Hydropolitical Relations Between Argentina and Paraguay: Analysing Hydro-hegemony in the Binational Hydroelectric Yacyretá Dam Case, 1960-1994

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Introduction

The present study focuses on the negotiation and construction of the Argentina-Paraguayan hydroelectric Yacyretá Dam and the power relations between its founding states during this process. In doing so, the perspective of hydropolitics in International Relations (IR) will be assumed. Hydropolitics has been defined as "the systematic study of conflict and cooperation between states over water resources that transcend international borders" (Elhance, 1999, p. 3). In spite of the clear importance of a sound theoretical core to assess such interstate relations, theories of IR are relatively unexplored within hydropolitics (Warner & Zeitoun, 2008; Furlong, 2006). As can be observed from the definition above, research has focused mainly on a dichotomy between either conflict or cooperation in contexts of international water politics. Hydropolitical realities, however, often prove to be more complex than a mere dichotomy. Zeitoun and Warner (2006) have made a first attempt to coherently apply the theoretical richness of the field IR on hydropolitics by constructing a framework of hydro-hegemony. So far, the framework has mainly been applied in the sub-Saharan Africa (SSA) and Middle East and Northern Africa (MENA) regions. To further advance IR in hydropolitics in general and the hydro-hegemonic framework specifically, it is necessary to test the framework in other regions, for example in South America.

South America is a highly suitable region to test the hydro-hegemonic framework. On the one hand, violent conflicts over water are scarce in the region. On the other, states are reluctant to pool their sovereignty to cooperatively manage international water flows (Villar, Ribeiro & Sant'Anna, 2018; Pastrana & Castro, 2015). These characteristics prevent hydropolitical analyses from falling victim to the conflict-cooperation dichotomy. A case study that deserves further scrutiny within South America is that of the Argentina-Paraguayan hydroelectric Yacyretá Dam. In general, binational hydroelectric dams have a great potential for interesting findings in the fields of hydropolitics and IR due to the long-term shared necessities these projects create, as well as the complex issues on sovereignty over shared resources (Folch, 2019, pp. 60-62). More specifically, the Yacyretá Dam is an excellent case study because of the clear hegemony Argentina enjoys over Paraguay, but also because of the interesting role Brazil plays within this configuration as a regional power.

The lack of research on hydro-hegemony in South America constitutes a significant gap in the literature. This study's goal is to fill this gap by answering the research question how riparian power relations between Argentina and Paraguay have played out in the negotiation and construction process of these states' binational hydroelectric Yacyretá Dam during the period 1960-1994. An answer to this question is highly academically relevant since the hydro-hegemonic framework is applied to a completely new context, leading to theoretically interesting insights. Socially, these new insights touch upon the livelihoods of millions of people living in the proximity of the Yacyretá Dam and the River Plate basin at large, especially regarding their access to electricity and water. Methodologically, the research question will be

operationalised in a deductive within-case analysis by means of theory-testing process tracing, *i.e.* by tracing how the causal mechanisms as theorised in the hydro-hegemonic framework played out in the Yacyretá case. The qualitative data that will be examined is mainly derived from primary sources in the shape of semi-structured interviews with relevant actors in the field in the period from June-August 2020 (see Appendix). A content analysis has been applied on the primary data, which has been complemented by secondary sources in order to construct the arguments.

This study is structured as follows. The next chapter engages in a literature review of, firstly, the conflict-cooperation dichotomy in hydropolitics and, secondly, the hydro-hegemonic framework. Moreover, it provides a more substantiated overview of the methodological choices made throughout the analysis. By doing so, the theoretical framework of the analysis is created. In Chapter 2, the Yacyretá Dam case study will be contextualised by providing a detailed overview of the international situation and domestic situations in Argentina and Paraguay during the period from 1960-1994, as well as a description of the negotiation and construction of the Yacyretá Dam. Chapter 3 contains the analysis of riparian power relations in the case of the Yacyretá Dam. A conclusion will summarise the findings, answer the research question, and discuss the limitations to the present study.

Chapter 1
Conflict, Cooperation, and Hydro-hegemony: A Theoretical Framework

This chapter will serve as the theoretical foundation of this thesis by reviewing the relevant literature for the issue at hand. Firstly, the water conflict and cooperation dichotomy will be reviewed in more detail, followed by the relevance of Zeitoun and Warner's (2006) hydro-hegemonic framework within this dichotomy. Thereafter, the central concepts on which the hydro-hegemonic framework is built will be discussed, including hegemony, power, and conflict. Then, the different strategies, tactics, and coercive resources employed in the struggle for control over water-related resources are assessed as part of the framework. Moreover, the criticism the framework of hydro-hegemony has received will be discussed. The methodology to operationalise the theoretical framework in the following chapters will be presented in the final section.

For a long time, scholarship on international water politics analysed power relations by means of a simple dichotomy between conflict and cooperation, which has been exemplified by Elhance's (1999) definition presented above. A definition that pays less attention to conflict and cooperation and more to hydropolitics' connection to energy is that of Folch (2019, p. 4), defining hydropolitics as the "political economy that comes from an industrialisation and electrification powered by water". Due to its high relevance for hydroelectricity, the latter definition fits the present research best.

The conflict side within the conflict-cooperation dichotomy in hydropolitical studies started with the work of Naff and Matson (1984) and Starr and Stoll (1988), both of whom issued warnings about interstate wars over water as a consequence of it becoming scarcer in times of climate change and human misuse. These warnings were adopted by politicians, journalists and academics. For example, three consecutive United Nations (UN) Secretaries-General made firm claims on the influence of scarce water on conflicts. In 1995, Boutros Boutros-Ghali predicted that "the next war in the Middle East will be fought over water, not politics." By 2001, Kofi Annan stated that "fierce competition for fresh water may well become a source of conflict and wars in the future" and in 2007, Ban Ki-Moon said that "water scarcity threatens economic and social gains and is a potent fuel for wars and conflict" (all quotes from Jerome, 2015).

Quantitative studies claim to have found positive relationships between independent variables such as shared rivers, shared basins, and drought and the dependent variable of risk of military disputes (Furlong, Gleditsch & Hegre, 2006; Gleditsch, *et al.*, 2006). In the South American context, the Cochabamba Water War in Bolivia is an example of a domestic water conflict. In April 2000, tens of thousands of protesters against the privatisation of drinking water and sewerage services in the city of Cochabamba met a violent military response (Perreault, 2006). Regionally, a potential future example of a water dispute can be found in the Southern

Patagonian Ice Field. Over the course of the twentieth century, Argentina and Chile have been involved in a diplomatic struggle to gain a larger part of the Field. In 1998, both parties signed a treaty to settle the issue, but as fresh water becomes increasingly important in world politics, the potential for conflict remains (Manzano, 2019). As a counterargument to the water wars paradigm, Wolf (1995) showed that there has not been a conflict solely motivated by water since the Babylonian King Nebuchadnezzar II fought over control of the Tigris and Euphrates in the sixth century BC. Moreover, Wolf (1999) described the numerous beneficial water-sharing treaties and demonstrated that military force is almost never used in hydropolitics. Accordingly, in the 1990s, the hydropolitical paradigm shifted towards water cooperation.

Cooperation may also be forced rather than voluntary and often, after much-heralded announcements, treaties or regional organisations quickly become empty shells, which do not guarantee cooperative behaviour (Covarrubias, 2019, p. 124). Even more so, conflict can emerge over time even where cooperation has previously created shared necessities. Zeitoun and Mirumachi (2008) summarise this point concisely by arguing that the dichotomy between "either conflict or cooperation (…) refutes the reality of the vast majority of contexts where cooperation and conflict actually co-exist, and perpetuates the paradigm that any conflict is 'bad', and that all forms of cooperation are 'good'" (p. 297).

The limitations of the dichotomous paradigm between water conflict and cooperation pose a gap in the literature. A more sophisticated theoretical framework to assess riparian power relations between Argentina and Paraguay over the period 1960-1994 in the context of the Yacyretá Dam. The hydro-hegemonic framework of Zeitoun and Warner (2006) is highly suited to fill this gap for two reasons. Firstly, it maintains a more dynamic perception of conflict, which is defined here as "some form of disagreement over ideas, principles or sovereignty in which the opposing forces struggle for victory" (Zeitoun & Warner, 2006, p. 440). This definition fits an analysis of binational hydroelectric dams well. While constructing these dams requires intense cooperation between two states, their high life span and irreversibility create numerous political, economic, social, and ecological path dependencies towards potential conflicts between these two states (Folch, 2019, p. 6). Secondly, the hydro-hegemonic framework focuses on riparian power relations, which suits the research question perfectly.

Zeitoun and Warner (2006) make two basic assumptions as a foundation to their hydro-hegemonic framework. Firstly, each riparian state's actions are defined by their goal to maximise control over water-related resources, which creates competition. Secondly, the degrees of intensity of conflicts as a consequence of this competition can vary. For instance, Yoffe *et al.* (2001) constructed a water intensity event scale, in which degrees of conflicts and cooperation regarding water can be categorised. However, a preliminary review of the history of the Yacyretá Dam demonstrates that no significant violent conflict has occurred throughout their histories. Therefore, this thesis will focus on the components of the hydro-hegemonic framework that are primarily concerned with the analysis of power relations and resource control instead of degrees of conflict intensity.

1.1 Hegemony, Power, and Conflict

Hegemony is a highly polemic concept in IR. State-centric perspectives perceive hegemony as the situation in which one state controls the international or regional system because it possesses an unparalleled amount of power, based on military and economic might (Keohane, 1980). In structural realist scholarship, hegemonic power is tied to a particular state dominating or acting as a stabilising force in an international or regional system (Warner *et al*., 2017). Neoliberal institutionalism sees institutional engineering and complex interdependence as ways to overcome hegemony (Keohane, 1984). Critical IR theories such as the neo-Gramscian school focus on a more subtle and social form of hegemonic power. In this view, dominant social groups actively create a shared worldview or ideology, which is proliferated in all spheres of society. Hereby, compliance with the hegemonic groups becomes common sense or, contrarily, noncompliance even becomes insane (Rupert, 2009; Lustick, 2002). Neoliberalism is often regarded as the current hegemonic ideology, as freedom and individualism are promoted throughout politics and economics, but also in arts and education (Torres, 2013). In the field of hydropolitics, Atkins (2014) argues that water neoliberalism, *i.e.* the idea that water is an economic rather than a social good, is the hegemonic idea at the global level.

Hegemony does not necessarily equal domination. As Zeitoun and Warner (2006, p. 438) state: "hegemony can be considered as leadership by authority. In contrast, dominance is defined as leadership buttressed by coercion". The behaviour of hegemons does not always have to be dominative but can vary. In a situation of leadership, the hegemon influences the international system by assuming transaction costs in international collective action problems. The main concept related to this argument is hegemonic stability as theorised by Keohane (1980, 1984). Here, the hegemon fortifies its leading position by setting up international institutions that also create benefits for non-hegemonic states. Thereby, international goods such as stability, security, and subsequent prosperity are distributed. An example can be found in the Orange River basin, where South Africa created a positive-sum hydro-hegemonic configuration with Botswana, Lesotho, and Namibia through benefits-sharing and integration into the Southern African Development Community (SADC) (Kileshye *et al.*, 2020). In contrast, in a situation of dominative hegemony, the hegemon aims at constantly increasing inequity between itself and non-hegemons in order to safeguard its position. This results in negative effects for the international system, such as resent on the side of the non-hegemonic power and the inevitability of a certain degree of conflict (Zeitoun & Warner, 2006). An example is Israel's accumulation of power in relation to Syria and Jordan in the period 1948-1967, which led to brief military clashes over water resources during this period. The 1967 Six-Day War effectively consolidated Israel's control over the resource and marked the beginning of Israel's hydro-hegemony (Feitelson, 2000; Zeitoun & Warner, 2006).

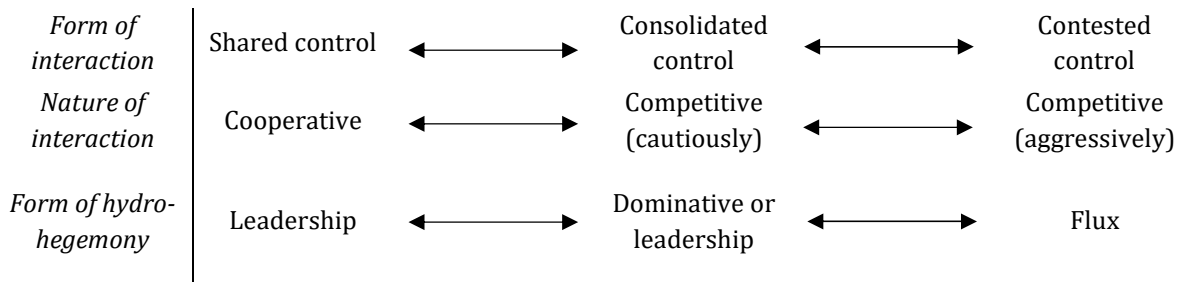
A concept that defines the dynamics of hydropolitics and hegemony is power, which Dahl (1965) has defined as A's capacity to make B do something which A wants and what B would otherwise not do. Hegemonic states can obtain such capacities through four different sources, or compliance-producing mechanisms, as identified by Lustick (2002). Firstly, coercive power concerns the hegemon possessing, or being able to mobilise, capabilities to employ the use or

threat of force. Examples are military might, economic strength, modes of production, and access to knowledge (Strange, 1987, p. 132). In the context of hydropolitics, capabilities can also include riparian position or the access to water (Zeitoun & Warner, 2006). Secondly, utilitarian power holds that the non-hegemon exchanges its compliance with the hegemon for something valuable. Thirdly, normative power is at play when the non-hegemon consciously believes that compliance with the hegemon is in its best interest. An example is a hegemon referring to international law in order to gain legitimacy for its claims or practice and to damage the reputation of the non-hegemon in the case of noncompliance (Dellapenna, 2003, p. 289). Lastly, discursive hegemonic power is a neo-Gramscian type of power. This means that the hegemon has the ability to structure knowledge in a way that compliance with the hegemon becomes common sense (Strange, 1994, p. 176). These compliance-producing mechanisms have different levels of effectiveness. Coercive power is the most effective, followed by utilitarian power and then normative power, with discursive hegemonic power being the least effective. Logically, compliance that is willing or even subconscious as in case of discursive hegemonic power involves considerably less costs or damage done to the hegemon than compliance by using force (Zeitoun & Warner, 2006). Also, in practice, the use of coercive power is rarely observed in water-related conflicts (Wolf, 1999).

1.2 Strategies, Tactics, and Water Resource Control

In the case of water scarcity, interstate competition revolves around control over greater flows. In the case of abundance, which applies to the River Plate basin context, states compete for control over water management and the resources that come from that, such as hydroelectricity. Control can be shared, consolidated or contested. In a situation of shared control, some cooperation exists and international relations are relatively stable, which is mainly the result of the above-mentioned leading role of the most powerful state. Consolidated control can be achieved both in a leadership as well as a dominative context, depending on the specific case. In general, hegemonic consolidated control leads to weaker states having less control, a situation which they aim to change. As control is firmly consolidated, however, this competition only occurs cautiously. Contested control is the result of power relations becoming more equal. This situation comes often with instability and fierce competition (Zeitoun & Warner, 2006). These configurations are graphically displayed in figure 1 below.

Figure 1: Continuum of Forms and Nature of Interaction over Transboundary Water Resources



Source: adapted from Zeitoun and Warner (2006, p. 444)

In order to achieve consolidated control, riparian states follow several strategies. These are resource capture, containment, and integration. These strategies in turn are implemented through numerous tactics, categorised by Lustick's (2002) four compliance-producing mechanisms. These strategies and tactics are substantiated by coercive resources, being international support, financial mobilisation, and riparian position (Zeitoun & Warner, 2006).

Resource capture occurs when "powerful groups in society (…) shift resource distribution in their favor" (Homer-Dixon, 1999, p. 177). A resource capture strategy is employed unilaterally, meaning that "a riparian, in the absence of formal understandings, moves ahead with projects that affect the flow or quality of the resource" (Waterbury, 1997, p. 279). This one-sided strategy creates tangible effects that gives the powerful state more control over resources. Next to these upstream projects, coercive tactics can enforce a resource capture strategy. Military force has direct effects but is costly and in practice barely used in hydropolitics (Wolf, 1999). States can also engage in undercover operations, trade embargoes, espionage, or propaganda to weaken their competitors' political, military, or hydraulic resources. An example of a resource capture strategy can be found in the Southeast Anatolia Project, where Turkey captured the majority of hydroelectric resources from the Euphrates at the cost of Iraq and Syria who lie downstream. As a response Syria supported the Kurdish Workers' Party until 1998 (Lorenz & Erikson, 1999).

A containment strategy involves active engagement with, or co-optation of, competitors in order to integrate or contain them in the most asymmetrical position possible. Normative and discursive hegemonic compliance-producing mechanisms are often used to implement such a strategy. Normative compliance-producing mechanisms are mainly employed through treaties. Several characteristics make treaties prone to the exploitation of non-hegemonic riparian states in a hydro-hegemonic configuration. Firstly, treaties are hard to enforce multilaterally as violations of a treaty by the hegemon itself are difficult to punish. Secondly, existing inequalities may be institutionalised, in which the hegemon uses coercive or normative compliance-producing mechanisms to get the weaker state to sign. Then, it can use the normative power derived from the treaty to deepen unequal relations further. Thirdly, bilateral treaties can exclude non-signatory riparian states from participating in discussions that do affect their riparian position (Zeitoun & Warner, 2006). For example, the 1959 Egypt-Sudan agreement on the Aswan High Dam ignored all other Nile Riparian States, most importantly Ethiopia, the main contender to Egyptian hydro-hegemony (Green Cross International, 2000, p. 59).

Discursive hegemonic tactics are applied in both resource capture as well as containment resource control strategies. Essential discursive hegemonic tactics are securitisation and sanctioned discourse or knowledge construction. Securitisation holds that, by means of speech acts, states propel an issue into the realm of security by treating it as if it were an existential threat to the state. Hereby, it is justified to take exceptional measures, often surpassing conventional democratic structures. Moreover, potential criticism in society is silenced since criticising measures to protect national security is easily equated with treason (Buzan, Wæver & de Wilde, 1998). An example of the securitisation of water can be found in the Netherlands,

where issues of water management are structurally referred to as the 'defence' or 'battle' against water by the Dutch water management agency (*Rijkswaterstaat*) (van Eeten, 1997).

Sanctioned discourse and knowledge construction include a normative delimitation that separates the type of discourse that is perceived as politically acceptable from other types that are considered politically unacceptable. By sanctioning politically unacceptable discourse, discursive hegemonic knowledge is constructed (Feitelson, 1999; Allan, 2001, p. 182). In water-related issues, sanctioning discourse to construct hegemonic knowledge could serve to veil negative aspects of riparian relations, such as an inequitable distribution, while highlighting positive aspects, *e.g.* technical or issue-specific cooperation (Zeitoun & Warner, 2006).

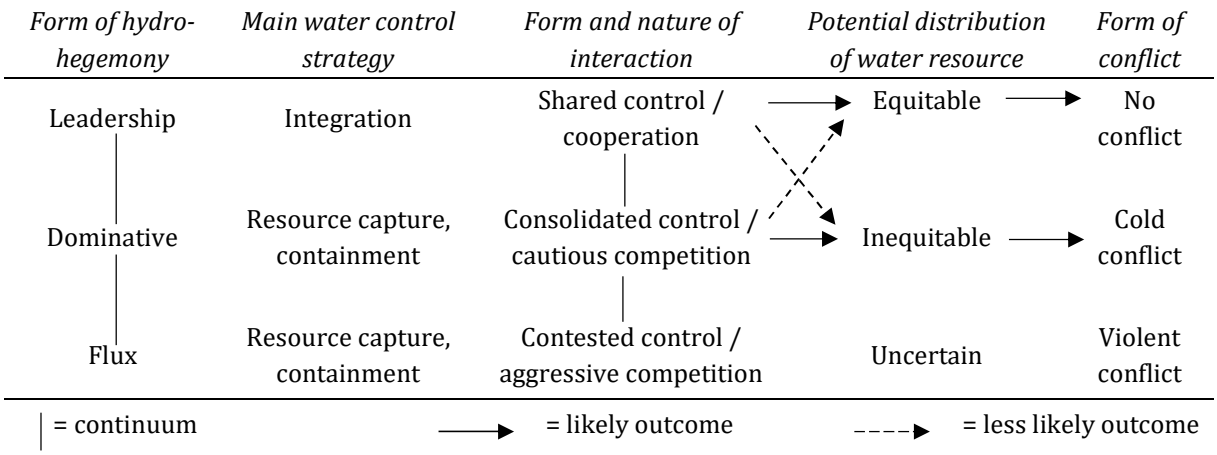
An integration strategy involves utilitarian mechanisms, such as benefits and privileges provided to other riparian states through the hegemon's relative power (Zeitoun & Warner, 2006). In the Orange River basin, for example, benefits are identified and negotiated in the SADC, led by hegemon South Africa (Kileshye *et al*., 2020). Examples of utilitarian tactics are diplomatic recognition, military protection, and trade incentives. Another effective method is the creation of binational water projects that create shared interests (Zeitoun & Warner, 2006). An example is the all-Nilotic electricity grid between Egypt and Uganda (Waterbury, 2002, p. 167). The Yacyretá Dam also constitutes potential examples of this tactic.

The strategies and tactics outlined above are substantiated by coercive resources. These resources are the result of the international context, existing out of global political and economic trends, alliances, and the absence of enforceable international water law. Firstly, international support in the shape of alliances or funds is a potential source of power (Zeitoun & Warner, 2006). Secondly, the ability to mobilise finances can be perceived as a coercive resource. A state with depleted financial resources that is desperate for funding is forced to fulfil a donor's demands. Development banks are an example since they are influenced by the current ideological hegemony and their staff's national preferences (Waterbury, 2002, p. 26). Thirdly, the riparian position of a state is a more static coercive resource. Actions by upstream riparian states confront downstream states with *faits accomplis*. Examples of tactics a state can follow due to its upstream riparian position can be river diversion, water overuse, contamination, and flow delay (Frey & Naff, 1985, p. 78).

1.3 The Framework of Hydro-hegemony

In all, the forms of hydro-hegemony in the struggle for resource control, implemented through the strategies and tactics outlined above, result in a graphical representation of the hydro-hegemonic framework in figure 2 below.

Figure 2: Framework of Hydro-Hegemony



Source: adapted from Zeitoun and Warner (2006, p. 453)

It can be observed that the stance of the hydro-hegemon determines the nature of interaction in a given basin and the corresponding degree of conflict or cooperation. When assuming a leadership stance, the hydro-hegemon will most probably follow an integration water control strategy to ensure cooperative interactions under its guidance. An equitable distribution of water resources will most probably be the result. A hydro-hegemon with a dominative stance will aim to prevent competition through resource capture or containment strategies in order to maintain unilateral resource control. This results most probably in an inequitable distribution of resources. A cold conflict will be the consequence if the non-hegemon cannot match the hegemon's power. If there is a contestant to the hydro-hegemon's power, however, outcomes are more uncertain due to the possibility of a violent conflict (Zeitoun & Warner, 2006).

1.4 The Hydro-hegemonic Framework Examined

The framework of hydro-hegemony has been extensively examined, leading to criticism of various kinds. These can be roughly divided into claims of state-centricity, the perception of negative and immutable power relations, and hydro-hegemonic studies being trapped in discursive hegemonic thinking.

An important point of criticism on hydropolitical analyses, specifically the hydro-hegemonic framework, is the overt focus on states as main actors. This flaw has been conceptualised by Agnew (1994) as the territorial trap. The territorial trap includes a strict view of sovereignty as complete state control over a fixed territory; the rigid separation of domestic and foreign politics, with a tendency to leave the former out of the analysis; and the perception of the state as prior to and a container of society. It has been argued that the hydro-hegemonic framework has fallen into this trap, as its ontology is based on the taken-for-granted situation of contested river basins, consisting out of sovereign states. (Furlong, 2006). It has been claimed that the framework takes states' preferences for granted and negates the way domestic elites are entangled in transnational networks to realise their ambitions (Hensengerth, 2015). Lastly,

neoliberal institutionalist criticism holds that next to coercive, utilitarian, normative, and discursive hegemonic powers employed by states, multilateral institutions also hold institutional power (Keohane, 1984; Mukhtarov & Cherp, 2014). This criticism is especially relevant in the South American context. South American politics have been defined by presidential diplomacy, *i.e.* "the customary resort to direct negotiations between national presidents every time a crucial decision has to be made or a critical conflict needs to be resolved" (Malamud, 2005). The political behaviour of states' leaders are primarily the result of domestic factors.

Warner *et al.* (2017) try to refute these claims by underlining that although the framework is mainly built on state-centric theories of IR, domestic factors do play a part in discursive hegemonic compliance-producing mechanisms such as knowledge construction. Secondly, hydro-hegemonic analyses have incorporated transnational companies and international non-governmental organisations (NGOs). Warner (2010), for one, reveals the importance of transboundary private and civil-society actors when examining the hegemonic politics of the Turkish Ilisu Dam. Moreover, in the South American context, one could argue that state-centric approaches are not flawed per se. Pastrana and Castro (2015), for example, argue that in Europe sovereignty is regarded as stimulating nationalism and interstate war due to its Second World War experience. Therefore, sovereignty should be pooled. In South America, however, sovereignty is perceived as fragile due to the problematic path to state-building many states in the region have known. Accordingly, South American states are reluctant to transfer their sovereignty and integration processes merely serve as socio-political alliances. Lastly, it can be claimed that state-centricity fits an analysis of a mega-project such as the Itaipú Dam. Private actors have not been able or willing to absorb the financial investment and political risk required to a binational hydroelectric dam (Folch, 2019, pp. 17-18).

In the framework of hydro-hegemony, Zeitoun and Warner (2006) maintain a rather conservative perception of the potential positive effects of hegemony. Within the framework, benign hydro-hegemons can produce mutual gains, but mainly in the scope of Keohane's (1980, 1984) hegemonic stability theory, *i.e.* out of self-interest. Empirically, positive cases produced by such behaviour are rarely studied due to the tendency of critical scholarship to focus on negative cases (Farnum, 2014). Moreover, hegemony is often treated as a fact of life, in which actors can only seek to change its form. Not enough attention has been given to the hypothesis that hegemony can be overcome by institutional power within an international regime (Keohane, 1984; Mukhtarov & Cherp, 2014; Warner *et al.*, 2017). Lastly, there are also examples where there is no conflict nor cooperation over water and a where hegemonic powers are hard to detect. Such an 'a-hegemonic' situation can be found, for example, in the Central Asian Amu Darya basin (Wegerich, 2008).

A third collection of criticism focuses on the hydro-hegemony being stuck in a hegemonic neoliberal conceptualisation of water, treating water as a purely economic rather than a social good (Atkins, 2014). That is, the framework's ontology is based on states aiming to control water-related resources that are economically valuable to them. An alternative ontology can be found in the Andes. Here a symmetry between human and nonhuman actors is maintained, in

line with alternative worldviews such as *buen vivir* (social as well as environmental collective wellbeing) and the importance of *Pachamama* (mother earth) (Gudynas, 2011). This counter-hegemonic ontology gained influence on the world stage during at the fourth World Water Forum in Mexico, when assertive voices from Andean countries, spearheaded by then-Bolivian President Evo Morales, denounced the promotion of privatisation and deregulation in the water sector (Boelens & Vos, 2012; Warner *et al.*, 2017).

1.5 Methodology

Now that the relevant theoretical framework to assess Argentine-Paraguayan power relations in the case of the Yacyretá Dam over the period 1960-1994 has been established, methods that can operationalise the theoretical framework and research question will be presented. This includes the case study type and selection strategy as well as the type of data and methods employed. The case will be reviewed for the period from 1960-1994. This is a relevant period as it includes the entire period that led to the negotiation and construction of the Yacyretá Dam. Moreover, it is a sufficiently long period to observe significant changes in both international and domestic politics.

The Yacyretá case have been selected for several strategic reasons. Firstly, as stated, the hydro-hegemonic framework has mainly been applied on cases in the MENA and SSA regions, but never in South America. Secondly, the cases both entail a clear situation of hegemony and power asymmetry. Considering military and economic power, following Keohane's (1980) definition presented above, Argentina dwarfs Paraguay geopolitically. For example, in 1980, Argentina's gross domestic product (GDP) was approximately 17.30 times higher than that of Paraguay (World Bank, 2020a). Moreover, Argentina's military expenditure in that same year amounted to 6.48 billion US dollars, compared to only 86.33 million US dollars by Paraguay (World Bank, 2020b).

The case study will take the shape of a within-case analysis since it is necessary to analyse detailed information from the case, leading to a within-case analysis as the most logical choice (Bennett & Elman, 2007). In a within-case analysis, one uses "empirical evidence collected from a particular case to infer that all of the parts of a hypothesised causal mechanism were actually present in that case" (Beach & Pedersen, 2013, p. 69). The method that fits within-case analysis best is process tracing. Theory-testing process tracing will be applied to deductively test how the causal mechanisms hypothesised by the hydro-hegemonic framework have played out each case (Beach & Pedersen, 2013, p. 12).

The data used in this thesis are predominantly collected from primary sources, namely semi-structured interviews, complemented by secondary sources. Semi-structured interviews have been conducted with 13 relevant actors in the field in the period June-August 2020. These 13 actors include national government officials working at the ministries of finance or energy or at national electricity agencies; officials working on (hydro)energy at multilateral organisations; and, lastly, experts in the fields of regional cooperation, energy or hydropolitics

in South America. A table with interviewees can be found in the Appendix. The interview transcriptions have been translated from Spanish and Portuguese to English by the author. To structurally analyse the data gathered from these sources, a content analysis has been conducted. Firstly, categories have been derived from the theoretical framework in a deductive way. Secondly, the text has been coded along these categories. The result is a detailed and systematic overview of the relevant issues and arguments on the present case that surfaced in the semi-structured interviews. This enables one to link the themes and interviews together to construct coherent arguments (Burnard, 1991).

Chapter 2
The Process Towards the Yacyretá Dam: National and International Contexts

In this chapter the Yacyretá case will be contextualised, which is necessary to effectively analyse the case in Chapter 3. Firstly, the importance of hydroelectricity for development in South America in general and Argentina and Paraguay specifically will be pointed out. Secondly, the broad domestic political developments in Argentina and Paraguay during the period 1960-1994 will be examined. Although this analysis assumes a relatively state-centric approach, the domestic situations of both Argentina and Paraguay during the negotiation and construction process of the Yacyretá Dam have had an undeniable influence in the international situation in the River Plate basin. Thirdly, the regional context in the sphere of international relations that partly led to the construction of the Yacyretá Dam will be discussed. Then, the negotiations between Argentina and Paraguay will be reviewed in detail. Lastly, the criticism on the negative effects that the construction process produced will be discussed, focusing mainly on corruption, the relocation process of communities living in the construction area, and environmental damage.

2.1 Hydroelectricity and the Development of Argentina and Paraguay

The critical importance of hydroelectricity for South American development can be demonstrated by several figures. Over the period 1971, when data on the matter was recorded for the first time, until 1994, the share of hydroelectric sources in total electricity production rose from 6.54% to 42.42% in Argentina, from 83,76% to 93.33% in Brazil, and from 69.79% to 100% in Paraguay (World Bank, 2020c). Nowadays, with an installed capacity of 109,058 megawatt hours (MWh), Brazil is one of the largest producers of hydroelectricity in the world. In 2015, hydroelectricity covered 61.8% of its total electricity supply. Moreover, together with Paraguay, Brazil constructed the Itaipú Dam, the largest hydroelectric dam in the world by production. Paraguay's entire electricity supply is even provided for by hydroelectricity, mainly through the Itaipú and Yacyretá mega-dams (International Hydropower Association [IHA], 2020). Due to its relatively low industrial development, Paraguay did not consume all the hydroelectricity at its disposal, but exported 70% of it in 2016, worth 2 billion US dollars or 7.7% of GDP. Or, as Walter Brites, an anthropologist that works on hydroelectric dams with the Argentine National Scientific and Technical Research Council (CONICET), expressed in an interview with the author:

> Paraguay's problem is that it has two big dams, a small population and no industrial development. Accordingly, Paraguay has an energy surplus. What it does is selling to Argentina

and Brazil, dictated by the necessities of these two big countries and it does not benefit homogenously to all states.[1]

Due to the reliance on hydroelectricity both from an energy and an economic perspective, some experts have called Paraguay a "hydropower emirate" (de Queiroz, 2012, p. 159). Argentina knows a more diversified energy landscape, with more prominence for conventional energy sources. In 2017, in Argentina, fossil fuels such as natural gas (54.0%), oil (31.2%), and coal (1.3%) were the main source of energy, followed by nuclear energy (2.2%), hydroelectricity (4.3%), and a mix of other renewables (6.4%) (Argentine Republic, 2017). The Argentine government aims at increasing the importance of renewables to 20% in 2025, including a larger role for hydroelectricity (Argentine Republic, 2015). The Yacyretá Dam contributes to Argentine and Paraguayan energy supply with a record annual production of 21,627 GWh in 2016 (Entidad Binacional Yacyretá [EBY], 2017).

2.2 Domestic Political Contexts

Turning to the domestic political situation in Argentina, for approximately 30 years, from 1946-1976, Peronism defined Argentine politics. Peronism is a vaguely defined ideology based on the personal cult around Juan Domingo Perón, populism, corporatism, nationalism, and even fascism. Perón was president from 1946-1955 and, after several civilian and military governments that could not cope with social unrest, he returned to power in 1973. Approximately one year later, however, he passed away. As the economy entered into a catastrophe and social unrest erupted again, the military decided to intervene once again in 1976 (Williamson, 2009, pp. 471-476). Whereas previous coup d'etats in the region merely functioned to restore the order and then hand over power again to democratically elected leaders, the military takeover by General Jorge Videla was part of a regional trend of authoritarian-bureaucratic regimes that were there to stay. Their aim was to fundamentally change society by eliminating all revisionist, mainly communist, influences, often with help of the United States (US) (Kirby, 2003, pp. 44-46; Williamson, 2009, pp. 351-359). Through a so-called National Reorganisation Process, the Argentine authoritarian-bureaucratic regime was responsible for an estimated 30,000 deaths and disappearances of alleged subversive elements in society and numerous cases of torture. Internationally, the Argentine dictatorship collaborated with neighbouring regimes through Plan Condor, a US-led initiative on information sharing regarding communists and other revisionists elements in society. Moreover, towards the end of the regime in 1983, the dictatorship engaged in conflicts with Chile over the Beagle Channel and it started the Falklands/Malvinas War with the United Kingdom amid growing domestic discontent (Lisińska, 2019).

After a heavy defeat in the Falklands/Malvinas War, the position of the military dictatorship could not be sustained anymore and a transition to democracy was initiated. This process was part of a larger double transition in the region. Politically, multiple authoritarian-bureaucratic

[1] Online interview on June 23, 2020

governments handed over power to democratically elected governments through varying negotiation processes. Due to the defeat in the Falklands/Malvinas War, Argentina knew a relatively unnegotiated transition to democracy in which the military lost almost all its privileges (Lynn Karl, 1990). Economically, the failure of isolationist policies, of for example Perón, led to the full embracement of neoliberal economic policies, commonly named the Washington Consensus (Williamson, 1993). These included extensive privatisations of state-owned companies, trade liberalisation to link South American economies to the world economy, and general marketisation to make the private sector more competitive (Gwynne, 1999, p. 78). In Argentina, this process was expressed in the shape of President Raúl Alfonsín of the centrist social-liberal Radical Civic Union winning the first free elections after the dictatorship in 1983. Alfonsín maintained a regional foreign policy aimed at promoting and defending democratic values, arguably motivated by a blend of fear for its own perpetuation and principled beliefs about the value of democracy as a mode of governance (Fournier, 1999). Domestically, his administration aimed at prosecuting the main responsible actors of the crimes committed during the military dictatorship and he tried to reduce the power of the military in general (Tedesco, 1999, pp. 62-65). Alfonsín, however, was not capable of improving the Argentine economy amid a regional economic crisis that continued throughout the 1980s, even to the extent that these years have been denominated the "Lost Decade" (Kirby, 2003, p. 44). Accordingly, the Peronist Carlos Menem assumed power after the 1989 election. Menem extensively implemented the Washington Consensus in Argentina, for example by privatising approximately 90% of all state-owned enterprises in only 3 years (1991-1994) (IMF, 1998, pp. 5-6). Remarkably, the Yacyretá Dam, alike other binational dams in the region such as Salto Grande (Argentina-Uruguay) and Itaipú (Brazil-Paraguay), was never privatised. This has been explained by the argument that private actors have not had the capacity to absorb the financial investment and political risk required to construct a binational hydroelectric dam (Folch, 2019, pp. 17-18).

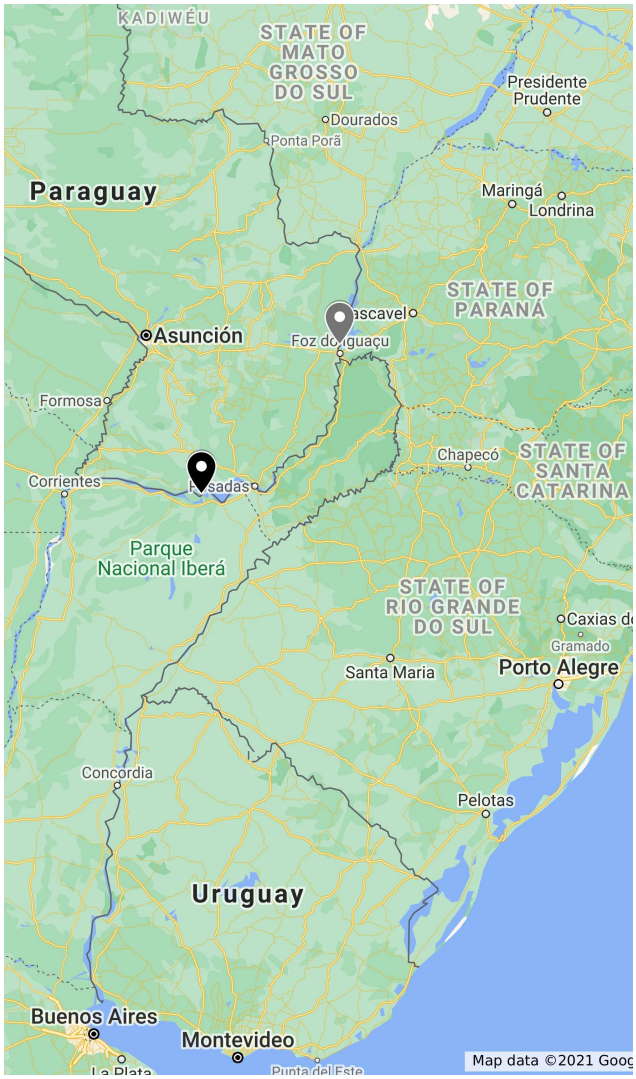
From 1954-1989, General Alfredo Stroessner ruled Paraguay under a military dictatorship, somewhat disguised by seemingly democratic characteristics. During the Stronato, martial law was maintained for the entire 35 years, except for elections days. During elections, the only option was the Colorado Party, led by Stroessner himself. The Stronato was characterised by a cult of personality of Stroessner; providing exile for Nazi war criminals and overthrown dictators; fierce repression by means of disappearances, torture and murder; a shift of focus from Argentina towards Brazil and the US; and an extremely unequal wealth and land distribution, favouring Paraguay's small elite (Folch, 2013; Nickson, 2015). Whereas other states in the region underwent a double neoliberal and democratic transition to more or lesser degrees throughout the 1980s, Paraguay lacked behind in these processes. In 1989, the Stronato ended by a military coup. Only in 1993, the first free elections were held and again won by the Colorado Party. The former head of the construction consortium that constructed the Itaipú Dam, Juan Carlos Wasmosy, led Paraguay until 1998. The Stronato's "iron triangle" between the military, the Colorado Party and the government seemed hard to break, even after Stroessner left power (Fournier & Burges, 2000).

2.3 International Hydropolitical Context

The process that led to the finalisation of the construction of the Yacyretá Dam from 1960-1994 can only be understood in the context of the larger history of Southern Cone hydropolitical international relations, mainly in the triangle Argentina-Brazil-Paraguay. Already in colonial times, the Spaniards depended on the Paraguay and Paraná rivers for access to the northeast of their Río de la Plata viceroyalty (1776-1825). This dependency would continue to exist in modern times, as landlocked Paraguay depended on these rivers to trade with the rest of the world until the 1960s, when the development of the southeast of Brazil started to offer alternative routes over land (Williamson, 2009, p. 129; Ribeiro, 1994, p. 42). In the meantime, an event that influenced Southern Cone international relations heavily was the War of the Triple Alliance (1864-1870). After Paraguay had rapidly built up its armaments, a war with an alliance between Argentina, Brazil and Uruguay caused a total casualty rate of 60% of Paraguay's entire population, mainly due to Paraguay's dictator, Solano Lopez, refusing to surrender (Whigham & Potthast, 1999).

After the War of the Triple Alliance, Paraguay maintained its claim over a group of waterfalls it had to cede to Brazil upon surrender, the Guairá Falls on the northern Brazilian-Paraguayan Paraná border. During the 1960s, Brazil's military dictatorship that assumed power in 1964 explored the hydroelectric potential of the Paraná River in light of their developmentalist ambitions. In an attempt to safeguard that potential, the military was deployed in the surroundings of the Guairá Falls. As tensions between Brazil and Paraguay increased, a diplomatic way to resolve the potential conflict was sought. After four years of negotiations, from 1962-1966, the Foz do Iguaçu Act was signed. The Act expressed the goal to jointly exploit the hydroelectric potential of the Paraná River by building a dam that would flood the Guairá Falls area, thereby simply drowning the geopolitical struggle over the territory (Blanc, 2017; de Queiroz, 2012, p. 154-156). Moreover, the Iguaçu Act is generally believed to be the predecessor of the Itaipú Act which established Itaipú Binacional, the Brazilian-Paraguayan binational entity responsible for the construction and administration of the Itaipú Dam, the biggest binational dam in the world by production (Folch, 2019, p. 44).

Figure 3. Locations of the Yacyretá (in black) and Itaipú (in grey) binational dams



Source: Google Maps

The Guairá Falls case and its solution caused great concern within the Argentine government. If Brazil would act unilaterally by militarily consolidating the Guairá Falls, it would consolidate its control of the water resources in the area, and if it would act bilaterally with Paraguay it would do so too. Both options would increase Brazil's capacity to influence the downstream Argentine part of the Paraná River. Considering Argentina's ambition to also exploit the River to advance its development, this could potentially damage Argentina. As a reaction, Argentina threatened to also build a binational dam together with Paraguay, the smaller Corpus Christi Dam, located nearby the Guairá Falls. By constructing this dam, the water level at base of the dam to be built by Brazil and Paraguay would increase significantly. This would seriously harm the construction process of that dam and create significant interdependency between the two binational dams (de Queiroz, 2012, p. 156; Folch, 2019, p. 53)

The Guairá Falls case and Argentina's reaction to the issue exemplify the general configuration of Southern Cone hydropolitical international relations until the 1970s. Argentine-Brazilian relations were characterised by a realist struggle over hegemony in the Southern Cone. This

struggle mainly focused on gaining more influence over the smaller states in the region, Paraguay and Uruguay (de Queiroz, 2012, p. 154-156; Ribeiro, 1994, p. 42). The competition between Argentina and Brazil, however, was not limited to hydropolitics. Selcher (1985) points towards economic competition in general between the two states in the early 1980s, Simancas (1999) outlines the closeness between the US and Brazil as a provocation towards Argentina, and Kacowicz (2000) discusses competition in the field of nuclear arms. It has to be mentioned that some coordinated actions on water management were undertaken during the 1960s and 1970s by Argentina, Brazil, and Paraguay. For example, in 1967, the Coordinating Committee of River Plate Basin Countries was established, followed by the River Plate Basin Treaty. These first institutionalisations of water management in the basin resulted in some coordination (Pochat, 2011). However, Villar, Ribeiro and Sant'Anna (2018) recognise the large number of multilateral institutions in the basin, but it is demonstrated that these institutions achieved relatively few concrete actions, thereby raising doubts about their efficiency.

In 1974, General Ernesto Geisel was installed as president of the Brazilian military government. He and his successor João Batista Figueiredo engaged in a process of decreasing repression and towards a somewhat freer society (*abertura*). For example, press censorship was relaxed and free congressional elections were held (Williamson, 2009, pp. 431-432). Internationally, Figueiredo prioritised improving the relations with neighbouring countries, especially Argentina. Hydroelectricity was the first policy area in which this new priority was expressed. In order to remove Argentine suspicions about Brazilian control over the River Plate basin, Brazil opened negotiations to shape an agreement with Argentina and Paraguay on the issue. The Agreement on Technical Operations between Itaipu and Corpus, *i.e.* the tripartite Itaipú-Corpus Agreement, was signed in October 1979 as a result of the negotiations started by Figueiredo. It harmonised the resource usage in the River Plate basin, more specifically it set the maximum operating levels for the hydroelectric dams in the basin (Pochat, 2004; de Queiroz, 2012, pp. 159-160).

By institutionalising the water resources management of the dams in the basin, the Itaipú-Corpus Agreement somewhat mitigated the power disparities between Argentina, Brazil and Paraguay, which had a destabilising effect on their relationship before (Elhance, 1999, pp. 48-49). The motivations for Brazil to start negotiations came from the realisation that instead of competition, it needed a developed and dependable strategic partner for future integration projects if it wanted to expand its influence in the region (Candeas, 2005, p. 33; Oliveira, 2005, p. 199). Argentina accepted this opportunity as it had to acknowledge the importance of Brazil to its economic as well as its disadvantageous position in the regional balance of power (Candeas, 2005, p. 23). Paraguay, lastly, was arguably the greatest beneficiary of the Itaipú-Corpus Agreement. In the situation before the Agreement, it was already well-off, receiving benefits from both sides in a context of Argentine-Brazilian competition. With the new situation, Paraguay enjoyed the potential to be even better-off as the Itaipú-Corpus Agreement opened the way for regional integration between the River Plate basin countries (de Queiroz, 2012, p. 160). This potential has proven to be fully exploited as the Itaipú-Corpus Agreement is commonly believed to be an inflection point between rivalry and integration in Southern Cone international relations. For example, it has been argued that the Agreement opened up the

way to the integration process that led to the Southern Common Market (Mercosur) in 1991 (Fajardo, 2004; Espósito, 2013; de Queiroz, 2012, p. 160; Folch, 2019, p. 53).

Keeping in mind these regional developments in the realm of hydropolitics, the bilateral negotiations between Argentina and Paraguay now deserve some further scrutiny. Thereby, the case study can be understood in the national, bilateral, and regional level.

2.4 Negotiating Yacyretá: A Hydropolitical Game

The Yacyretá Treaty was established in December 1973. Only 8 months earlier, in April of that year, the Itaipú Treaty was concluded. Notably, the Spanish texts of the two treaties are highly compatible, even to the extent that it has been widely claimed that the Itaipú Treaty constituted the basis of the Yacyretá Treaty (Betiol, 1983, p. 27; Ribeiro, 1994, p. 43). Most importantly, the treaty established a binational entity to construct and administer the Yacyretá Dam, the Yacyretá Binational Entity (EBY, Spanish acronym). EBY exists out of an executive committee of an Argentine and a Paraguayan director. Its decision-making organs also include an administrative council, representatives of both ministries of foreign affairs, and issue-specific departments. All of these organs include an equal number of Argentines and Paraguayans. However, some of the managers carry the title executive, enjoying more decision-making power. The majority of the essential positions, such as the executive finance manager and executive director, are Argentines (EBY, 2020). Another essential characteristic of the Yacyretá Treaty is the aforementioned condition that in the case that one of the two states enjoys a surplus from Yacyretá's electricity production, that surplus has to be sold to the other state. In practice, this results in Paraguay having to sell the surplus it enjoys to Argentina due to its relatively low development, which causes Paraguay to not be able to absorb all Yacyretá's electricity.

After the conclusion of the Yacyretá Treaty, negotiations did not end. Over the years, two critical issues surfaced. These issues emerged out of mutual distrust between Argentina and Paraguay. The distrust was aggravated by Paraguay playing "pendular diplomacy" between Argentina and Brazil. That is, by working with the competing states bilaterally, Paraguay tried to receive as much benefits as possible from both sides in a context of Argentine-Brazilian competition (Elhance, 2000, p. 206). A first issue evolved around the exchange rate used in payments between the two states. Argentina financed the majority of the project and the Yacyretá Treaty held that a certain share of the building materials and services had to be spent in Argentina and Paraguay. So, when Argentina had to pay for Paraguayan services or material, prices were calculated in Paraguayan guaraníes, which were then converted to US dollars, and later transferred from the Argentine government to Paraguayan companies. During this process, the Paraguayan government maintained an artificially high exchange rate in order to receive more US dollars. For example, in August 1983, the difference between the free market exchange rate and the one established for Argentina by the Paraguayan government was 160%. As a reaction, Argentina often stopped the flow of US dollars towards Paraguay. After these actions and subsequent domestic pressure to keep the flow going, Paraguay, in turn, halted construction works on its own part of Yacyretá's territory, which amounted to 70% of the area

under construction. Due to these pressures and relatively hard negotiation tactics, the exchange rate was established at an intermediary value, but it has remained a potential source of conflict since (Ribeiro, 1994, p. 45-47).

Another discussion concerned the dam's positioning and the extent of flooded territory in each state as a result of its position. During feasibility studies of the dam in 1972, two options with different technical and financial implications surfaced. Argentina was in favour of the cheaper and safer option. This option, however, would result in the flooded area in Paraguay to be five times greater than that of Argentina (Ribeiro, 1994, pp. 47-48). Moreover, large urban areas of the Paraguayan city of Encarnación would be flooded, whereas only a smaller part of the Argentine city of Posadas would have to be given up (Brites & Catullo, 2016) Accordingly, Paraguay opted for the more expensive option, pointing towards the fact that arable land was already extremely scarce in Paraguay (only 2.03% of the entire territory in 1972 (World Bank, 2020d)). A stalemate was reached and the media in the two countries engaged in an information war. In the beginning of the negotiations to solve the issue, when the Argentine military dictatorship of 1966-1973 negotiated with the Paraguayan Stroessner dictatorship, the Argentine-Paraguayan relationship was relatively cold. This somewhat changed when Perón returned to the presidency. As Perón maintained a long-standing relationship with Stroessner, some progress could be made. However, when Videla's military dictatorship assumed the power, negotiations halted again. Mid-1979, a final agreement was still reached due to increasing pressure from the World Bank and the Inter-American Development Bank (IABD), which were threatening to stop their funding of the project. In the agreement reached, the main area that would be flooded remained Paraguayan, but it was agreed that the flooded territories would be compensated through EBY funds once the Yacyretá would be in operation. Argentina and Paraguay would annually receive 6 million US dollars and 21 million US dollars, respectively. Since EBY would receive its funds mainly from Argentine consumers, this practically meant that the latter group would pay for the flooded Paraguayan territories (Ribeiro, 1994, p. 47-49). In 1983, 10 years after signing the Yacyretá Treaty, the construction of the dam could begin.

Argentina's underlying motives to engage with Paraguay to construct Yacyretá were mainly geopolitical. Even more so, it has even been claimed that during the early years of Yacyretá's negotiations, when the tension between Argentina and Brazil was at its height, the economic and energy security aspects of the project were completely subordinate to the geopolitical goal (Ribeiro, 1994). A World Bank Performance Audit Report on the Yacyretá Dam has stated that, for Argentina, "Yacyreta was not a least-cost solution to expanded power supply and its relevance to the country's priorities was negligible" (The Corner House, 2000). Or, as Ribeiro (1994) states, "The hydroelectric works are bridgeheads of this battle that will define the use of this region's rich resources. The energy they will produce is a secondary fact when their geopolitical importance is considered" (p. 44). For Paraguay, Yacyretá was about receiving as much benefits as possible in a context of Argentine-Brazilian competition to secure influence over Paraguay. During the Yacyretá negotiations, Paraguay managed to make Argentina fund a bridge, two schools and two roads in Paraguay, as well as a high compensation for its flooded territory (Ribeiro, 1994, p. 49).

2.5 Corruption, the Environment, and Relocation

This section discusses the reasons why it took such a long time, from 1983-1994, to construct the Yacyretá Dam. Next to the mutual distrust that emerged due to the reasons discussed above, the main factors for the enormous delays were corruption and subsequent inefficiency, the negative environmental impact of the dam, and mishandling of the relocation and compensation of people affected by the dam's construction.

In 1978, the total estimated costs for the entire project were 2.1 billion US dollars, of which a bit over 1.8 billion were to be financed by the IADB and the World Bank, with loans guaranteed by the Argentine state. However, partly due to numerous corruption cases the project ended up costing more than 11.5 million US dollars (Kornfeld, 2020, p. 79; Aslam, 1996). Especially EBY has been described as a "notoriously corrupt bi-national agency" and former Argentine President Carlos Menem has called the Yacyretá Dam a "monument of corruption" due to the enormous amounts of money flowing into the pockets of public officials (both quotes from International Rivers, 2020). For example, in 1989, it became clear that EBY officials were overpricing tax refunds destined for concrete with 15% and with 25% for tires used in the construction process, which were then approved by the responsible public officials in the Argentine Secretary for Industry. The total fraud in this single case reached over 191 million US dollars. The judicial process following the fraud was still not concluded in 2020 (Angulo, 2020).

Environmentally, the first impact assessments were only done in 1992, 20 years after the first feasibility studies, on the initiative of the World Bank. As EBY's Operational Manager Carlos Freaza declared in an interview with the author: "At Yacyretá, when it started, one did not even talk about the issue of the environment. Environmental impact analyses were only done long after".[2] On the one hand, one can claim that international awareness about the environmental impact of mega-infrastructural projects only started increasing slowly throughout Yacyretá's negotiation and construction process. Local-level groups that protested against hydroelectric dams emerged in the 1970s and then expanded to more coordinated national organisations throughout the 1980s. Only during the 1990s, these groups started to substantially influence government decision-making (McCorminck, 2006). On the other, a delay of 20 years before an environmental assessment was done after the numerous feasibility studies during the early exploration of the Yacyretá Dam's potential can be called extreme. As a result, "very little mitigation of harm has occurred despite numerous action plans and studies" (Clark, 2002, p. 219). Consequently, when the filling of the dam's reservoir started, an enormous number of animals drowned, which was completely unexpected by EBY. This led to widespread criticism from wildlife conservationists, that claimed that there already existed decades-long knowledge that very little animal life can be preserved when constructing a hydroelectric dam and filling its reservoir. As a reaction, EBY engaged in a large rescue operation of individual animals in order to alleviate public concerns. These rescues, however, did not compensate for the massive

[2] Online interview on July 3, 2020

loss of biodiversity and were merely symbolic and served a public opinion goal (Kornfeld, 2020, p. 99; Arce, 2011).

The relocation and compensation of people affected by the Yacyretá Dam's construction constituted a third component of the dam's inefficient process. The majority of the people affected by the dam lived in the cities of Posadas and Encarnación and in indigenous communities of the Mbya Guaraní tribe living more remotely. The first relocation scheme was based on a 1979 census of these areas, counting 8,179 families. However, due to the constantly extending construction process, censuses had to be repeated numerous times and a clear sight on the exact number of families was often lost. Moreover, the construction process of the relocation infrastructure was clearly subordinate to the main construction of the dam. For example, in 2005, the dam was operational and at 85% of its finalisation, whereas only 15% of all the infrastructure necessary for the relocated people was reached (Brites & Catullo, 2016). These factors led to a relatively ad hoc relocation of the indigenous communities and citizens of Posadas and Encarnación, resulting in tens of thousands of peoples being illegally resettled to substandard homes. Illegal relocation often happened by the use of violence and eye-witnesses even testified that paramilitary groups were deployed in the process (Center for International Environmental Law, 1998). The areas to which people were relocated were environmentally severely affected by the dam, mainly due to stagnant, polluted water as a result of raised groundwater levels. Regarding compensation, EBY's compensation scheme was mainly focused on the small and medium-sized business owners in the cities of Posadas and Encarnación. Thereby, EBY neglected the many indigenous self-employed brick and ceramic tiles manufacturers that worked in the area. After relocation, the soil was not as suited for these activities as before the filling of the reservoir, leading to further deterioration of these workers' livelihoods (Kornfeld, 2020, pp. 82-85).

Concluding, the main reasons for this threefold disaster can be found in the failing bureaucracies of funding institutions such as the IABD and the World Bank, the national governments that attached less relevancy to the project, and the highly corrupt binational EBY (Kornfeld, 2020, pp. 90, 106-107). Assuming an International Relations perspective, a geopolitical reason could be added to the explanation. In the beginning of the process leading to the Yacyretá Dam, the urgency to construct a hydroelectric dam on the Paraná was high for Argentina in the context of Argentine-Brazilian geopolitical and hydropolitical competition. In addition, Paraguay eagerly agreed to build this dam, following its pendular diplomacy strategy. Accordingly, the 1973 Yacyretá Treaty was negotiated and signed in an extremely short period of time. However, as geopolitical relations in the region improved after the Itaipú-Corpus Treaty, the urgency to actually construct the dam decreased. This was especially the case for the Argentine government, for which it has been analysed that the geopolitical importance of the Yacyretá Dam outweighed its economic reasons. As urgency and scrutiny for the Yacyretá Dam decreased, space was created for leniency, mismanagement, and the corrupt practices of EBY.

Chapter 3
Assessing the Yacyretá Dam's Hydro-hegemonic Configuration

This final chapter complements the answer to the question as how riparian power relations between Argentina and Paraguay have played out in the negotiation and construction process of these states' binational hydroelectric Yacyretá Dam during the period 1960-1994. This will be done by applying the analytical framework of hydro-hegemony on the case study presented in Chapter 2. To that end, firstly, the strategies and tactics used by Argentina, Brazil and Paraguay during the negotiation and construction of the Yacyretá Dam will be examined. A second section will scrutinise the form of resource control stemming from those strategies, after which an analysis of the hydro-hegemonic configuration can be presented in the final section. The analysis has been conducted by a review of the secondary sources consulted in the previous chapters as well as by conducting a content analysis of the interviews with experts in the field.

3.1 Strategies in the Yacyretá Dam Hydro-hegemonic Configuration

In Zeitoun & Warner's (2006) framework of hydro-hegemony, riparian states aim to consolidate the control of resources in a basin by means of resource capture, containment, and integration strategies. It is theorised that resource capture strategies are mainly implemented through coercive tactics and upstream activities. In the case of the Yacyretá Dam, several variations of these tactics can be identified for each state. For Argentina, threatening to build the Corpus Christi Dam nearby the Brazilian-Paraguayan Itaipú Dam to influence the water flow at its base can be compared with an upstream activity tactic, in which states unilaterally implement projects that affect the flow or quality of the resource, as proposed by (Waterbury, 1997, p. 279). Such a tactic is substantiated by a state's riparian position as coercive resource. Interestingly, in the present case, this tactic is employed by a downstream riparian state instead of an upstream one, on which more hydropolitical research has been done (*e.g.* by Waterbury. 1997; Frey & Naff, 1985). In the Yacyretá case, the downstream riparian state Argentina tried to capture more of the Paraná River's resources by hindering the construction of the Itaipú Dam through the threat to build the Corpus Christi Dam, which would influence the water level at its base. This threat, together with the actual construction of Yacyretá, led to the pressure on Brazil to start negotiating a treaty to manage the water resources of the Paraná River between Argentina, Brazil and Paraguay, *i.e.* the 1979 Corpus-Itaipu Agreement. Thereby, Argentina gained a larger say in the control of resources of the Paraná River. Part of this process was concisely described by Pablo Cisneros, Chief Executive of the Latin American Development Bank's (CAF) Energy Division, in an interview with the author:

> The first step was when Argentina, Brazil, and Paraguay had border problems over the Guairá Falls, which used to be a series of falls on the Paraná River. As a Solomonic solution, they flooded this entire area with Itaipú and practically the first hydroelectric plant with energy

> integration is born. The first step is taken with Itaipú and as a snowball effect. Yacyretá and Salto Grande followed.[3]

Regarding Paraguay, the main example of a resource capture strategy in the Yacyretá context occurred during the Guairá Falls potential border conflict with Brazil, when Paraguay employed a coercive tactic using military deployment. Although not directly linked to the construction of the Yacyretá Dam, the deployment of Brazilian and Paraguayan troops at the Falls did set in motion a process that eventually would lead to the construction of the Yacyretá Dam. The 1966 Foz do Iguaçu Act that ensured Brazilian-Paraguayan hydropolitical cooperation created a sense of urgency in the Argentine government. This urgency helped Paraguay to capture more benefits from the Argentine government during the negotiations about Yacyretá.

According to Zeitoun and Warner (2006), a containment strategy is followed to manoeuvre other riparian states in the most asymmetric position possible. To implement a containment strategy, riparian states theoretically follow normative and discursive hegemonic tactics such as securitisation and knowledge construction. Argentina's essential normative tactic to contain Paraguay has been the 1973 Yacyretá Treaty. Through the Treaty, Paraguay is obliged to sell its surplus Yacyretá electricity to Argentina at a pre-set price. As outlined in a quote by the anthropologist Walter Brites above, Paraguay has an enormous surplus of hydroelectric energy due to its relatively low development. Therefore, Argentina safeguarded the overwhelming majority of Yacyretá's electricity at a below-market price. Moreover, the Yacyretá Treaty ensures decision-making power within EBY to be slightly skewed in Argentina's favour. Within the dual positions in EBY's directorate, one of either the Argentine or Paraguayan manager is always titled an "executive", enjoying more decision-making power. For essential positions, such as the general director and the finance director, the executive is always Argentine. This skewed decision-making power contains Paraguay even more. These features of the Yacyretá Treaty are clear examples of Zeitoun & Warner's (2006) argument how treaties can be employed to consolidate existing inequalities between riparian states in hydro-hegemonic configurations. This containment strategy has been complemented by an integration strategy, implemented through utilitarian tactics, as outlined below.

Paraguay has lacked the means to seriously contain Argentina over the period 1960-1994. Instead, it has aimed at receiving as much benefits as possible from Argentina. Before 1979 this happened through pendular diplomacy in an international context of competition and after 1979 through hydropolitical integration in the beginning and then economic integration in general, for example through Mercosur. As argued by Lorena Di Chiara, a Senior Energy Specialist at the IADB: "Among those principally interested in a well-functioning market is Paraguay, especially to have Argentina as a transit country".[4] So, next to the coercive tactic outlined above used in relation with Brazil, the Paraguayan government mainly engaged in utilitarian tactics towards Argentina. The only tactic that indicates a Paraguayan containment strategy is the knowledge-constructing public opinion war it fought against with Argentina during the negotiations of the flooded territories. Moreover, Argentina and Paraguay, through EBY, did

[3] Online interview on August 7, 2020
[4] Online interview on August 12, 2020

engage in knowledge-constructing activities to change the public's perception of EBY's role in the environmental disaster that occurred upon the filling of Yacyretá's reservoir. However, as this was a joint action, these knowledge-constructing activities did not influence the hydro-hegemonic configuration between the two states.

An integration strategy is mostly implemented through utilitarian tactics according to Zeitoun and Warner (2006). Assuming the majority of the Yacyretá Dam's construction costs and risks was a clear and far-reaching utilitarian tactic by Argentina. Moreover, Argentina went even further by funding the construction of schools, roads, and a bridge in Paraguay as part of the negotiations of the Yacyretá Treaty. During negotiations that followed the 1973 treaty, including the discussion over the to be flooded areas, utilitarian tactics were essential again. In order to make Paraguay agree with the disproportionate amount of Paraguayan land that would be flooded under the construction plan as preferred by Argentina, the latter agreed to a compensation by EBY. That is, EBY would compensate Argentina and Paraguay for their lost territories through its own funds, which mainly come from Argentine electricity consumers. These utilitarian tactics clearly were used as a carrot for Paraguay to make it align with Argentina's preference, which was crucial especially in times of Argentine-Brazilian competition. Moreover, creating a binational institution with a considerable size and influence naturally creates shared necessities that lead to further integration in a given policy area, in this case hydroelectricity. As Michelle Hallack, a Senior Energy Specialist at the IADB, expressed to the author: "By doing that [creating a binational hydroelectric dam], one creates shared necessities".[5]

Integration, however, was not the only goal these utilitarian tactics served. Although not extensively theorised by Zeitoun and Warner (2006), utilitarian tactics in the present case were also employed as a complement to the above-mentioned containment strategy. For example, assuming the Yacyretá Dam's costs enabled Argentina to steer the Yacyretá Treaty towards its preferences during the negotiation, construction, and administration of the Yacyretá Dam through its governing treaty and EBY. As Cisneros mentioned during his interview with the author: "The country that put in the money gets the most favourable contract, for Brazil in the case of Itaipú and for Argentina in the case of Yacyretá".[6] In addition, during the negotiations over the artificially high Guarani exchange rate, maintained by the Paraguayan government in order to increase Argentine payments in US dollars to Paraguay, Argentina employed an utilitarian tactic more like a stick instead of a carrot. During the negotiations, Argentina stopped the flow of funds to Paraguay several times in order to put pressure on the Paraguayan government to make it comply with Argentina's preferences.

Having reviewed the main strategies employed by Argentina and Paraguay to gain more influence over the negotiation and construction of the Yacyretá Dam, some arguments can been made. Firstly, Argentina employed a mix of resource capture, containment, and integration strategies before the 1979 Corpus-Itaipú Agreement, in which its integration strategy was

[5] Online interview on August 11, 2020
[6] Online interview on August 7, 2020

mainly used to complement a containment strategy Secondly, Paraguay's tactics were mainly utilitarian as it focused on receiving as much benefits as possible from the Yacyretá Dam's negotiations. The Paraguayan government made Argentina pay for the majority of the dam and several smaller developmental projects, it safeguarded a high compensation for its flooded territories, and it made Argentina pay an artificially high amount of US dollars for Paraguayan construction materials and services due to its high exchange rate. Thirdly, after the 1979 Corpus-Itaipú Agreement, international relations on hydropolitics in the triangle Argentina-Brazil-Paraguay started to improve considerably. Consequently, strategies started to shift towards an all-encompassing integration strategy, led by Argentina and Brazil, of which Paraguay profited considerably too. In the next section, it will be analysed how these strategies and tactics have materialised, *i.e.* to what extent Argentina and Paraguay succeeded in gaining control over the Yacyretá Dam's resources.

3.2 Control of the Yacyretá Dam's Resources

As outlined in Chapter 1, resource control in a hydro-hegemonic configuration can be shared, consolidated, or contested. It is theorised by Zeitoun and Warner (2006) that in case of the former, riparian states interact cooperatively. When control is consolidated by a hydro-hegemon, smaller states in the hydro-hegemonic configurations may compete against this consolidation, but they will only do so cautiously since chances are high that they are outpowered by the hegemon. In the case of contested control, competition will be more aggressive, leading to a highly instable configuration. These considerations can be found in figure 1 above on page 8.

Regarding shared control, it can be claimed that in essence, the Yacyretá Treaty ensures a fifty-fifty division of the dam's resources. Moreover, the dam is jointly administered as the positions in the directorate of EBY are seemingly shared between Argentine and Paraguayan officials. However, some footnotes can be placed to these indications of shared control. Firstly, as mentioned above, the division of positions within EBY result in a slight Argentine advantage due to the essential position in the hands of Argentine officials. Secondly, although the division of Yacyretá's electricity output is divided equally, Paraguay does not enjoy the freedom to use this electricity as it pleases, but it has the obligation to resell it to Argentina for a pre-set price. It can be observed that these footnotes are almost entirely the result of Argentina's normative-utilitarian tactic of the paying for the dam and then steering its conditions to its favour.

Theoretically, shared control is accompanied by cooperative interaction. Once again, it can be asserted that to jointly construct mega-infrastructural projects, a high degree of binational cooperation is required. However, again, footnotes can be placed to this seemingly cooperative interaction. Firstly, it has been observed that distrust between Argentina and Paraguay was very high throughout the negotiation and construction processes. This distrust was fed by the constantly emerging issues that needed negotiation, such as compensation for flooded areas and exchange rate issues, even after the signing of the Yacyretá Treaty. However, the content analysis showed that next to these incidental aggravators of distrust between Argentina and

Paraguay, a wider sense of suspicion seems to exist between the states in the River Plate basin. As Ruben Chaer, a Technical Manager at the Uruguayan Electricity Authority, mentioned to the author:

> Uruguay has stopped trusting its older brothers [Argentina and Brazil] because they are brutes. That is, in a sense of instability. So once starts realising that by being highly integrated with them while you are a very small country, it becomes very dangerous when that older brother starts shaking unexpectedly.[7]

Although the quote has been made in the context of Uruguay, during the period under scrutiny Paraguay was dealing with the same situation in both the sense of power asymmetries as well as instability in its neighbouring countries.

Secondly, the Yacyretá Treaty was established out of geopolitical necessity from Argentina's side and out of economic necessity from Paraguay's side. When Argentina's relations with Brazil improved after the Itaipú-Corpus Agreement and when Paraguay was increasingly flooded with hydroelectric energy from the Itaipú Dam in full operation, the necessity to cooperate on Yacyretá disappeared. This is exemplified by the enormous space for corruption and mismanagement of the dam, which lead to the conclusion that if there was any cooperation at that point, it was highly inefficient. In all, it is hard to denominate the control over Yacyretá and its resources as entirely shared and interaction as completely cooperative.

Regarding the extent to which control of Yacyretá's resources was consolidated by one of the two parties, on the one hand, it can be claimed that Yacyretá's resources were somewhat consolidated by Argentina when considering the observations above. Through the Yacyretá Treaty, Argentina has ensured itself with a continuous flow of cheap electricity from EBY, including the majority of Paraguay's half of that energy. This consolidation of electricity resources, however, came at a high price. Argentina had to assume the majority of the costs of the dam, it had to pay for several development projects in Paraguay, and its consumers had to indirectly pay for the compensation of flooded territories, which were mainly Paraguayan. Accordingly, one could also claim that Paraguay has consolidated a share of the resources in monetary shape. The role of Paraguay's pendular diplomacy between Argentina and Brazil cannot be underestimated in this regard. Through this strategy, Paraguay safeguarded itself with an enormous amount of leverage in the negotiations with an Argentina that experienced a lot of pressure to balance Brazil. This can be seen as an example of international support as coercive resource for riparian states in hydropolitics, as theorised by Zeitoun and Warner (2006). By strategically employing the support of Brazil, Paraguay managed to consolidate a high number of benefits from Argentina. Because of this support and of Brazil's influence in the River Plate basin at large, it was hard for Argentina to completely consolidate control over the Yacyretá Dam's resources. As Facundo Salinas, Director of Public Investments of the Paraguayan Ministry of Finance, mentioned in an interview with the author: "In the end, the economy decides. When the powerful countries, Brazil as well as Argentina, were doing well

[7] Online interview on August 13, 2020

economically and did not have resource problems, there were very pushful with these resources".[8]

Even though Argentina did enjoy slight advantages through its normative and utilitarian tactics, resources were not clearly consolidated by either Argentina and Paraguay, which theoretically increases the chances at control being contested by one of the two parties. As mentioned, Argentina did not have the means to outweigh Paraguay's coercive resource of Brazilian support in order to increase its mediocre control of the Yacyretá Dam's resource. That coercive resource alone, however, was not enough for Paraguay to in turn contest Argentina's control of the dam's electricity resources. It is true that Paraguay did express its discontent. For example in the case of the negotiation on amount of land to be flooded, which led to a generous compensation by EBY. However, such negotiations on these issues did not bring about a true contestation of the configuration. In a larger perspective, the construction of the Yacyretá Dam could be better described as an Argentine contestation of Brazilian control of the River Plate basin, mainly through its national dams upstream the Paraná River and its binational Itaipú Dam. By constructing the Yacyretá Dam, Argentina obliged Brazil to open discussions on how to manage the basin's resources in order not to infringe the construction process of the Itaipú Dam. The Itaipú-Corpus Agreement, the prelude for the improvement of Argentina-Brazilian relations and further Southern Cone integration, was a consequence of these discussions.

Returning to figure 1, it can be claimed that due to the shared control on general issues like electricity division and cooperative interaction required to construct the Yacyretá Dam, the hydro-hegemonic configuration moves towards shared control and cooperative interaction on the left in the figure. However, as mentioned, it is hard to describe Argentine-Paraguayan interaction as completely cooperative. Moreover, some competition for resources can be detected, especially in the shape of Paraguay demanding more monetary resources from Argentina, made possible against a background of Argentine-Brazilian competition. Accordingly, the configuration moves towards the right in the figure, to end up in between shared control/cooperative interaction and consolidated control/cautious competition. In the next section, the form of hydro-hegemony, leadership or dominative, will be analysed.

3.3 The Yacyretá Dam's Hydro-hegemonic Configuration

The final part of the analysis of the hydro-hegemonic configuration of the Yacyretá Dam case is the examination of the type of hydro-hegemony. The types of hydro-hegemony theorised by Zeitoun and Warner (2006) are a leadership role, in which case the hydro-hegemon facilitates the international institutional infrastructure to strengthen its position, thereby also creating stability and subsequent benefits for non-hegemonic states (Keohane, 1980, 1984). In a situation of domination, the hegemon aims at increasing inequity between itself and non-hegemonic riparian states, leading to instability and a higher chance for potential conflict.

[8] Online interview on August 4, 2020

As mentioned in Section 1.5, Argentina is the clear potential hegemonic power when analysing the Yacyretá Dam's binational context as it completely dwarfs Paraguay, both economically as well as militarily. Considering the potential for a leadership role of Argentina vis-à-vis Paraguay before the 1979 Itaipú-Corpus Treaty, it is true that Argentina assumed the costs of constructing the Yacyretá Dam and it jointly set up the binational entity EBY. These actions would be in line with a hegemon facilitating an international institutional framework as theorised by Keohane (1980, 1984) and Zeitoun and Warner (2006). Considering the results of these setting up EBY, however, were not as beneficial and did not create a significant degree of stability, which theoretically should be the case. Instead, corruption and environmental scandals as well as distrust between Argentina and Paraguay prevailed. Accordingly, if it would be argued that Argentina assumed a leadership role, this role still did not lead to sufficient stability to avoid these troubles. Contrarily, although Argentina did maintain some aspects of an integration strategy and a leadership role, its hydropolitical goal was ultimately to dominate Paraguay in order to balance Brazil's power. This dominative hydro-hegemony was supported by a containment strategy based on normative and utilitarian tactics, as well as a resource capture strategy based on downstream activities to alter the Paraná River's flow. Accordingly, before the trinational Itaipú-Corpus Agreement, when purely focusing on Argentine-Paraguayan relations in light of Yacyretá, Argentina's hydro-hegemony can be defined as a light form of dominative hegemony. It is described as light because domination is supported by strategies and tactics that are theorised to support a more leadership type of hydro-hegemony, such as utilitarian tactics. As mentioned, no significant violent or cold conflict can be detected during the period under scrutiny. These considerations are graphically displayed in figure 4 below.

Figure 4: Argentine-Paraguayan hydro-hegemonic configuration in light of the Yacyretá Dam before 1979

Form of hydro-hegemony	*Main water control strategy*	*Form and nature of interaction*	*Potential distribution of water resource*	*Form of conflict*
Leadership	Integration	Shared control / cooperation	**Equitable** →	**No conflict**
		Mixture		
Dominative (light)	**Resource capture, containment, and integration**	Consolidated control / cautious competition	Inequitable	Cold conflict
Flux	Resource capture, containment	Contested control / aggressive competition	Uncertain	Violent conflict

Source: On the basis of Zeitoun and Warner (2006, p. 453)

Two considerations can be made from the above. Firstly, it has to be mentioned that it is hard to understand hydropolitical issues in the River Plate basin such as the Yacyretá case without including Brazil in the analysis. Although it is beyond the scope of the analysis at hand, assessing the hydro-hegemonic configuration in the River Plate basin at large, including Brazil, would most probably move the configuration more towards a flux of Argentina and Brazil aiming at dominative hydro-hegemony during the beginning of the period under scrutiny, *i.e.* from 1960-1979. The axis Argentina-Brazil was essential in this regard, which was also argued by Hallack in her interview with the author when discussing regional energy integration: "The relationship between Brazil and Argentina is central. The others are important, but Paraguay, Uruguay, and Chile are in terms of power relations weaker than these two. Therefore, there are many disputes between the big two, which hinders integration".[9]

Secondly, it can be observed that applying Zeitoun & Warner's (2006) hydro-hegemonic framework results in many exceptions and mixtures from the theoretical reasoning from the authors. For example, it would be hard to initially theorise a hydro-hegemony motivated by domination to result in relatively equitable distribution of resources, in this case in the shape of hydroelectricity for Argentina and monetary resources for Paraguay. These considerations lead to the argument that Zeitoun & Warner's (2006) hydro-hegemonic framework is an useful tool to assess hydropolitical issues. However, applying the framework out of the SSA and MENA regions makes it clear that it should be granted more theoretical flexibility in these assessments, instead of the relatively strict theoretical reasoning the framework has maintained so far, in order to be able to fully assess the complex realities in hydropolitics.

Figure 5: Argentine-Paraguayan hydro-hegemonic configuration in light of the Yacyretá Dam after 1979

Form of hydro-hegemony	*Main water control strategy*	*Form and nature of interaction*	*Potential distribution of water resource*	*Form of conflict*
Leadership (together with Brazil)	**Integration** →	**Shared control / cooperation** →	**Equitable** →	**No conflict**
Dominative	Resource capture, containment	Consolidated control / cautious competition	Inequitable	Cold conflict
Flux	Resource capture, containment	Contested control / aggressive competition	Uncertain	Violent conflict

Source: On the basis of Zeitoun and Warner (2006, p. 453)

After the 1979 trilateral Itaipú-Corpus Agreement, hydropolitical international relations in the River Plate basin shifted considerably, an event that also affected the Yacyretá Dam's hydro-hegemonic configuration. The result of this shift is graphically displayed in figure 5 above.

[9] Online interview on August 11, 2020

After having made agreements on how to multilaterally manage the water resources in the River Plate basin, the Yacyretá Dam became part of a larger network of internationally integrated water management facilities, including the Itaipú Dam. Accordingly, resource control became more shared and the nature of interaction between Argentina, Brazil and Paraguay became more cooperative. This shift was made possible by the rapprochement between Argentina and Brazil after years of competition, which in the field of hydropolitics was expressed by threats of altering the water flow downstream (by Argentina) and upstream (by Brazil). After the shift, Argentina and Brazil jointly led the process towards more integration. This argument is exemplified by Daniela Varela, a Policy Advisor at the Latin American Energy Organisation (OLADE):

> In first instance, whichever decision Brazil took in the Itaipú area or in the rivers more upstream in the Amazon affects the River Plate basin. Accordingly, Argentina and Brazil signed agreements to establish organisation to work continuously. For example, this year there was a drought in Argentina and the dams changed to a minimum production level.[10]

Concluding, before the 1979 Itaipú-Corpus Agreement, the hydro-hegemonic configuration of the Yacyretá Dam was a theoretically remarkable mixture of an Argentine hydro-hegemony over Paraguay motivated by a dominative type of hydro-hegemony, which resulted in integration, containment and resource capture strategies and a form of interaction in between shared and consolidated control. This remarkable result was mainly due to the considerable influence of Brazil on the bilateral relation between Argentina and Paraguay. After the Agreement, the hydro-hegemonic configuration in the Yacyretá case became more theoretically aligned as a joined Argentine and Brazilian leadership hydro-hegemony resulted in more integration of water resource management in the River Plate basin, of which the Yacyretá Dam became a part of.

[10] Online interview on July 3, 2020

Conclusion

Summarising the findings of this study, in Chapter 1 it was established that the conflict-cooperation dichotomy in hydropolitical studies was not sufficient to adequately assess riparian power relations in the Yacyretá case. Accordingly, the hydro-hegemonic framework of Zeitoun & Warner (2006) was closely examined. It has been argued that hydro-hegemonies can be characterised by leadership or domination, and that they result in different configurations of water resource control and types of interaction. That is, shared control and cooperative interaction, consolidated control and cautiously competitive interaction, and contested control and aggressively competitive interaction. To achieve control over water resources in a specific configuration states follow several strategies. Theoretically, an integration strategy is implemented by utilitarian tactics, a containment strategy employs normative and discursive hegemonic tactics, and a resource capture adds coercive tactics to these. After a review of the criticism the hydro-hegemonic framework has received, it was concluded that criticism mainly focused on state-centrism, negativity and immutability of the framework, and a tendency towards conceptual discursive hegemony.

Chapter 2 found that the negotiations that led to the Yacyretá Treaty were born out of the geopolitical necessity from the side of Argentina and out of economic necessity for Paraguay in a context of Argentine-Brazilian competition. After 1979, an inflection point could be detected in the shape of the Itaipú-Corpus Agreement between Argentina, Brazil, and Paraguay. This Agreement cause a tendency towards integration instead of competition. Consequently, Yacyretá lost some of its geopolitical relevance and several corruption, environmental, and relocation scandals surfaced.

Chapter 3 constituted the final complement to the analysis. It was found that before 1979, Argentina enjoyed a lightly dominative hydro-hegemony over Paraguay, which was supported by a mix of resource capture, containment, and utilitarian integration tactics. The form and nature of interaction between Argentina and Paraguay could be characterised as in between shared control/cooperative interaction and consolidation control/cautiously competitive interaction. Resources were relatively equitably divided since Argentina received the majority of the electricity resources and Paraguay the majority of the monetary resources of the Yacyretá Dam. Theoretically, this configuration can be regarded as a remarkable mixture of Zeitoun and Warner's (2006) framework. After the Itaipú-Corpus Agreement, hydropolitical relations improved between Argentina and Brazil and, consequently, also the relations between Argentina and Paraguay. Now, the hydro-hegemonic configuration became more aligned along the lines of integration, shared control, and cooperative interaction in light of the Yacyretá Dam.

Keeping these findings in mind, the following can be answered on the research question how riparian power relations between Argentina and Paraguay have played out in the negotiation and construction process of these states' binational hydroelectric Yacyretá Dam during the

period 1960-1994. It can be claimed that the beginning of the process that led to the opening of the dam in 1994 was characterised by Argentina that wanted to improve its position in the regional balance of power by gaining more influence in Paraguay and on the Paraná River in general. Paraguay, in turn, wanted to benefit economically from the competition between Argentina and Brazil by means of pendular diplomacy. The Yacyretá Dam seemed like the perfect solution for these motivation of the two parties, for which the Yacyretá Treaty was negotiated and signed extremely fast in 1973. However, problems quickly surfaced, such as mutual distrust that caused multiple disagreements. It can be argued that the reason for this mutual distrust was the fact that Yacyretá was created out of geopolitical and economic necessities instead of close ties between the two states. The foreign policy of Brazil was of an undeniable importance on these issues. It motivated Argentina to gain more influence over Paraguay and it helped Paraguay to engage in a strategy of pendular diplomacy with Argentina. The critical importance of Brazil's foreign policy was demonstrated again when this policy shifted towards cooperation instead of competition and the Itaipú-Corpus Agreement was signed in 1979. On the one hand, hydropolitical relations between Argentina and Paraguay improved after this agreement. On the other, for the Yacyretá Dam it meant that the project lost some relevancy, which arguably caused several problems during its construction, such as corruption, environmental damage, and mismanagement of relocated people. This caused the dam to be only officially brought into full operation in 1994.

This answer contributes to the existing literature by tapping into the criticism the framework of hydro-hegemony has received. Regarding state-centrism, this study has shown that state-centrism is not necessarily a negative perspective in certain analyses. In the present case, for example, states are the only capable actors to construct binational hydroelectric dams due to these projects' enormous monetary, political, and environmental risks. As for immutability, this thesis has shown that analyses of hydro-hegemony do not necessarily always the configurations as theorized by Zeitoun & Warner (2006), but that the framework is still highly suitable to explain hydropolitical issues. Lastly, it has been shown that the framework remains useful when applied outside the MENA and SSA regions as its application led to relevant findings in the South American context.

A first limitation to the present research is the fact that there was no sufficient time and means to fully include the role of Brazil in the analysis, which would have made the study more complete considering Brazil's critical influence on the hydro-hegemonic configuration. Moreover, the Yacyretá Dam is a highly specific case. This exploration of the South American context is by no means sufficient to make generalizable statements on the functioning of the hydro-hegemonic framework in this context in general. In order to do so, more research would have to be done on the matter.

Appendix

Name interviewee	*Role and organisation*	*Place and date*	*Note*
Agostinis, Giovanni	Latin American international relations expert, Pontifical Catholic University of Chile	Online, June 25, 2020	
Brites, Walter	Anthropologist on hydroelectric dams, Argentine National Scientific and Technical Research Council (CONICET)	Online, June 23, 2020	
Cisneros, Pablo	Energy Division's Chief Executive, CAF- Latin American Development Bank	Online, August 7, 2020	Interview in light of mr. Cisnero's classes on regional energy integration at the Latin American Faculty of Social Sciences (FLACSO)
Chaer, Ruben	Technical Manager, Uruguayan Electricity Authority	Online, August 13, 2020	
Di Chiara, Lorena	Senior Energy Specialist, IADB	Online, August 12, 2020	
Echinope, Virginia	Head of Electric Energy, Uruguayan Energy Ministry	Online, August 11, 2020	
Ferreira Prado, Thiago Guilherme	Vice Director of Electricity Planning, Brazilian Energy Ministry	Online, August 25, 2020	Panel discussion
Freaza, Carlos	Head of Operations, Entidad Binacional Yacyretá	Online, July 3, 2020	
Guiliani Carvalho, Cassio	Director of Electricity Planning, Brazilian Energy Ministry	Online, August 25, 2020	Panel discussion
Hallack, Michelle	Senior Energy Specialist, IADB	Online, August 11, 2020	
Salinas, Facundo	Director of Public Investments, Paraguayan Ministry of Finance	Online, August 4, 2020	
Varela, Daniela	Policy Advisor, Latin American Energy Organisation (OLADE)	Online, July 3, 2020	
Zanetti Rosa, Guilherme	Policy Advisor on electricity, Brazilian Energy Ministry	Online, August 25, 2020	Panel discussion

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