. The most important legal rule of this body of law is the principle of “equitable and reasonable use” which encompasses both a right and a duty to use an international watercourse in an equitable and reasonable manner (Connor, R., & Miletto, M. 2023).

#### **E) Dispute Settlement Mechanism allow for the peaceful resolution of water-related disputes**

In line with the fundamental precepts of the UN Charter, States are obligated to resolve their disputes by peaceful means, and have a wide choice of ways, both diplomatic and judicial, at their disposal. Indeed, according to Article 33 (1) of the United Nations Charter “the parties to any dispute, the continuance of which is likely to endanger the maintenance of international peace and security, shall, first of all, seek a solution by negotiation, enquiry, mediation, conciliation, arbitration, judicial settlement, resort to regional agencies or arrangements, or other peaceful means of their own choice.” States have used all these methods to resolve water disputes but the most common recourse is negotiations, good offices, and fact-finding, supported by the use of joint bodies and regional institutions. Diplomatic negotiation constitutes the first step towards the resolution of disputes and only if negotiations fail the parties may resort to other means and mechanisms for dispute settlement. The Rhine Convention of 1998 for example establishes in its article 16 that “the parties concerned will strive for a solution by means of negotiations”.

However, in many cases, riparian states have uneven bargaining powers and different capacities which can be an issue in negotiations. In those cases where the parties cannot reach an agreement by negotiation they may request mediation or conciliation by a third party or make use, if applicable, of joint watercourse institutions. States can have institutionalized negotiations through the creation of mixed and joint commissions or Joint Watercourse Institutions and might prefer to resort to negotiations involving these types of joint institutions to avoid third-party interpretation of the international water law (Daza-Clark, 2022). Moreover, these joint institutions may allow the parties to control the process and involve their own expert agencies, or even let them lead the negotiations. An example can be the creation of the Organisation pour la Mise en Valeur du Fleuve Sénégal in 1972 which enabled Guinea, Mali, Mauritania and Senegal to reach high levels of cooperation in order to share the the ownership of the dams, built along the river, by Mauritania, Mali and Senegal (Figure 1.10).

Finally, resorting to an international or regional court or to international arbitration is only possible where the parties have consented to the jurisdiction of that court or tribunal. There are several ways to confer jurisdiction to an international court or tribunal. State's consent may be expressed by special agreement between the parties to the dispute or by recognising the jurisdiction of the International Court of Justice in a unilateral declaration. This was the case of the dispute over the Status and Use of the Water of the Silala (Silala Dispute), where Chile brought to the International Court of Justice (ICJ) a case against Bolivia on the status of the Silala waters, as an international watercourse, and to determine Chile's rights as a riparian State (Figure 1.11). The dispute was brought on the basis of Article XXXI of the American Treaty on Pacific Settlement of 1948 that both Chile and Bolivia had ratified. Such article reads as follows: “In conformity with Article 36, paragraph 2, of the Statute of the International Court of Justice, the High Contracting Parties declare that they recognize, in relation to any other American State, the jurisdiction of the Court as compulsory ipso facto, without the necessity of any special agreement so long as the present Treaty is in force, in all disputes of a juridical nature that arise among them concerning [...] b) Any question of international law”. Therefore, both Chile and Bolivia recognized the jurisdiction of the ICJ to arbitrate over the dispute.

## **II. Navigating water scarcity - implications for business**

As a result of climate change, water scarcity has become a pressing issue globally, influencing the geopolitics of water through not only impacting populations and societies but also economies, businesses and industries worldwide. Navigating the geopolitics of water and their implications for businesses involves identifying the sectors most impacted by water, delving into the multifaceted challenges, risks, and costs posed by water scarcity, and examining the imperative for businesses to address these challenges effectively.

### **A) Water plays a significant role across sectors**

Water is indispensable across sectors, playing a central role in various stages of the value chain. Most sectors and businesses depend on water from the extraction to the consumption processes. The agricultural sector heavily relies on water and is responsible for 70% of global water withdrawals while the industrial sector, responsible for aiding the production, manufacturing, and shipping for businesses holds 19% (Fedotova, 2023). Naturally, all sectors dependent on the agriculture sector will also be influenced by water availability, like the consumer staples sector, which encompasses all things related to food, beverage, agriculture, and tobacco (Fedotova, 2023). For the beverage and bottled water industry, water is indispensable as a raw material for their product, and as water becomes scarcer the competition will increase for water between local communities and company facilities sharing water sources. Other industries reliant on the withdrawal of groundwater include energy generation, mining, construction, oil and gas and engineering, as a significant amount of water is necessary at the end of production for washing/cleaning the projects (UN World Development Water Report 2022, 2023). Water plays a significant role across sectors because of its multifaceted utilization.

## **B) Water scarcity induces risks and economic costs**

Water scarcity poses substantial challenges and risks to businesses, with businesses relying on water facing heightened physical and geopolitical risks resulting in reputational and regulatory consequences and increased costs (Meredith, 2021).

First, there are physical risks for transporting materials or goods, the supply chain is disrupted when waterways suffer from lower water levels and start drying up; companies face challenges and losses trying to connect consumers with their products; in more extreme cases there are negative impacts to billion-dollar trade routes from periods of impassibility (Meredith, 2021). For example, in 2018 the Rhine River had critically low levels of water which created loading and transporting issues thus leading to production halts, higher manufacturing costs, and of course supply chain disruptions (Meredith, 2021). For electricity generation, physical risks can come from more frequently occurring extreme weather conditions like floods or drought, which hinder the generation process and raises costs of electricity for other industries; additionally extreme weather conditions also yield unpredictable crop yields for the agriculture sector, lowering the revenues while increasing costs for producers, consumers, and exporters (Kumar, 2023).

Additionally, water scarcity increases risks abroad from foreign political agents and can result in reputational damage and regulatory consequences. For example, in 2014 a Coca Cola bottling plant in Mehdiganj, India was shut down by local authorities due to years of widespread public outcry with local protests accusing Coca Cola of creating significant shortages of water through over-extracting and polluting groundwater (*Indian officials order Coca-Cola plant to close for using too much water*, 2014). As water sources begin to diminish, the competition for water amongst companies and the competition between local populations and companies will rise and change dynamics. These changing dynamics could potentially influence consumer outlook on certain companies and their products. Businesses need to be cautious when operating and sourcing in areas with high levels of water stress or water scarcity to avoid serious reputational damage or detrimental regulatory changes from disputes of water allocation and ownership with the local community. Additionally, water scarcity may impact certain products as less suitable or desirable depending on the market; for example, in water scarce regions, the appeal of bottled beverages could diminish because of the negative environmental impact and water footprint required to make this product; consumers may opt for companies with a better eco-friendly reputation, or simply switch to refillable water bottles. Businesses need to be mindful of water scarcity and analyze whether in a world of water scarcity their products will be desired by the consumer (Fedotova, 2023).

Finally, the economic costs of disruptions are significant, with global companies experiencing \$38.5 billion in water-related losses in 2018 alone (Koncagül et al., 2021). The consumer staples sector is particularly vulnerable to water risk, facing an estimated \$200 billion impact because this sector is extremely reliant on agricultural commodities, extremely vulnerable to the fluctuating prices of water, operational disruptions from extreme weather events, and regulatory repercussions from fines and lawsuits connected to pollution (Meredith, 2021). As a result of these risks, ABF and Tyson foods were projected to face a 22% impact on EBITDA, while Unilever, Colgate, and Reckitt Benckiser to face a 40%-50% EBITDA impact (Meredith, 2021). Additionally, in 2022 the contamination and depletion of water supplies equated to stranded assets worth \$13.5 billion across major industries (electricity, oil and gas, metals and mining, and coal) (Fedotova, 2023).

### **C) Inaction induces more risks and economic costs**

Although it seems that companies are recognizing the importance of water and the serious risks and costs that water scarcity imposes, only 31% of companies in sectors highly impacted by water have established incentives to change the current trends of water scarcity on the C-Suite executive level (Fedotova, 2023). Most other companies have not changed their water withdrawal level to be in line with SDGs targets. Although the costs to amend water management practices is costly, the cost of inaction is much worse; for example, the consumer staples sector would cost \$11B to change its water management practices, but the cost of inaction would be 18 times more (Meredith, 2021). Investing and prioritizing sustainable water management practices today will make it easier to avoid costlier risks in the future, as in the 2020 report, the World Economic Forum's Global Risk Report estimated that because of water scarcity, pollution, and climate change, there is approximately \$301B business value put at risk (The Value of Water for Business, 2021).

### **D) Measurement is key for proper water management**

Effective water management is crucial for mitigating the risks and impacts of water scarcity on water dependent sectors. In order to sustainably manage water, companies need to take steps to first measure their water usage through assessing their dependencies on water and its value chain wide impact (Fedotova, 2023). Companies need to conduct water footprint and risk assessments to identify areas for improvement by utilizing tools such as the WWF's Water Risk Filter, which assists companies and relevant stakeholders in identifying the most important areas to address water risk and the Aqueduct platform, which the World Resource Institute developed to identify and analyze water risks around the world, and the Water Risk Monetizer, which facilitates the assessment of water risks of certain businesses to help bridge the gap between what businesses pay for water and the potential costs of the risks water scarcity brings to the business. These tools help businesses gain valuable insights for prioritizing action and developing plans on water risk (Fedotova, 2023).

## **III. Case study of water geopolitics in the Nile River**

The Nile River, one of the world's longest and most historically significant waterways, has been a focal point of geopolitical tensions for centuries. The control and management of its water resources have been central to the political dynamics of the region. This case study delves into the intricate web of geopolitical complexities surrounding water control in the Nile region. Its relevance lies not only in the strategic position of the basin, but also in the fact that it illustrates the various types of conflicts related to water (see I) and explores potential avenues for cooperation.

### **A) The region can be described by a delicate balance of competing interests and historical grievances**

In the Nile region, the unequal distribution of water resources looms large as a central issue shaping the socio-economic and geopolitical landscape. With an estimated annual flow of over 84 billion cubic meters, the Nile serves as a vital artery for eleven riparian countries - Egypt, Sudan, South Sudan, Ethiopia, Eritrea, Kenya, Uganda, Rwanda, Burundi, Tanzania, and the Democratic Republic of the Congo (Figure 3.1). However, the distribution of this precious resource is far from equitable. Downstream countries like Egypt and Sudan historically claim the lion's share of Nile

waters, owing to colonial-era agreements and infrastructure development that gives them significant control over its flow. These agreements, such as the 1929 Anglo-Egyptian Treaty and the 1959 Nile Waters Agreement, allocated the majority of the Nile's flow to Egypt and Sudan, establishing a system that marginalized the interests of upstream riparian states (Pes Maastricht). This disparity in access exacerbates tensions with upstream countries like Ethiopia, which holds the source of the Blue Nile, contributing the majority of the Nile's flow. Ethiopia's efforts to harness its water resources for hydropower and irrigation have raised alarm bells downstream, where reliance on the Nile is deeply ingrained in agricultural practices and national economies. Moreover, the proliferation of infrastructure projects, such as dams and irrigation schemes, disproportionately benefits certain countries while potentially depriving others of their fair share of water. This unequal distribution not only fuels diplomatic disputes but also perpetuates socio-economic disparities within and between Nile basin countries. As the region grapples with the challenges of population growth, climate change, and rapid development, tensions in the region keep increasing.

### **B) Contemporary issues exacerbate an already complex and worrying situation**

The Nile region illustrates the three types of conflicts related to water. First, water as a trigger or root cause of conflict: historically, disagreements over how much water each country should receive have strained relations. For instance, Sudan's agricultural expansion along the Nile has led to concerns in Egypt about reduced water availability downstream, leading to diplomatic disputes and occasional threats of military action. Then, water can also be a resource used as a weapon: throughout history, states have sought to leverage control over the Nile's water resources as a means of exerting influence or coercing neighboring countries, heightening regional instability. An example is the Aswan High Dam in Egypt, which gives Egypt significant control over the flow of the Nile. Egypt's control over the Nile's water has been a source of tension with other riparian states and has been used as leverage in diplomatic negotiations. Finally, this region also exemplifies the last type of conflict, when water resources turn out to be intentional or accidental casualties of a conflict. In times of political strife or warfare, critical water infrastructures may become targets. During the Second Sudanese Civil War, the Jonglei Canal (Figure 3.2) project was abandoned, causing disruption to natural flood patterns and exacerbating tensions between communities reliant on the river for irrigation and livelihoods (Yale Environment).

Amidst historical tensions, contemporary challenges continue to exacerbate the complexities of water governance in the Nile basin. Population growth, urbanization, and climate change present pressing issues. The increasing demand for water resources, coupled with changing rainfall patterns and the melting of glaciers, threatens the availability and reliability of Nile waters. Additionally, the proliferation of infrastructure projects, such as dams and irrigation schemes, further complicates water management efforts. The construction of the Grand Ethiopian Renaissance Dam (GERD) on the Blue Nile, one of the major tributaries of the Nile River, has emerged as a significant point of contention in the Nile basin (Figure 3.3). Initiated by Ethiopia in 2011, the GERD represents one of Africa's largest infrastructure projects, with the aim of harnessing the country's abundant water resources for hydropower generation and economic development. Upon completion, the dam is expected to have a total installed capacity of around 6.45 gigawatts (International Hydropower Association/European Union External Action), making it a cornerstone of Ethiopia's energy strategy and a potential source of electricity for both domestic consumption and export. However, the GERD has sparked significant controversy and geopolitical tensions, particularly with downstream countries like Egypt and Sudan. Egypt, heavily reliant on the Nile for freshwater, views the dam as a potential threat to its water



security, fearing diminished water flow and adverse impacts on agriculture and hydroelectric power generation. Sudan, positioned downstream of the GERD, also expresses concerns about water availability, flood control, and the dam's impact on its own infrastructure and agricultural practices. Despite ongoing negotiations and diplomatic efforts, the GERD remains a focal point of regional tensions, underscoring the complexities of water governance in the Nile basin.

### **C) Towards more cooperation in the region?**

Despite the challenges and tensions surrounding water control in the Nile region, there are signs of potential cooperation and dialogue among riparian states. The Nile Basin Initiative (NBI) stands as a beacon of regional cooperation amidst the turbulent waters of geopolitical rivalry. Founded in 1999, the NBI represents a bold attempt by Nile basin countries to transcend historical animosities and work towards collective action in the management of shared water resources. Through its platform, member states engage in dialogue, negotiation, and joint project implementation, with the overarching goal of promoting sustainable development and equitable utilization of the Nile's waters. However, the road to cooperation is fraught with challenges. The principle of "water sovereignty" often underpins national water policies, wherein states assert their rights to unimpeded access and control over water resources within their territories. This assertion of sovereignty can complicate efforts to forge consensus and compromise, particularly when it comes to contentious issues such as water allocation, infrastructure development, and environmental protection. Moreover, the specter of power asymmetry looms large in the context of Nile geopolitics, with downstream states wielding disproportionate influence due to their historical reliance on the river's waters. This power dynamic can engender mistrust and skepticism among upstream states regarding the fairness and equity of cooperative frameworks, hindering progress towards genuine collaboration.

In light of these challenges, to which the imperative of climate change adds a layer of urgency, fostering a culture of trust, transparency, and inclusivity is imperative to overcoming the barriers to cooperation in the Nile region.

### **D) Similar situations can be observed worldwide**

The case of the Nile region serves as a poignant example of the geopolitical complexities inherent in water control and management, with parallels observable in regions across the globe. From the Indus River basin in South Asia to the Colorado River basin in North America, similar patterns of conflict, cooperation, and competition over water resources emerge. By examining the nuances of the Nile case study, policymakers and stakeholders can gain valuable insights into potential challenges and opportunities in other regions facing water-related geopolitical tensions. Lessons learned from the Nile region can inform strategies for conflict resolution, diplomacy, and sustainable water governance worldwide, offering valuable predictive insights for addressing future challenges.

The Mekong River basin in Southeast Asia is an area where concerns about geopolitical tensions related to water are particularly significant, echoing the situation in the Nile basin. As one of Asia's largest rivers, the Mekong flows through six countries: China, Myanmar, Laos, Thailand, Cambodia, and Vietnam (Figure 3.4). It plays a vital role for millions of people in the region, serving as a source of water for irrigation, fishing, drinking water, and hydroelectric power generation. China has constructed numerous dams along the Mekong to address its increasing energy demands and manage flooding, a strategy often tied to its Belt and Road Initiative (BRI). This initiative was launched by Chinese President Xi Jinping in 2013. While ostensibly about connectivity and economic

development, it has been criticized for leveraging water resources as an economic tool. However, downstream countries, particularly Laos, Thailand, Cambodia, and Vietnam, have expressed concerns about these dams. They fear that the dams may impact water flow, sedimentation, and the biodiversity of the river, thereby affecting downstream economies and ecosystems. Given that the Mekong is a vital source of fish for many riparian countries, providing essential protein to millions of people, the construction of dams and changes to the river's ecology may jeopardize food security. This threat arises from the potential disruption of migratory fish stocks and alterations to aquatic habitats. To address these challenges, riparian countries of the Mekong have established the Mekong River Commission (MRC) to encourage cooperation in managing the river's water resources. However, disagreements persist over dam construction, water flow management, and resource allocation. China, while not a member of the MRC, holds significant influence on the upstream Mekong and thus plays a crucial role in regional dynamics.

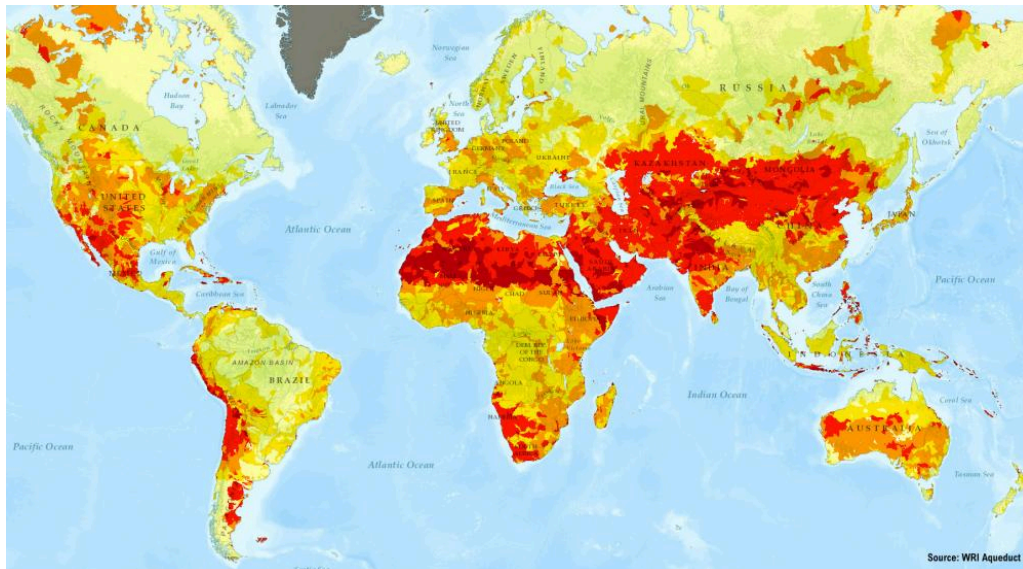
Therefore, the Mekong River basin confronts significant challenges in water geopolitics, reminiscent of those observed in other parts of the world, such as the Nile basin. Achieving sustainable management of the Mekong's water resources necessitates effective regional cooperation and policies that consider the economic, social, and environmental needs of all riparian countries.

## **Conclusion**

Water has multifaceted significance in geopolitics that can influence the quality of life and development in countries, their economies, and the political stability of regions. On the one hand, water is essential for human survival and access to sanitary, drinkable water is an irrefutable human right, and as a result, multilateral cooperation is fostered through various international institutions and legislation working to broker peaceful negotiations to share water resources between countries. On the other hand, water also influences the dynamics of geopolitical power by creating intense competition. As water scarcity increases throughout the world, water increasingly becomes a catalyst for sovereignty disputes and a reason for conflict, a weapon in conflict, and a casualty of conflict. The case study of the Nile River and its respective riparian states expertly demonstrate these geopolitical properties of water. Moreover, countries not only compete for water amongst each other but with other entities like companies. Many sectors and businesses are heavily dependent on water at every stage of the value chain and can incur geopolitical risks, loss of revenues, and increase costs when there is an insufficient amount of water present. Thus, there is a need for the adoption of proper water usage measurement and sustainable water management best practices if companies want to adapt to and reverse an increasingly water scarce world. Understanding the complexity of the geopolitics of water means understanding the implications it has for states, people, and companies.

## Appendices

Figure 1.1



Source: WRI Aqueduct

Figure 1.2

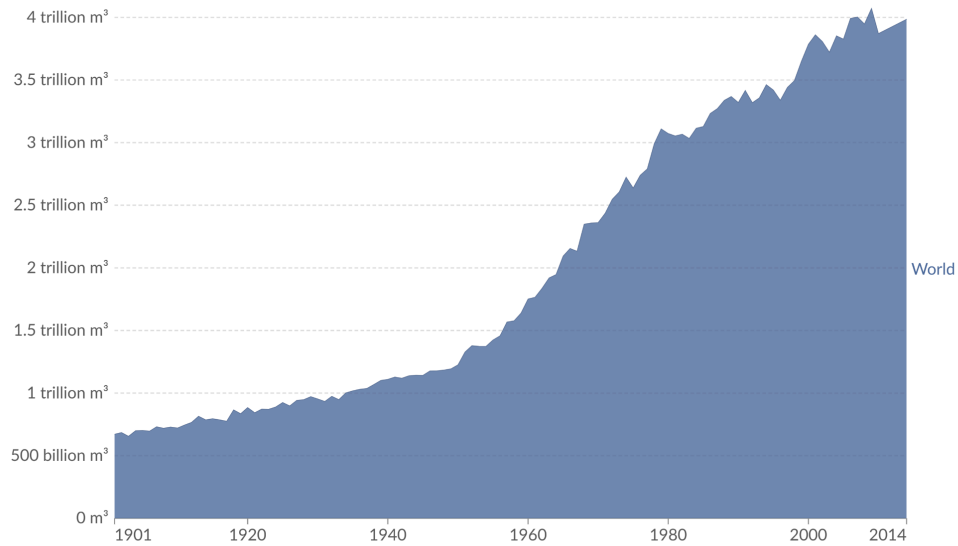


Source: Maps Of World

**Figure 1.3**

**Global freshwater use over the long-run**

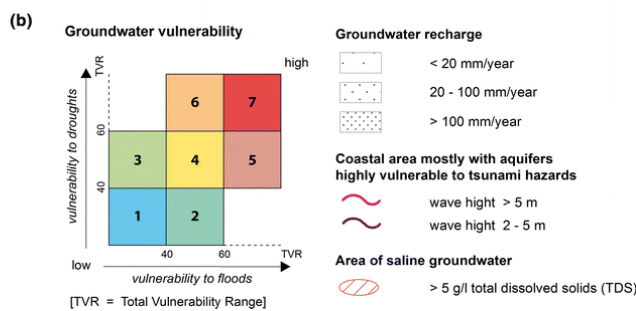
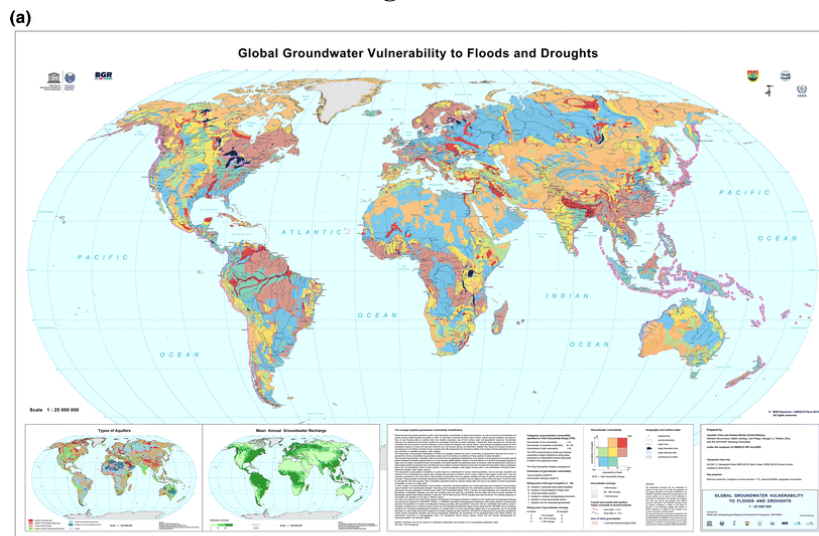
Global freshwater withdrawals for agriculture, industry and domestic uses since 1900, measured in cubic metres (m<sup>3</sup>) per year.



Data source: Global International Geosphere-Biosphere Programme (IGB) OurWorldInData.org/water-use-stress | CC BY

Source: Our World In Data

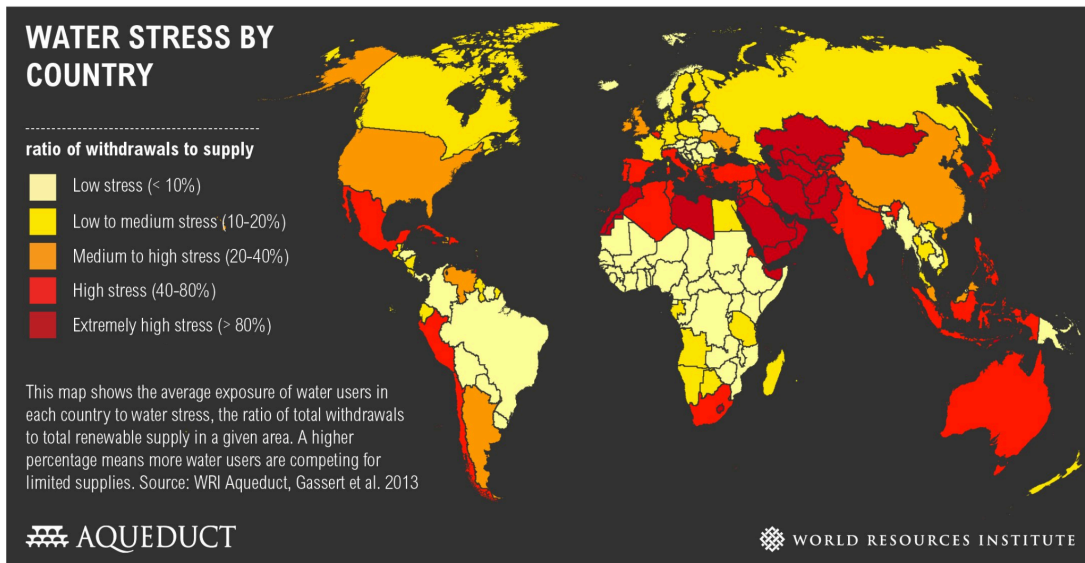
**Figure 1.4**



Source: Research Gate

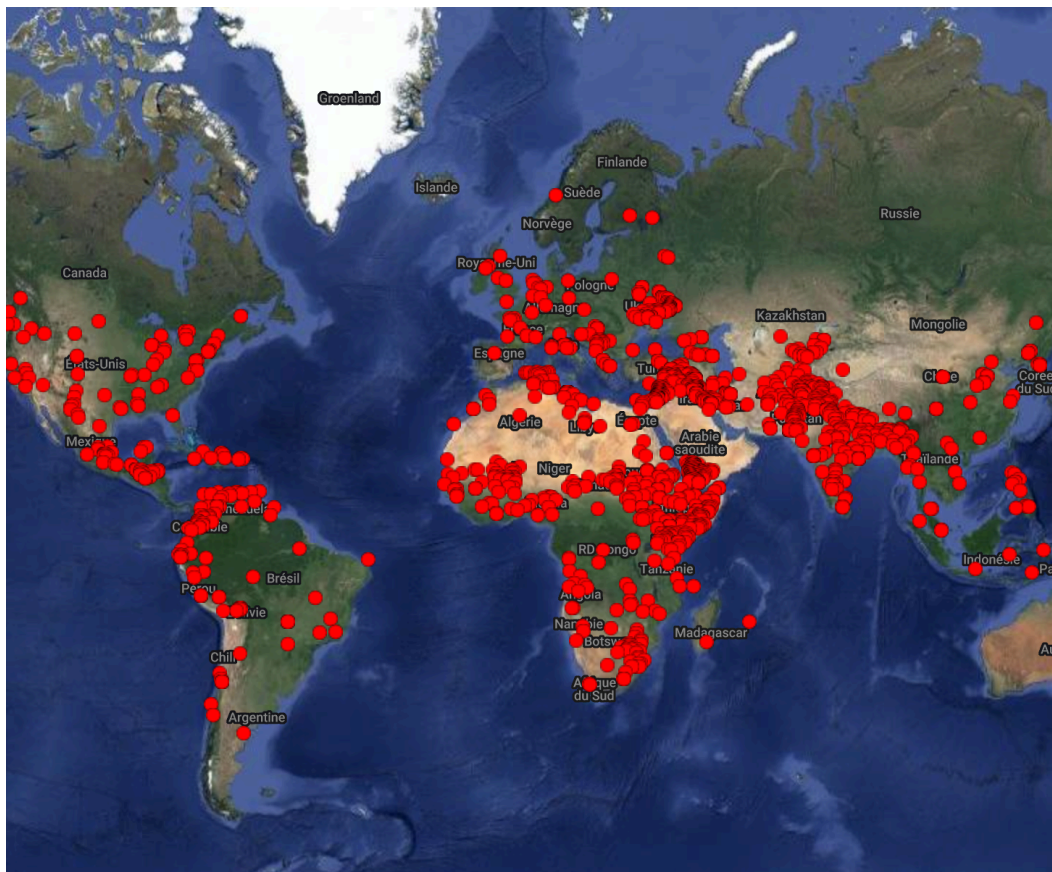


Figure 1.5



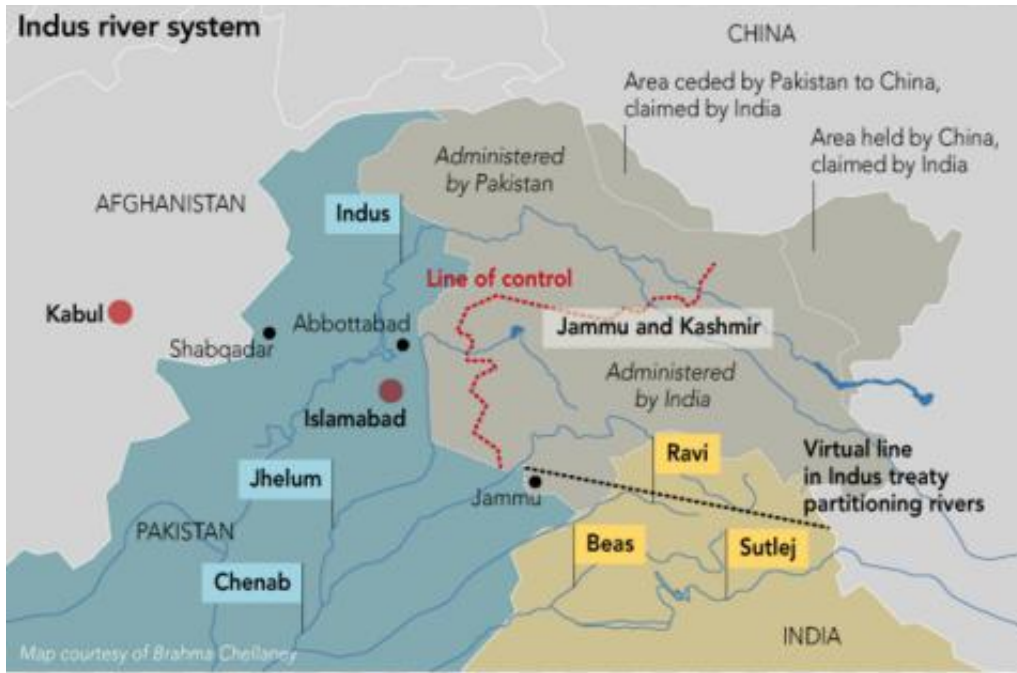
Source: World Resources Institute

Figure 1.6



Source: World Water

Figure 1.7



Source: Clearias

Figure 1.8



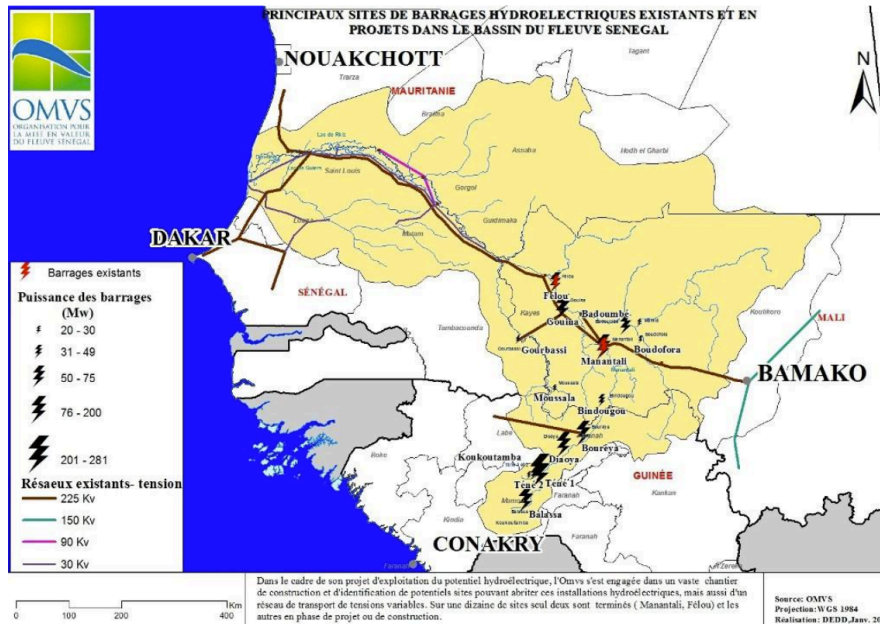
Source: BBC

Figure 1.9



Source: Black Sea News

Figure 1.10



Source: OMVS



Figure 1.11



Source: El País

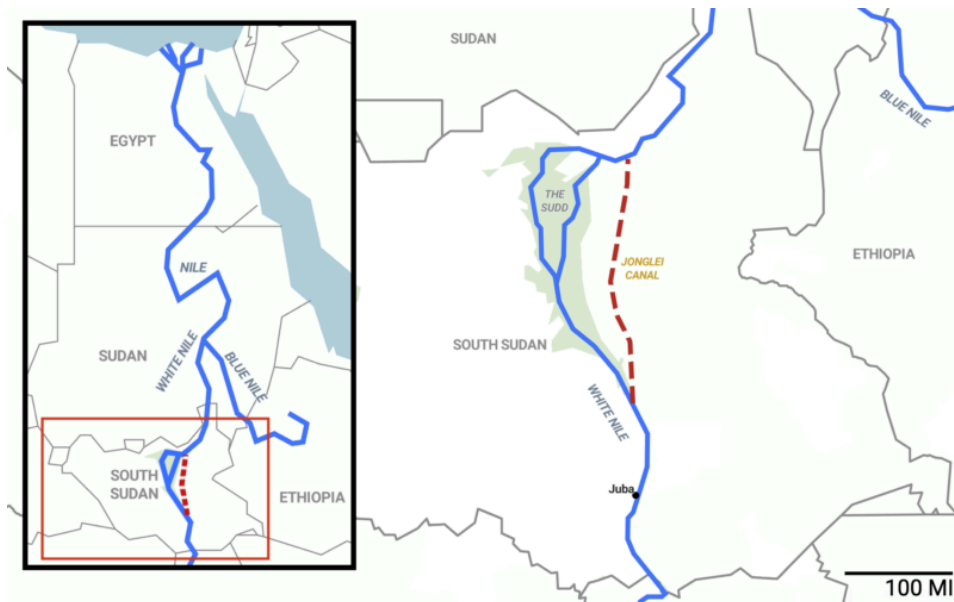
Figure 3.1

**Countries in the Nile river basin**



The Wall Street Journal

Figure 3.2



Source: Yale School of the Environment

**Figure 3.3**



Source: IASbaba

Figure 3.4



Source: Franck Vogel Photographies

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