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Past, Present, and Future Conflicts over Freshwater

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Past, Present, and Future Conflicts over Freshwater

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Abstract: This article offers an approach to the role that fresh water plays and may potentially play in the international security agenda of the early twenty-first century. First, the conflictual potential of this natural resource and the variety of roles it may adopt in each conflict is discussed. Second, a brief enumeration and analysis of inter-state conflicts in the last century with the control of fresh water as a main or additional cause is presented. The same is done regarding twenty-first-century conflicts in the third place, and a general overview of their possible evolution and the potential for similar events to erupt on a regional basis is also introduced. Finally, additional considerations will be provided.

Keywords: Conflict, War, Security, Fresh Water

Conflicts and Freshwater

Traditionally, less attention has been paid to natural resources (except hydrocarbons) than to other dimensions of security as a multidimensional phenomenon. However, the de-ideologization of conflicts in the post-Cold War period has changed that trend, with an increasing interest (both political and academic) in the role that certain natural resources will have in the twenty-first century's international security agenda. This idea was discussed in the early 1960s by US president John F. Kennedy.

As Klare has pointed out, "until recently, international conflicts had a political or ideological basis; in the future, wars will be fought for the possession and control of economically vital goods, particularly those needed by modern industrial societies to function" (Klare 2003, 261). He claims natural resources are relevant "as they are valuable and they provide power and wealth, thus making them more relevant in the world panorama" (Klare 2003, 11).

A plausible list of future priced resources includes hydrocarbons, hydric resources (especially fresh water), oceanic resources (which have contamination, and not exploitation, as a main concern), minerals (including diamonds), and lumber. In the specific case of fresh water (also called fresh hydric resources, hydric resources or -simply- water), the German Parliament (Bundestag) stated, in an early-century resolution (2001, quoted in Faundes 2008, 61–62), that:

> Due to nations being more and more competitive with regard to the use of natural water sources or rivers located in bordering states, a situation with signs of a potential international conflict keeps arising. Access to clean water is, overall, a matter of conflicts of power between countries. Discussing this issue is crucial to ensure the development of national opportunities. Unfair distribution and a lack of cooperation in the matter of boundary waters are already leading to distribution issues which enclose a great potential for violence.

That idea was also discussed in the late twentieth century (1995) when then-Vice President of the World Bank (WB) Ismail Serageldin pointed out that "many of the wars of this century

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were about oil, but wars of the next century will be about water" (quoted in Munk Ravnborg 2004, 5). In 2000 it was the turn for UN Secretary-General Kofi Annan, who claimed that "fierce competition for freshwater may well become a source of conflict and war in the future" (quoted in Munk Ravnborg 2004, 2).

A total of 71 percent of the earth's surface is covered by both saltwater and fresh water, but only 2.5 percent of the planet's water reserve consists of fresh water. Ultimately, a mere 0.025 percent of it is fresh, liquid, surface water (USGS 2012).

Fresh water is life's most essential element and it cannot be substituted. It has multiple uses in the fields of agriculture, energy, and industry. It is a renewable source, except for groundwater, but it is economically scarce and dependent on climatic conditions, especially rainfall. Both its spatial distribution among countries and people and the possibility to access it are unequal. Ravnborg has said with regard to this that "[t]hese 'warnings' are based on the assumption that because water is such a vital and yet finite resource, scarcity of water leads to intense political pressures. Because water ignores political boundaries, such political pressures might spill over and lead to international conflicts" (Munk Ravnborg 2004, 2).

For instance, China's share of access to fresh water in the world is 7 percent, but it amounts to 20 percent of the planet's population. Only eight countries—in decreasing order, Brazil, Canada, Indonesia, China, the United States, Colombia, Peru, and India—concentrate more than half of the world's fresh water reserves. Of those, three—Brazil, Canada, and China—have almost a third of them if combined (29 percent); of them, Brazil and Canada share almost a fourth (22 percent).

It is for those reasons that we believe that fresh water has the potential to generate first-magnitude conflicts, which will be discussed below. Its scarcity, be it real or perceived, current or projected, transitory or permanent, is what gives it a geopolitical dimension.

Inter-State Conflicts

Water is the cause of many conflicts registered during the history of mankind. Peter H. Gleick, an author who will be mentioned frequently in this article, has established a comprehensive and exhaustive "timeline of water conflicts", which encompasses events from the year 500 BC, when the Goths sieged Rome, blocking its aqueducts and attempting to invade the city through one of them, to 2007, when peasants from Burkina Faso, Ghana and Cote d'Ivoire attacked animals who competed against them in the use of hydric resources (Gleick 2008). Another similar work was developed by the Geoscience Department of Oregon State University in the form of the *Transboundary Freshwater Dispute Database* (TFDD), comprising conflicts between 1948 and 1999. This database shows that out of 1,831 water conflicts during that period, 507, more than a fourth of them, were violent. Therefore, a historical overview of water conflicts proves that:

- Water conflicts can be a) armed conflicts, b) armed conflicts in the context of military maneuvers, or c) non-armed conflicts, and
- They may involve a) state level actors, b) state level and non-state actors, and c) non-state actors.

The Pacific Institute for Studies in Development, Environment and Security (from now on, the Pacific Institute), led by Mr. Gleick, has developed a typology which distinguishes six different roles that hydric systems and resources may play in each conflict:

a) Control of Water Resources (state and non-state actors): where water supplies or access to water is at the root of tensions.
b) Military Tool (state actors): where water resources, or water systems themselves, are used by a nation or state as a weapon during a military action.
c) Political Tool (state and non-state actors): where water resources, or water systems themselves, are used by a nation, state, or non-state actor for a political goal.
d) Terrorism (non-state actors): where water resources, or water systems, are either targets or tools of violence or coercion by non-state actors.
e) Military Target (state actors): where water resource systems are targets of military actions by nations or states.
f) Development Disputes (state and non-state actors): where water resources or water systems are a major source of contention and dispute in the context of economic and social development (Gleick 2011, n.p.).

This article will follow the Pacific Institute's classification; however, we shall separate the two categories which are included under the umbrella of "terrorism", that is, as a terrorist threat and as a terrorist tool. In addition, we will add the adjective "cyberterrorist" to both categories.[2]

We will now offer a brief description and analysis of all six conflicts between 1898 and 2007 in which two or more countries have been parties in confrontation and where fresh water has been the main or additional casus belli, regardless of the other roles that water may have played in said conflicts according to our classification and of causes of ethnic, religious, territorial or national nature. Before doing so, we will provide a synopsis of each conflict.

a) 1898. An armed conflict between Egypt, then a British territory, and France, almost broke out after a French expedition attempted to control the headwaters of the White Nile (Gleick 2008). Negotiations between both parties evidenced Egypt's dramatic dependence on the Nile, whilst also conditioning the positions of its authorities (Moorehead 1960; quoted in Gleick 1998, 128; Ferguson 2011).
b) 1947–2013. The split of the Ganges between India and East Pakistan (Bangladesh since 1971) was a source of tension between both countries, intensified by India's building of the Farakka Barrage in 1962. Since then, a series of treaties have been signed; they were in force from 1977 to 1982, 1982 to 1984, 1985 to 1988, and 1996 to 2013, with a likely extension to 2026 (Butts 1997; Samson and Charrier 1997; Gleick 2008).
c) 1947–1960. The birth of India and Pakistan resulted in the division of the Indus River's basin between both countries, with created disputes about the use of its water for irrigation purposes. After 12 years of conversations and mediation by the WB, a solution for the conflict was agreed in 1960 (Bingham, Wolf, and Wohlegenant 1994; Gleick 2008).
d) 1962–1967. In 1965, after a series of bilateral negotiations with Paraguay on the development of the Parana river, Brazil unilaterally displayed its force by occupying and claiming control over the Guairá Falls, thus interrupting the conversations. The troops left the area in 1967 after an agreement on the creation of a joint work committee on regional development was reached (Murphy and Sabadell 1986; Gleick 2008; Gorayeb 2008).
e) 1965–1966. A series of armed conflicts were registered in order to prevent Arab plans to divert the headwaters of the Jordan River (Hasbani and Banias), which would also sabotage Israeli plans for a national water transfer system. Syria stopped its works on

[2] For instance, a man was arrested in Australia in the year 2000 for attempting to access the computer system of a water sewage plant to liberate non-treated water.

the diversion infrastructure in July 1966 (Izquierdo 1995; Wolf 1995, 1997; Gleick 2008).

f) 1986. South Africa supported a coup d'etat in neighboring Lesotho to overthrow a pro-ANC government, which implemented anti-apartheid policies and pursued a national hydric plan. The new government immediately signed an agreement on the water of the Lesotho Highlands (ABC 1986; American University, Inventory of Conflict and the Environment 2000; Mohamed 2001; Gleick 2008).

We will now discuss each conflict in detail.

French and British Military Maneuvers in Egypt

The Egyptian 1898 water conflict between France and the United Kingdom took place in the framework of colonialism. During that period, each power strived for control of all resources in their territories as a strategy to control and expand its dominion over colonial Africa, with water being a precious commodity. Britain had had a series of conflicts surrounding water before the 1898 events.

After the United Kingdom bought the Suez Canal Company in 1875 during the premiership of Benjamin Disraeli (1874–1880), Egyptian Colonel Arabi Pacha decided to rebel and capture Alexandria in 1881 due to the perceived threat of imperialist domination by Britain. This rebellion was crushed in 1882 by the troops sent by Disraeli's successor, Liberal prime minister William Gladstone.

British authorities had to cope with additional incidents when the Dervish occupied Sudan in a new rebellion. General Gordon was sent there in 1884 to coordinate the retreat of British troops in Sudanese territory; his lack of confidence in the Dervish led him to ask for reinforcements, which arrived late due to Prime Minister Gladstone's doubts about their effectiveness. As a result, Gordon was assassinated in 1885 and the conflict lasted until 1899. The Battle of Omdurman (1898), in which Anglo-Egyptian troops defeated the Dervish, led by Abdallahi ibn Muhammad, the successor of Mahdi, the promoter of Sudanese rebellion against the United Kingdom, was crucial to ensure British control of the area in 1899.

In addition, 1898 saw a conflict between France and Britain break out over the control of Fachoda, a city close to the Nile River. French troops reached the area in their attempt to expand their empire, but they confronted the British military, which had long been stationed in the area. International pressure and the threat of a breakup between both powers against their enemies led to the peaceful withdrawal of France in 1899.

The combination of both events ensured British control of the Nile River (Moorehead 1960; Asociación Cultural Mundo Historia n.d.; Ferguson 2011; Gleick 2008).

Non-Armed Conflict between East Pakistan/Bangladesh and India

The conflict over the control of hydric resources in the Ganges Delta between Bangladesh and India began in 1947, and since then, a series of accords on the issue have been signed. India's independence from the United Kingdom was achieved in 1947 after a process started by British authorities. Despite this, the events surrounding the country's independence were neither easy nor pacific, as a series of violent episodes and internal crisis, many of them of religious nature, broke out. In this context, once India became independent, Pakistan did the same from the new country, thus creating a new state with a Muslim majority. The country was divided in two parts by the Indian border, West Pakistan and East Pakistan. The latter separated from the former in 1971 and became Bangladesh.

In 1951, the Indian government announced its decision to build the Farakka Barrage, a dam close to the East Pakistani border, with the aim of transferring water through a canal to the

Hoogly River and the Port of Kolkata, which had to be regenerated to avoid permanent damage by slit. This project put the interests of East Pakistan in jeopardy as its main hydric source was the Ganges. The Pakistani government took the matter to the international level, justifying its control over the Ganges on a historical basis. In response, India appealed to its territorial sovereignty for the dam to be built.

The conflict was solved in 1971 when East Pakistan became independent with the support of India, changing its name to Bangladesh. India's collaboration in the process allowed for rapprochement between both countries in the management and control of the Ganges. To that end, a joint fluvial commission was created. The works on the Farakka Barrage ended in 1975, and from 1977 on a series of agreements between both countries on the Ganges have been signed:

- In 1977, an agreement through which Bangladesh had the right to use over 60 per cent of the Ganges' water flow in the dry season was signed. In exchange, the country would have to build a canal from the Brahmaputra River to the Ganges to increase its flow. This agreement was in force from 1977 to 1982.
- In 1982, a new agreement was signed which stayed in force until 1984. It was succeeded by a further agreement between 1985 and 1988, which was ended due to Bangladesh's rejection of Indian aid after severe flooding, which was blamed on the country's negligence in the control and regulation of the Ganges' flow.
- The last agreement between both countries was signed in 1997 after a change of government in Bangladesh, under the name of "Treaty for the Sharing of the Ganges Water," which put an end to a thaw in the relations between both countries with regards to the Ganges, reestablishing the management of its water on a collaborative basis (Butts 1997; Samson and Charrier 1997; Kinder, Hilgemann and Herat 2007; Gleick 2008).

Non-Armed Conflict between India and Pakistan

As we have just seen, the proclamations of Independence of India and Pakistan, which took place in 1947, led to the first conflicts surrounding the control of hydric resources in the area. The main problem was the share each country should have of the hydric resources of the Indus River's basin. This was due to the fact that most infrastructure had been built by the British colonial government, creating a water irrigation and supply system in the area.

An agreement was signed by both countries in 1947 which established that the system would be kept in its original state, but it was broken the following year due to India's claim that Pakistan had not signed its renewal. As a result, India cut the Indus' water flow, with sources in its territory (the argument the country had used to unilaterally adopt that decision), thus affecting some of its tributaries, the Beas, Ravi, Chenab, and Jehlum. Pakistan was severely affected by this measure, as many of its crops, dependent on water from these rivers, perished. As a result, it launched negotiations for a fair share of the area's hydric resources.

However, India demanded rights over all tributaries in the East (Sutlej, Beas and Ravi) and a payment by Pakistan for water usage rights. Due to India's superiority in bargaining power, resulting from the possession of infrastructure that allowed for control of Pakistan's hydric resources, a new agreement was signed in 1948. This inequality in negotiation power was aggravated due to Pakistan's decision in 1949 not to devaluate its currency with respect to the pound sterling, which led to India not recognizing the measure and imposing an economic blockade in 1950.

It was not until 1960 that the conflict was solved due to mediation by the WB and the signing of the "Indus Waters Treaty." Its outcome was fairer as it granted exclusive rights to India on the Eastern tributaries, leaving the Western tributaries to Pakistani control. Pakistani

payments for the use of the water of certain rivers were also abolished (Bingham, Wolf and Wohlegenant 1994; Nayyar 2002; Gleick 2008).

Brazilian and Paraguayan Military Maneuvers

The conflict between Brazil and Paraguay over the hydric resources of the Parana River dates back to the nineteenth century, specifically to 1872. It was in that year that a "Treaty of Boundaries" between both countries was signed, stating that "the territory of the Empire of Brazil is separated from the Republic of Uruguay by the course of the Parana River, from the beginning of the Brazilian possessions in the end of the Yguazu River to the Siete Caidas Fall of the Parana." Despite this, hydric resources were left to joint control per treaty (Valdés 2008).

However, the issue created tensions between both countries in the 1960s. Brazil was under a period of economic reform under President João Goulart's government, which elaborated a report on the use of the hydric resources of the Guaíra Falls, located on the course of the Parana. According to the 1872 "Treaty of Boundaries," a period of negotiations was duly started with the goal of achieving an agreement which would allow for common use of the area's resources under the umbrella of a joint committee. However, these negotiations came to an end when Goulart, a left-winger, was overthrown by General Humberto Castelo Branco after a period of political turmoil in Brazil.

In 1965, Castelo Branco, now a dictator, decided to unilaterally occupy the Guaíra Falls area in order to "[k]eep a minimal degree of vigilance on new guerrilla groups and combat smuggling activities effectively" (Debernardi 1996; Pozzo 2011). Paraguay sent a Credentials Committee to the area, suspecting illegal moves by Brazil, which immediately arrested its members. Paraguay demanded American mediation, and in 1966 the "Final Act of Foz do Iguaçu" was signed by both parties, calling for Brazilian retreat and common control of the resources by means of a joint commission. The Brazilian military left the area in 1967; subsequently, the Joint Commission was created and a series of agreements on hydric resources were signed by both countries (Murphy and Sabadell 1986; Debernardi 1996; Gleick 2008; Valdés 2008; Gorayeb 2008; Pozzo 2011).

Armed Conflict between Israel and Syria

The Jordan River, its tributaries and other hydric resources of the Middle East have been geostrategic and economic objectives of their bordering territories due to their relevance for survival. An example of these regional conflicts surrounding water is the one between Israel and Syria in the 1960s. During that decade, Israel was deploying its national institutions and implementing a hydrological plan with US assistance to ensure adequate water supply to its population.

One of the planned infrastructures was a national aqueduct, which was canceled after the UN Security Council decided to impose a ban on any unilateral movement or building activity in the demilitarized area between Syria and Israel. After this 1954 landmark decision, Israel started building the aqueduct in the Sea of Galilee (also known as Lake Tiberias), claiming the need to ensure national subsistence.

Syria and the rest of the Arab League soon retaliated against Israel, unveiling plans for the construction of a series of infrastructures to divert the Northern tributaries (Hasbani and Banias) of the Jordan River in 1964. This project would reduce the water volume needed by Israel to implement its hydrological plan successfully, thus sabotaging it.

Despite the abandonment of the Arab infrastructure plan in 1966 and further diplomatic pressure by the Arab League's member countries in the UN, Israel proceeded to increase its military intervention to ensure control of the region's hydric resources and continue with its state development plans. The most violent manifestation of these tensions was the 1967 Six Days War,

a conflict between Israel and a coalition of Arab countries including Egypt, Jordan, Iraq and Syria. The outcome was favorable to Israeli interests as the army occupied the Golan Heights, a significant source of natural resources, including water, crucial to national development. A series of political, geostrategic and economic tensions between Israel and other countries and political actors in the area has since ensued (Wolf 1995, 1997; Izquierdo 1995; Gleick 2008).

Armed Conflict between South Africa and Lesotho

The struggle over the control of hydric resources between South Africa and Lesotho, with the Orange River, crucial for Lesotho, as a main cause, dates back to the 1950s. In 1965, after severe droughts, South Africa resumed plans for water transfers from the Orange to the Vaal River, presenting a proposal to the Government of Lesotho in 1967. After Lesotho ended the negotiations in 1972 due to unequal profits from the project, South Africa began to push for the plans again in 1975 as it feared further water shortages; in exchange, Lesotho demanded the right to produce hydroelectricity in its territory for national consumption and the exclusion of the Caledon River, part of the country's national heritage, from the deal.

Despite having an alternative plan in case of Lesotho rejection of the deal, South African authorities added further pressure to their neighbor's government as the original project was more cost-effective and profitable. Negotiations came to an end in 1986 when South Africa imposed an economic blockade on Lesotho. At the same time, it gave support to a coup d'etat against Leabua Jonathan, Lesotho's prime minister and an ally of the ANC, the main opposition party to the apartheid regime.

The new authorities supported South African plans, which resulted in the signing of the "Treaty on the Hydric Resources of the Lesotho Highlands in 1986." Under this treaty, South Africa gained the right to build its water transfers from the Orange River and Lesotho obtained the right to generate hydroelectricity in infrastructure under South African supervision. Costs would be distributed according to national contributions; 56 percent of the profits would go to the Lesotho government and 44 per cent to the South African authorities. A series of institutions were created to oversee the effective development of the project, including the Joint Permanent Technical Commission, the Lesotho Highlands Development Authority and the Trans-Caledon Tunnel Authority (ABC 1986; American University, Inventory of Conflict and the Environment 2000; Mohamed 2001; Gleick 2008).

And, in the Twenty-first Century?

Nowadays, it is possible to enumerate a series of factors which have caused conflicts, both in the twentieth and twenty-first centuries, and which still hold a potential to create new conflicts:

1) Demographic trends that result in an increase of water demand as the population grows.
2) Increase in the contamination of hydric resources, with significant international efforts towards its control and reduction.
3) Shared waters, with 263 river basins stretching across the borders of 145 countries.
4) Poor management of hydric resources, especially in the Third World, with waste and inefficiency as common traits. In these cases, the issue is the lack of means to access the resources, not the absence of them. As the United Nations pointed out in 2003: "At the beginning of the twenty-first century, the Earth, with its diverse and abundant life forms, including over six billion humans, is facing a serious water crisis. All the signs suggest that it is getting worse and will continue to do so, unless corrective action is taken. This crisis is one of water governance, essentially caused by the ways in which we mismanage water" (United Nations/World Water Assessment Programme 2003, 8).
5) Presence of climatic imbalances – with many of them being abrupt. They result in the salinization of fresh water and the loss of wetlands, among other issues.

We will now present a brief list of interstate conflictive episodes between 2001 and 2007 and a concise analysis and description of each of them, selected from Gleick's timeline on water conflicts.

In 2001, a group of Palestinians destroyed the water supply of Yitzhar, an Israeli settlement, and Kisufim, a kibbutz. In response, the supply to the Agbat Jabar refugee camp was cut after a series of Palestine attacks to pumping stations. Palestine claimed that Israel had destroyed a drinking water reservoir, in addition to sabotaging supply by tanker trucks and materials to build a sewage system (Israel Ministry of Foreign Affairs 2001ab; Environment News Service 2001; Gleick 2008).

In 2003, during the invasion of Iraq, US-led troops damaged and destroyed the country's dams, treated as military targets, and water supply systems. For example, Bagdad's supply system was hit by a missile (Booth 2003; UNICEF 2003; Gleick 2008).

In 2004, the Pentagon's *Annual Report on the Military Power of the People's Republic of China* considered that the Republic of China (Taiwan) could deploy military dissuasion systems targeting populated areas or strategic objectives such as the Three Gorges Dam, a claim the PRC interpreted as an American suggestion to Taiwanese authorities, which was categorically denied by the US government (China Daily 2004; Pentagon 2004; Gleick 2008).

Also, in 2004, the United States blocked two hydric projects in the Gaza Strip as retaliation to the inability of the Palestine National Authority to find those responsible of the mortal attack perpetrated on an American diplomatic mission in October 2003 (Associated Press 2004; Gleick 2008).

Finally, in 2006 Hezbollah provoked missile damage to an Israeli sewage plant. Israel's reply was damage to water supply systems, pumping stations and other infrastructure in the course of the River Litani, located in southern Lebanon (Science 2006; Amnistía Internacional 2006; Murphy 2006; Gleick 2008).

We will now offer a general overview of potential conflicts surrounding fresh water on a regional basis.

Middle East

The Litani River, which we mentioned before, may be a potential cause of further conflict between Israel and Lebanon, with the latter accusing the former of altering its flow. The use of hydric resources in the area may also cause new confrontations between Israel and its neighboring countries. The ensuing dispute over the Jordan River, crucial for a *thirsty* Israel which also seeks to maintain control over the Sea of Galilee, which started with the Six Days War in 1967, is also a key issue in the tensions over hydric resources in this unstable region.

Turkey, Iraq and Syria may also be potential parties in a conflict over the flow of the Tigris and the Euphrates in its southern part, which could be further reduced should Turkey carry on with its implementation of Project Anatolia, a plan introduced in 1985 which includes the construction of over 20 dams to ensure irrigation of over 1.5 million hectares, generate electric power and transform Turkey into a regional water exporter (Sartori and Mazzoleni 2003; Segrelles 2010).

Central Asia

There are two cases of potential conflict in Central Asia. One of them involves two countries which, combined, have around 90 percent of the region's water reserves: Kirgizstan and Tajikistan. The other one includes three states with deficits in access to hydric resources:

Kazakhstan, Turkmenistan and Uzbekistan. Conflict may arise when all three try to access the Amu Darya and Syr Darya rivers.[3]

Indian Subcontinent

The existing conflicts in the Indian subcontinent may escalate, for all countries differ in their reasons to control access to hydric resources. India sees the issue as one of national security, and Pakistan, Bangladesh and Nepal need water access to prevent their economies for crashing, as all three countries are economically dependent on agriculture. Kashmir, a region with abundant hydric resources, is still a disputed area between India and Pakistan. Another conflict has to do with the overpopulated region of Ganges-Brahmaputra-Meghna, with approximately 600 million inhabitants and claimed by India, Nepal, Bangladesh and China (Caula and Iribarne 2011). Finally, the cause of the ensuing conflict between India and Bangladesh is the amount of international water flows they share, as over 50 rivers flow between both countries (Segrelles 2010).

Southeast Asia

Conflicts in Southeast Asia may arise between the PRC, which has almost half of the world's dams (85,000), and Cambodia, Laos, Myanmar, Thailand and Vietnam, riparian countries of the Mekong River, with its source in the Tibet. China exerts significant pressure over the Mekong's hydric resources and seeks to control them to ensure enough water flow to sustain its economic growth (Segrelles 2010). Another plausible cause of conflict may be China's *Himalaya strategy*, directed towards control of the region's water reserves, and a possible source of tensions, especially with India.

Africa

There are two areas of potential conflict in Africa. One of them is the Great Lakes region; the other, the course of the Congo, Zambezi, Volta, Niger, and Nile rivers and their riparian countries. In Northern Africa, the use of the Nile's resources for agricultural irrigation and power generation is also a contentious issue: Egypt has constantly threatened Ethiopia with the use of force in retaliation for the use of the Blue Nile's resources; in addition, it influenced Sudan's hydric policy to the point of contributing to the outbreak of the country's civil war. For example, the Jonglei canal (Segrelles 2010), an Egyptian-Sudanese project directed towards use of the Nile's hydric resources, created friction between the North and the Southern part of the country, an independent state since 2011.

America

America will be discussed on a unitary basis due to the strong likelihood of hydric interdependence and the interconnection of the region's water resources. In North America, the United States is the region's fifth hydric power; however, it exerts a great deal of pressure over decreasing and increasingly contaminated hydric resources. For example, the hydric resources of states such as California, Colorado, New Mexico, Texas, and Florida, and those of rivers like the Colorado, are on the verge of their supply capacities. Mexico also suffers from significant hydric stress, especially in the area between the US border and Northern Mexico DF (Segrelles 2010).

By contrast, South America's water reserves are abundant and mostly untouched. This is due to the existence of eight long, flowing rivers: the Magdalena, the Orinoco, the Amazon, the San Francisco, the Paraguay, the Parana, the Uruguay and the River Plate. The Guarani Aquifer System (SAG), an underground water reserve located in Brazil, Argentina and, to a smaller

[3] Central Asia is also an area for potential conflicts between Russia, Iran, Azerbaijan, Kazakhstan and Turkmenistan, all bordering the Caspian Sea, an area with blurred borders (Segrelles 2010) and rich in crude oil. However, we have excluded it from our analysis as it is a saltwater resource, the same rationale we have used to exclude the Sea of Aral.

extent, Paraguay and Uruguay[4], is also a significant cause of this abundance, and many consider it the future's Middle East of Water with a surface of 1.2 million square meters and underused 37,000 cubic kilometers of water.

US interest in the SAG is significant, and many are critical of the way their government has overestimated the Jihadist threat to the Triple Border, an area shared by Argentina, Brazil and Paraguay over the SAG; nevertheless, authors such as Caro (2012) consider it an area of radical Islamism, and various news outlets have reported on the activities of Hezbollah, Al Qaeda and the Islamic Jihad in this violent area, which is the focus of various international criminal organizations.

Argentina has also deployed troops close to the SAG and other possible areas of conflict for the control of natural resources[5] following its new *resource war* doctrine, which sees confrontation for their control as strongly likely. These resources include those located in the Southern Ice Fields, the world's largest extension of non-polar continental ice accessible by land, which is also close to Chile. The *Plan Ejército Argentino 2025* considers freshwater conflicts as the biggest national threat by the year 2025.

The United States is close to implementing three major projects for its water supply which could cause conflicts with other countries, namely Venezuela, Bolivia, Ecuador or Argentina:

a) The North American Water and Power Alliance (NAWAPA), a US Army project devised in the mid-20th century; b) the Puebla-Panama Plan (PPP), now known as the Mesoamerica Project (PM) (Proyecto Mesoamérica 2013); and c) the Initiative for the Integration of South American Regional Infrastructure (IIRSA), the most complex and ambitious of all three. NAWAPA's goal is to deviate water from Western Canada, the world's second hydric power, and Alaska, also rich in hydric resources, to the rest of the United States. PPP and PM are directed to create key infrastructure in Central America to exploit the hydric resources of Mexico, concentrated in the states of Yucatan and Chiapas, and Guatemala, with a focus on the region of Petén, with major lakes (Petén Itzá, Yaxhá, El Trigre, Salpetén) (Lasserre 2005; Segrelles 2010) and rivers such as the Usumacinta, Mopán, La Pasión, San Pedro, Azul, San Juan, and Salinas. The IIRSA is a pharaonic project which encompasses twelve countries and seeks the hydric structuring of all South America and its connection to Central and North America by means of waterways, industrial corridors and major hydropower works (IIRSA 2013).

This is one of the reasons why the United States pushed for free trade agreements with North and South America, seeking the materialization of the Free Trade Area of the Americas (FTAA), an extension of NAFTA, which encompasses the rest of America except Cuba (ALCA 2006). It remains to be seen what the strategy for hydric resources will be under the Trump administration.

Some Final Thoughts

Nowadays, many important rivers dry out before meeting the sea, such as the Nile in Egypt, the Yellow River in China, the Indo in Pakistan and the Colorado in the US. In May 2012, an Intelligence Community Assessment titled *Global Water Security* was published on request of the US Department of State, with projections on the impact of water problems by 2040: scarcity, poor quality and excess water. This confirms the rising priority of hydric resources in the American security *agenda-setting*.

[4] On August 2nd, 2010, all four countries signed the Guarani Aquifer Agreement. Article 2 says that "Each Party exercises sovereign territorial control over their respective portions of the Guarani Aquifer System, in accordance with their constitutional and legal arrangements, and in agreement with the norms of applicable international law" articles 16-19 deal with the resolution of controversies. http://internationalwaterlaw.org/documents/regionaldocs /Guarani_Aquifer_Agreement-Spanish.pdf. Accessed May 1, 2020.

[5] Some of these moves are the transfer of the Army's II Cuerpo command from Rosario to Curuzú Cuatía and the creation of minor military units.

This document cites South Asia, the Middle East and Northern Africa as the regions which will have more water-related issues in 2040, due to their high demographic pressure and economic growth. It also describes the basins of the Indo, Jordan, Mekong, Nile, Tigris and Euphrates, Amu Darya and Brahmaputra as significantly relevant to US national security.

The overall balance of the report sets the 2012–2040 period as the one in which the availability of fresh water will not meet the demand for hydric resources due to poor management. In addition, water-related issues will affect countries crucial for food production and power generation, thus putting the global food market in jeopardy and hampering economic growth. The Assessment also projects that, during the next decade, many countries strategically significant to US interests will have problems related to hydric resources, which will render them unstable and increase regional tensions. As a result, those countries will reduce their commitment to support the US in issues relevant to the first world power's national security agenda.

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