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Abstract

This thesis traces the hydrosocial relations around the Kambar-Ata 1, a long-planned and never finished dam in Kyrgyzstan. Combining the hydrosocial cycle (Linton and Budds, 2010) with an actor-oriented approach (Long, 2001), this work reveals the social embeddedness of water within society. Paying attention to the historical-geographical circumstances of the location of the dam, characteristics of the waterscape influencing people's relation to water and to the long-awaited project of the Kambar-Ata 1 are exposed. Yet, this same waterscape is shaped by the social relations as well as the nature-society relations occurring in it, relations based on the assumption that water and nature are a force to be harnessed and used for the development of the country. The analysis shows that idea of water for energy is already strongly embedded within society and the construction of additional dam only reinforces this view, as well as the relations between actors and their own relation to water.

Die vorliegende Arbeit befasst sich mit den hydrosozialen Verhältnissen, die den bereits in den 1980ern geplanten, aber nie fertiggestellten Kambar-Ata 1 Staudamm in Kirgistan umgeben. Die *hydrosocial cycle* (Linton & Budds, 2014) und *actor-oriented approach* (Long, 2001), verdeutlichen dabei den theoretischen Fokus der Arbeit; die Einbettung des Wassers in der Gesellschaft. Weil historische und geographische Umstände für ein Großprojekts signifikant sind sowie die Eigenschaften und Charakteristika der Wasserlandschaft (*Waterscape*) selbst, werden beide Dimensionen expliziert. Dabei wird deutlich, dass diese sich gegenseitig beeinflussen. Sie werden einerseits innerhalb allgemeiner gesellschaftlichen Verhältnisses zum Wasser und andererseits in den, den Staudamm umgebenden sozialen Verhältnisse verhandelt. Die Analyse zeigt, dass Natur, Wasser bzw. der Fluss Naryn für seine ökonomisch-energetischen Möglichkeiten bewertet wird und innerhalb eines größeren Paradigmas der nationalen Entwicklung diskursiv verankert ist, weshalb die Produktion von Elektrizität durch Wasserkraft im Rahmen des *Modern Water* (Linton, 2010) Begriffs verstehbar ist. Dieser macht die Bedeutung von Energiegewinnung aus Wasserkraft in der kirgisischen Gesellschaft sichtbar und verdeutlicht gerade dessen soziale Einbettung. Die Fertigstellung des Kambar-Ata 1 wird sowohl das gesellschaftliche Entwicklungsparadigma, als auch das Verhältnis zwischen sozialen Akteuren, durch deren gemeinsamen Bezug auf „Wasserkraft", intensivieren.

Contents

1 LIST OF ABBREVIATIONS

ADB	Asian Development Bank
CAR	Central Asian Republic
CIS	Commonwealth of Independent States
CPR	Common Pool Resource
EEU	Eurasian Economic Union
GDP	Gross Domestic Product
GWP	Global Water Partnership
HPP	Hydropower Plant
ICWC	Interstate Commission for Water Coordination
IMF	International Monetary Fund
IO	International Organization
ISI	Import Substitution Industrialization
IWRM	Integrated Water Resources Management
KGS	Kyrgyzstani Som
kWh	Kilowatt hour
MDG	Millennium Development Goal
MW	Megawatt
NGO	Non-Governmental Agency
NSDS	National Sustainable Development Strategy
NWRMP	National Water Resources Management Project
O&M	Operation & maintenance
OJSC	Open Joint Stock Company
OSCE	Organization for Security and Cooperation in Europe
PRS(P)	Poverty Reduction Poverty (Paper)
RFERL	Radio Free Europe Radio Liberty
SDC	Swiss Agency for Development and Cooperation
SDG	Sustainable Development Goal
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNECE	United Nations Economic Commission for Europe
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNPEI	Poverty-Environment Initiative of UNDP and UNEP
USAID	United States Agency for International Development
USD	US-Dollar
USSR	Union of Soviet Socialist Republics
WUA	Water User Association

2 INTRODUCTION

This research focuses on the relationship between Water and Society around the construction of the Kambar-Ata 1 dam on the Naryn river in Kyrgyzstan. Located in Central Asia, the Kyrgyz Republic's history has long been related to water. Some of the biggest transformations of Kyrgyzstan's landscape – and waterscape – are due to the management of water resources implemented by the soviet regime. Focused on wool and cotton industry, which requires high volume of water, the Soviet Union expanded irrigation networks in the beginning of the 1940s in order to irrigate the cotton fields in downstream countries (Herrfahrdt et al., 2006: 45). Huge reservoirs such as the one created for the Toktogul multi-purpose dam on the Naryn river (an affluent of the Syr-Darya) were built to meet cotton production needs in the downstream republics (O'Hara, 2000b). The deviation of rivers for those purposes would later prove to bear unfortunate consequences on the Aral Sea as its two principal affluents – Amu-Darya and Syr-Darya – no longer reach the sea (Allouche, 2004: 287).

While water is therefore important for irrigation in downstream countries such as Uzbekistan and Kazakhstan, it holds significant value for the energy production of Kyrgyzstan and its present development strategy. The construction of the 275m-high Kambar-Ata 1 dam, designed and started in the 1980s but never achieved, resurfaced in 2004[1] as it was meant to put Kyrgyzstan on the path towards energy independence (Bar, 2015: 254 ff.). Its construction is often referred along the Naryn Cascade project (Wooden et al., 2016: 52). Composed of six medium- to large-sized dams, this whole project started with the construction of the Kambar-Ata 2 located at the beginning of the Toktogul reservoir. Kambar-Ata 1 and Upper Naryn hydropower plants (HPPs) were planned to follow upstream of the Kambar-Ata 2 (ibid.), where only one of the three turbines is now operational. Currently however, the project seems to have come to a standstill since former Russian investors have been voted out by the Kyrgyz parliament due to unsatisfactory progress (Eurasianews, 2016). Recognizing the difficult state of Russia's economy at the moment[2], the Kyrgyz Government could turn its attention toward China[3], who also has potential interests in investing in his western neighbor's energy

[1] An agreement was found with the Russian Energy-Holding "Inter RAO ESS" for the construction of Kambar-Ata 1 and 2 and a credit of USD 1,7 Mrd was approved in 2011 by the Russian Federation for the construction of the Kambar-Ata 1 which estimated construction costs amount to USD 3 billion (Bar, 2015: 255, Olcott, 2005: 195 f).

[2] As Kyrgyzstan lies heavily on the remittances of its citizens working in Russia, the country is also dependent on the stability of the Russian economy.

[3] News of Chinese investment however is not always met with enthusiasm by the Kyrgyz population, as expressed by several interlocutors in the region.

development schemes (Frolovskiy, 2016)[4]. Indeed, the region seems to attract international investors.

Studying how water infrastructure transforms or affects a region is usually the goal of impact assessment studies, be it either socio-economic or natural impacts. However little attention has been paid on the power dynamics and social relations surrounding water projects, which often determine the success or failure of a water management policy or water project, or as Swyngedouw puts it "[p]overty and governance that marginalizes makes people die of thirst, not absence of water" (Swyngedouw, 2009: 58).

By asking the question **How is the waterscape of the Toktogul *raion* in Kyrgyzstan produced by, and simultaneously influences the Kambar-Ata 1 project started in the 1980s and never finished**, the following research focuses on the effect that this development intervention may have – if implemented but also in its current state – on the waterscape, i.e. on the relations people have with water and with each other (Orlove and Caton, 2010: 408). Because these types of intervention, as well as their consequences, tend to be perceived differently by the actors involved, approaching the location of the Kambar-Ata 1 project as a social arena could result in exposing the social interaction between actors and their differing meanings, uses, knowledge and discourses around this location (Long, 2001).

The research is primarily based from interviews with social actors surrounding the area (water experts and citizens, primarily in Bishkek and the Toktogul valley). Those interviews were conducted in English, with the exception of one interview conducted in French, during the whole month of July in Kyrgyzstan, with the help of a young Kyrgyz translator speaking Kyrgyz, Russian and English. Relevant literature on the subject and secondary literature is used to complete possible lack of data, especially Jeanne Féaux de la Croix's account of peoples' interaction with water in the Toktogul region (2011) and her book *Iconic Places in Central Asia: the moral geography of dams, pastures and holy sites* (2016). Official documents are also used to fill potential void. Finally, observation of everyday practices, events and waterscapes offers very valuable data to analyze and were collected as well.

[4] Other interests to invest have been expressed by several countries as well, such as Austria, Germany and Iran among others (AKIpress, 2016).

3 OBJECTIVES OF THE RESEARCH

Common discourse on water often emphasizes a physical water crisis that many regions are already facing, a crisis that will increase in time. An essential variable of that scenario is the population growth that would lead to more consumption of water, more pollution, and therefore a reduced availability of water per person. Acknowledging the difficult situation related to water that people may face, many academics refute the notion of "water crisis" though, and prefer to speak of a "crisis of modern water" (Linton, 2010) or a crisis in water management (Biswas, 2013).

The general question is therefore not only about the scarcity of water and its physicality/quantity, but about how to approach water management in a more holistic way and deal with water issues too. Social sciences have long been interested in water-related subjects but it is only in 2006 that the UNDP acknowledged the key role of power and inequalities in the "water crisis" thus shifting the focus away from physical scarcity, previously considered as the primary cause of this crisis (Sehring, 2009b: 17). Hence questions of power in a water-society framework should continue to be explored.

Because water issues – whether technical or of governance – have too often been framed as a topic to be discussed among experts on water and/or hydrologists, political ecology tackles this subject and aims to repoliticise water-related matters, by essentially analyzing issues of power around natural resources (Blanchon and Graefe, 2012, Benjaminsen and Svarstad, 2009, Linton, 2010). For Benjaminsen and Svarstad (ibid: 3 f.), it is therefore necessary to focus on the different actors around environmental issues, their interests, and discourses, as this discipline questions the production of knowledge on the environment, and thus questions of power. Rooted in the political ecology perspective, the hydrosocial cycle attempts to analyze the relation between water, capital and social power and to recognize the complexity and social embeddedness of water (Blanchon and Graefe, 2012, Linton, 2010).

This research could therefore offer alternative perspectives on how water project may influence society's structure and social relations and fill a gap in the literature concerning Central Asia, a region often overlooked. To make such an analysis reinforce the idea that impact assessment of dams, i.e. orthodox model of assessment, should not only be made on the physical and economic impact on the environment, people, economy… but should also consider their (the dams) influence on societies, i.e. social dimensions which often determine the success of such intervention. This study could thus be described as an attempt to understand how people interact

with each other around water and relate to water itself. It is mainly a descriptive exercise as it aims to map out the different views on water hold by different actors in a same location at a specific time, their social organizations and livelihoods, and reveal the power dynamics at play. This research opposes the idea that water could simply be perceived as a quantifiable and economic good as would entail the process of privatization or "third-wave marketization"[5] (Burawoy, 2006, 2013). While the material dimension of water is usually considered through the work of hydrologists and water experts, the broader social embeddedness of water needs to be recognized and studied: water is perceived differently by actors, it is culturally and historically related to people. Discussing about water requires one to acknowledge "the impurity of water" as Linton puts it, because "[h]uman history has been critical to the nature of water; to talk about water without including its social and historical ingredients is to leave part of the story. Water is never so pure as that" (Linton, 2010: 176). Following Linton's argumentation, this research recognizes and tries to expose the complexity of water by acknowledging the social and cultural aspects of water, along the more commensurable and commodifiable good that one drinks or uses for hydroelectricity and irrigation (ibid.).

4 KEY PUBLICATIONS ON THE WATER-SOCIETY RELATIONS AND KYRGYZSTAN

The several regime changes and abrupt transition to new economic models characterizing Central Asia – and therefore various and variable relations between the political, social, economic and environmental dimensions that those models generate and transform – would appear to correspond well to an approach such as political ecology. Yet, the number of political ecology studies on Central Asia[6] seems to be quite low (Schmidt, 2016). Identifying the regional focus of the articles published in *Journal of Political* Ecology(JPE)[7] from 1994 to 2014, Simon Batterbury (2015) shows that less than 5 articles were written on Central Asia.

[5] Prominent sociologist at the University of Berkley and greatly influenced by Polanyi, Burawoy believes that society is facing today a third wave of marketization, in which the commodification of the environment, be it land, water or even the air is already under way(Burawoy, 2006). This third wave of marketization, that has been taking place since the last quarter of the twentieth century according to Burawoy, follows a first commodification of labour during the nineteenth century and a second wave with the commodification of money during the twentieth century. As a reaction to it, both of these waves Buroway argues, were followed by the emergence of different forms of sociologies that tried to understand these phenomena and help to secure social protections against proponents of a "free-market".

[6] While it sometimes includes Afghanistan and Pakistan in the region, the term refers here to Turkmenistan, Kazakhstan, Uzbekistan, Kyrgyzstan and Tajikistan.

[7] Batterbury identifies JPE as one of the 3 main academic journals on political ecology, along with *Ecologie et Politique* and *Ecologia Politica* (2015: 34). Unfortunately, articles related to the region could not be found on those two other journals.

From a personal research on the website of this journal, 1 article related to the word "Kyrgyz", and 15 to "Central Asia" were found. Looking more generally into the water literature, *Water alternatives* offers interesting perspectives for the scope of this research, as does *Geoforum*. Focused on Central Asia, *Les cahiers d'Asie Centrale*[8] published a series of articles, giving an interesting perspective on water issues in the region. Finally, publications from the *Journal of Peasant Studies* provide valuable insights on local interactions with development intervention as exposed by Tria Kerkvliet (2009).

Nevertheless, and although the number of studies on water in the region remains low, the current research led by Jeanne Féaux de la Croix *The "social life" of a River*[9] focusing on the Naryn/Syr Darya river, in addition with the recent publication of Filippo Menga *Power and Water in Central Asia* (2018), demonstrates a certain interest for Central Asia.

Within her previous research Jeanne Féaux de la Croix (2011, 2016) exposed the different meanings given to water in three different localities of Kyrgyzstan (hydroelectric dams, mountain pastures and pilgrimage sites) and the implications on social practices. This supports the assumption that waters that appear to be similar may hold different meanings to people, and her work has certainly been helpful for this research. Additionally, Veronica Strang's ethnographic study conducted along the River Stour in the English county of Dorset and exposed in *The meaning of water* (2006) offers a useful analysis of the different meanings of water and their (social) construction. Considering the human-nature relationship beyond the orthodox dualistic thinking, her findings suggest for instance that "water plays a vital part in the construction of identity at an individual, local and national level" (ibid.: 5). Of particular interest for this paper is her approach to human–non-human relations and her attribution of agency to things (2014). Palomino-Schalscha et al. (2016: 886) examine "the narratives developed around [dams] and the inequitable power relations they (re)produce" through a hydrosocial cycle approach. After studying the case of water resources management in Chile, Jessica Budds (2009) concludes that the concept of hydrosocial cycle offers alternative to a purely physical evaluation of a primarily socio-political situation in order to "better navigate between the material and the socio-political dimensions of environmental change, in order to reveal the power relations that intersect with biophysical dynamics to produce and reproduce political ecologies" (ibid.: 428). Jessica Barnes' *Cultivating the Nile* (2014) should also be considered. Indeed, through her ethnographic research on the Nile in Egypt, she explains well how through crop cultivation and everyday politics of water, the river's hydrography was

[8] Les cahiers d'Asie Centrale is a peer-reviewed journal published by the French Institute for Central Asian Studies.
[9] The official website of the Department of ethnology from the University of Tübingen details this research (Universität Tübingen, 2018).

transformed by agricultural use of the river and construction of dams to accommodate farmer's production and the State (ibid.: 10) i.e. "[W]hat water comes to be is the outcome of social, biophysical, technological, and political processes that produce particular quantity and quality characteristics in any given time and place" (ibid.: 3).

Regarding finally the social conditions in Kyrgyzstan, several authors can be helpful. The recently published book edited by Laruelle and Engvall *Kyrgyzstan beyond "Democracy Island" and "Failing State."* (2015b) could help us acquire better insights on this matter. Among other interesting papers within this volume, Elmira Satybaldieva's *Why class matters in Kyrgyzstan* concentrates on the politics of the poor. Colored by class analysis, the article wishes to shed light on Kyrgyzstan's political behavior beyond a patron–client relation, as recent studies often depict elites "possess[ing] a degree of agency [while] non-elites and poor groups are presented as unreflexive and passive" (2015b: 99). Based on a series of interviews with people living in the poor urban areas of Osh, she asserts that some people who seemingly do not act practice in fact what she calls "politics of patience", by instead trying to improve their own conditions, carrying on with their own life and taking pride in not complaining. This, according to Satybaldieva, would be seen as a moral virtue by these populations (ibid.: 116). In another article (2015a), the same author explores the political strategies of different actors in rural Kyrgyzstan and examines "the nature of the social field that structures actors and groups and their political power" (2015a: 370). Her work will also help this research in understanding rural political situation in an unfamiliar environment.

Unfortunately, literature on gender issues in the Kyrgyz Republic are difficult to find and cruelly missing if one would wish to have a bigger scope on the social relations within society and with water.

5 WATER MANAGEMENT IN CENTRAL ASIA

Kyrgyzstan is situated in Central Asia and belongs today to the Commonwealth of Independent States (CIS), a regional organization established after the collapse of the Soviet Union. Within this association of States, the CIS Free Trade Area allows free movement of goods, capital, services and people within the Eurasian Economic Union (EEU). Kyrgyzstan's economy relies heavily on remittances (30.4% of GDP in 2016 (World Bank, 2018)), the exploitation of the Kumtor Gold mine, as well as the re-exportation of imported Chinese goods that fill up the bazaars of the country (Peyrouse, 2015: 10), as a quick visit to Dordoi bazaar in the vicinity of Bishkek would well illustrate. It is therefore vulnerable to external shocks and conjuncture, but agriculture and industry also make for significant shares of the GDP. Along with its

predominantly mountainous geography, the country is endowed with abundant endogenous water resources that continues their flow within the other CIS countries as well as towards China. This natural resource that the Kyrgyz possess allowed them to produce in recent years about 90% of their total electricity production via hydropower plants (UNCTAD, 2013: 20).

To understand the current water-situation faced by Kyrgyzstan, one must lean back into history. Water management and the "waterscape" of Kyrgyzstan has been transformed through different regimes. Under tsarist rule, the arrival of Russian and Ukrainian settlers changed the availability of arable lands for nomads and their herds, disrupting their "seasonal migration patterns and water access for their livestock" (Farrington, 2005: 171). Under the soviet regime, the region was then territorially distributed in accordance to Stalin's vision of the USSR, creating the republics of Tajikistan and Kyrgyzstan, characterized by huge amounts of water but few arable lands, along with the republics of Turkmenistan, Uzbekistan and Kazakhstan, endowed with agricultural potential, but dependent on water resources from upstream republics (O'Hara, 2000a: 429). With the expansion of irrigation networks in the 1940s and the construction of the Toktogul dam in early 1970s, a form of interdependence had been created between the Central Asian Republics (CARs), in line with the soviet doctrine of a Soviet people, i.e. one single Soviet-entity. Thus, Tajikistan and Kyrgyzstan were to collect water in winter and distribute it in summer for lands downstream of the rivers. Downstream republics, in return, supplied upstream republics in mineral energy resources as collecting and conserving water in winter drastically reduced their power-generation's ability (Mamatkanov, 2008, Laldjebaev, 2010). Orchestrated by the Kremlin, this "competition between the water-surplus and water-deficit republics" (O'Hara, 2000a: 430) benefited Moscow's central position through an approach of divide and rule[10]. Witnessing the enormous amount of water-use for agricultural irrigation and its consequences on the Aral Sea for instance, an upper-limit of water-extraction was established in 1987 by the USSR Ministry of Land Reclamation and Water Management (Giese and Sehring, 2007: 485).

Table 1 Water allocation among the CARs established in 1987 (%)

	Uzbekistan	Turkmenistan	Kazakhstan	Kyrgyzstan	Tajikistan
Amu-Darya	48,2	35,8	–	0,6	15,6
Syr-Darya	50,5	–	42,0	0,5	7,0

Source: Giese and Sehring (2007: 485) and UN SPECA (2004: 36)

[10] The use of the term "competition" is not fully adequate in my opinion, as many of the interlocutors during the field research explained that borders did not exist between those countries at the time, creating a sense of unity and "one people" feeling.

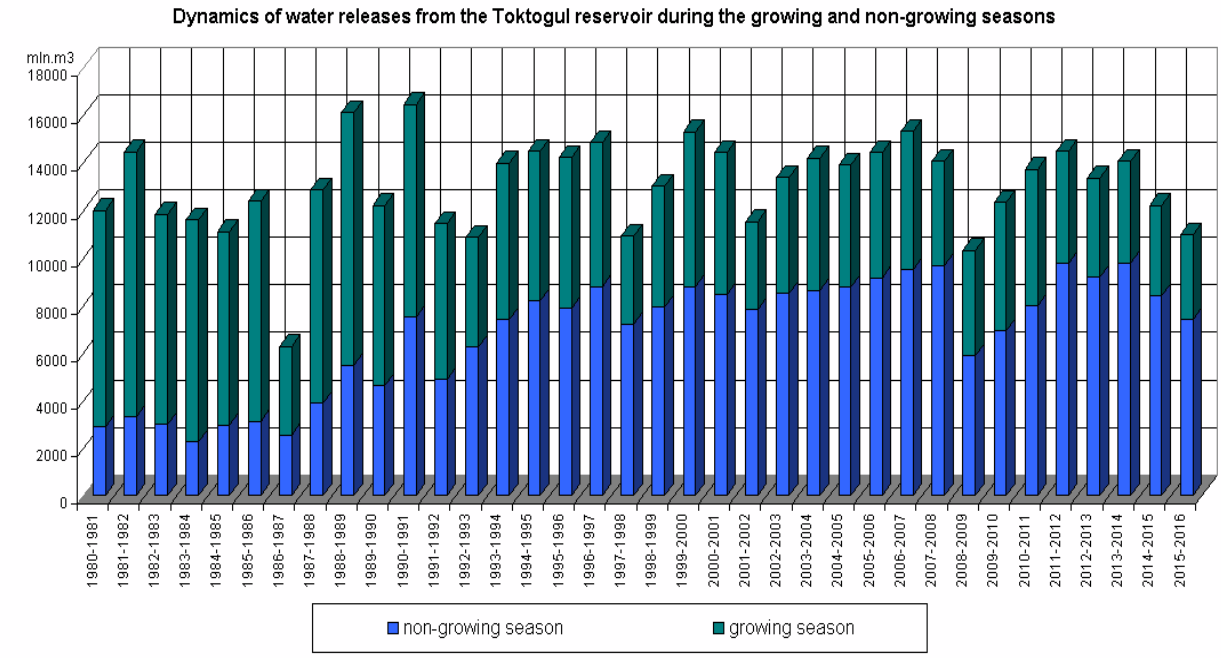
Through this table, one may easily perceive that the primary economic activity favored by soviet administration – agriculture, and more specifically the cotton production – eventually enabled a power constellation favorable to downstream countries Uzbekistan and Kazakhstan (in the case of the Syr-Darya) as they received the lion's share of the water allocation. One could therefore assume that the two countries previously mentioned did – and arguably still do – enjoy a position of hydro-hegemons, which in its basic form balances the geographical position of the riparian states with their economic and military powers and thus their negotiation abilities[11]. Approaching this issue, Zhupankhan et al. (2017) advocate for a renegotiated power balance to be articulated as the current constellation, often based on this very water allocation distributed in 1987, is not promising a better cooperation on water issues.

Following the collapse of the Soviet Union, the CARs were left without mediator, and cooperation on water management was not the preferred choice as each newly independent country wanted to follow its own water politics. Due to the abrupt economic transition experienced in the region, Kyrgyzstan were left to bear the Operation & Maintenance (O&M) cost of the dam without any compensation from its neighbors through agricultural product, energy sources and consumer goods as previously guaranteed by Moscow (ibid.: 487)[12]. Therefore, independence inevitably meant for the CARs to replace the centralized system of water management of the soviets through new agreements to regulate the Syr-Darya and Amu-Darya. In 1992, the Interstate Commission for Water Coordination (ICWC) was created after the Almaty Agreement, which then gave birth to a series of new agreements (Bichsel, 2011: 25). However, Kyrgyz people were now facing what the state-led economy of the Soviet Union had protected them against: market instability. The sudden increase in the price of energy-commodities they imported (oil, gas and coal) led Kyrgyz households to opt for electric heating[13], thus increasing their consumption, and consequently the need for electricity production in winter as its price still remained low (World Bank, 2004: 4). Cariou (2015: 44) describes the regulation of water by the Toktogul dam in the early post-soviet era as progressive transformation of an irrigation regime into a hydroelectric regime. After increasing the winter release of the Toktogul dam in 1993, an agreement was found in 1998 regarding the management of the Syr-Darya basin. Kyrgyzstan were to let most of its water flow during the summer months. In counterpart, and as previously agreed under soviet regime, Uzbekistan and

[11] For more on this subject, see Zeitoun and Warner (2006)
[12] Compensation were mainly delivered because of the great loss of agricultural fields and villages in the Ketmen-Töbö valley following the construction of the reservoir (Giese and Sehring, 2007: 487).
[13] the World Bank assessed in 2015 that about 35% of urban household relied primarily on electricity to heat their home (Balabanyan et al., 2015: iii)

Kazakhstan would deliver energy sources to Kyrgyzstan for the cold season. This agreement, however, was never respected (Giese and Sehring, 2007: 488 f.). As Fig.1 shows, water releases from the Toktogul dam increasingly occur during the non-growing season, i.e. in winter, attesting of this new hydroelectric regime.

Fig. 1 Seasonal water release from Toktogul reservoir



Source (CAWATER-Info, n.d.-b)

Today, each of these countries wish to drive their own water policies (Allouche, 2004: 289), and massive water structures of the like of Toktogul dam or Rogun dam in Tajikistan become the subject of heated debates and tensions. The construction of another large-sized dam such as the Kambar-Ata 1 has the potential to precipitate the country into a crisis with Uzbekistan, which was close to happen while former President Islam Karimov was still in power. Appointed in 2016 after the death of Karimov, the Uzbek's Presidency of Shavkat Mirziyoyev marks a shift from his long-lasting predecessor, in place since 1989. This new administration aims to a "thaw" by addressing that friendly relations with its neighbors are a priority of his administration and better cooperation may be expected (Michel, 2017). Yet, tensions do exist and should not be completely dismissed, as they have rendered difficult to reach to any agreement, be it bilateral, multilateral or through mediation or participation of a third-party, as the failed attempt of the Asian Development Bank in 2005 would suggest (Giese and Sehring, 2007: 489 f.).

Within its borders, Kyrgyzstan experienced turmoil apparently originating from the management of hydroelectricity, which is still in the minds of many Kyrgyz. The 2010 revolution that saw President Bakiyev leave the country has been portrayed as a hydroelectric revolution by Wooden (2014), who exposes how electricity shortages, increasing energy prices and water supply were causes for the population's frustration with the regime[14]. The construction of the Kambar-Ata 2 is also related to this situation. According to Bar, big corruption allegations were linked to the construction of the dam, as the total project costed USD 30 Mio more than expected and the funds disappeared in the Bakiyev administration, causing Russia to adjust further disbursement of the credit agreed upon in 2010 (Bar 2015: 256). It is aslo reported that, as a protest, local citizens stole equipment on the site because they were angry that the construction work would not be given to them (Wooden et al. 2016), thus further increasing distrust of the government to improve their lives. Hence dams and water infrastructures can sometimes be the location of social struggles and the purpose of such construction should first be questioned.

The current management of water resources in Kyrgyzstan is therefore strongly linked to policies from the past (under tsarist regime and the soviet era) [15] and has been affected also by a transitional economy frequently defined as a shock therapy. Indeed, following its independence in 1991 the country experienced radical processes of privatization leading, among other things, to land ownership transfer (Abazov, 1999)[16]. This new situation meant that irrigation network needed to be reformed (Sehring, 2009b: 92). Yet, if the structure and institutional environment was reformed, marks of the past are still present. This leads Sehring to assert that "institutionalised Soviet and pre-Soviet patterns of behaviour still shape actors' responses to new challenges" (2009a: 61). This form of path dependency in which actors are embedded within an institutional structure while at the same time partly reshaping it, is defined as "institutional bricolage" by Sehring (ibid.). When it comes to water-governance, actor's behaviors still follow patterns of previous regimes and "recombine elements of different institutional logics" (ibid.: 61). Although, Frances Cleaver (2000) is more centered on collective action and the role of institutions in the management of common property resources, her article nonetheless examines the interaction of agent and structure in a critical and interesting way for this study, as it is influenced by Anthony Giddens' as well as Norman

[14] The President allegedly sold electricity to neighboring countries in 2007, resulting in lower water level in the reservoirs (Wooden, 2014: 465).
[15] see Farrington (2005)
[16] Abazov explalns that people would also call this "`*prih-vati-zatsia*' — `grab all you can take' " (1999: 221)

Long's ideas (himself influenced by Giddens) on the structure/agency interface (Cleaver, 2000: 362). Assessing therefore that actors possess knowledge about the structure they live in and do have the capability to influence this very same structure conjoins with Norman Long's understanding of agency and structure (Long, 2001), which will be later discussed for the use of this research.

6 PROBLEM DEFINITION

Hydropower constructions, and large dams particularly, have received numerous bad press for many reasons. Environmental activists at the forefront, critics usually question the economic viability of such projects, their impact on the environment or on the people who end up being displaced (World Commission on Dams., 2000). Assessments of a dam and research however do not automatically look at the spatiality of a dam as internalizing social relations and power dynamics. Consequently, social inequalities existing in a society could be reproduced within the decision-making of such water instances[17].

Understandably, energy independence and the development of an export-oriented industry that requires tapping into "vast reserves of unexploited hydropower" (UNCTAD, 2016: 28) has been a focus of the Kyrgyz government since independence in 1991. Advertised as "the smart use of mother nature" (CASA-1000, 2017), the Central Asia South Asia electricity transmission and trade project (CASA-1000) seems to equally reinfoce this focus. However, it often came with consequences, as it created contestation and tensions with downstream Uzbekistan in particular[18] (Wooden et al., 2016: 54 f.). Although the Kambar-Ata 1 project seeks to resolve this situation and secure Kyrgyzstan's energy situation, transboundary issues must be dealt with as it partly shapes, at least, state's behavior. Julia Bar (2015) reports that the constructions of Kambar-Ata 1 and 2 would put even more pressure on the Syr-Darya basin. Indeed, already regulated through dams for about 70%, the aforementioned projects would mean that the water flow of the Syr-Darya would be fully regulated by dams (ibid.: 253); the hydraulic mission would be complete: Not a single drop of water would be wasted, to borrow Molle et al.'s words (2009: 332).

Within Kyrgyzstan's borders and the limit of the Naryn basin, it is clear, as Féaux de la Croix's analysis shows (2011), that people may hold different meanings on water. Whether it is held in

[17] The OSCE has been active for instance on gender issues in ensuring that women and men were equally represented in the decision-making process of water management project in Kyrgyzstan (OSCE Secretariat, 2015).
[18] Aware of Kyrgyzstan dependency on its gas, Uzbekistan did cut off supplies to its upstream neighbor on several occasions in the past as a response to water project on the Naryn/Syr-Darya (Wooden, 2014, Pannier, 2014). As previously stated, the current situation however has apparently significantly improved as reported by newspapers.

the Toktogul reservoir, flowing through mountain pastures (*jailoos*) or in holy sites (*mazars*), people do relate differently to the water resource (ibid.).
Furthermore, it has been estimated that filling up the reservoir of the Kambar-Ata 1 would take up to three years (Bar, 2015: 255), an estimate shared by an employee of "cascade Toktogul hydroelectric stations"[19] during the field research. Consequently, the fear expressed by Uzbekistan of seeing a reduced amount of water coming into its cotton fields while the dam is being filled is a possible scenario. Although the international dimension is important (and it is considered in this work), the research focuses more on the transformation that can occur within Kyrgyzstan and on its water policies.

Because "[p]rocesses of socio-environmental change are […] never socially or ecologically neutral" (Swyngedouw, 2009: 57), some social groups may see their situation destabilized as a result of building this water infrastructure, while others would benefit from such alteration of the water cycle (Swyngedouw, 2009). As new infrastructure such as the Kambar-Ata 1 will affect (positively and/or negatively) social structures within a society and eventually the perception of water, one may ask what does development intervention imply and what should be considered before undertaking such a project. Of course, many dimensions and factors should be looked at, and an exhaustive and complete analysis cannot unfortunately be the goal of this paper. Nevertheless, looking at the social dimensions of water exposes a bigger picture and reveals the complexity and reality of resource management. This research follows the path proposed by authors previously mentioned, such as Jessica Barnes, whose book highlights the failure of concept such as integrated water resources management (IWRM) or water use efficiency. She proposes instead to consider the production of water through everyday politics by asserting that "[a] more complex understanding of water is needed" (2014: 175). In that sense, a study on Kyrgyzstan's waters should not simply be considered within an IWRM framework. It should take into account soviet's experiences of the country, its international and regional position and local actors' perspectives and relations to the water.

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7 THEORETICAL FRAMEWORK

7.1 Interpretations of Water infrastructures and the meaning of water

Water infrastructures have been described as symbols of modernization and a tool for development (cf. Kaika, 2006, Swyngedouw, 2007), contributing to the broader scheme of state building through "hydrocracies"[20] (Molle et al., 2009). Those approaches to such infrastructures recognize that there is more at stake than the simple management of water and the concrete used to construct dams. These kinds of projects, be it building or rehabilitating dams and hydropower plants entails political, economic and social implications. They also represent a particular power dynamics at play at a specific time as shown by Swyngedouw in his analysis of "*Franco's hydro-social dream*" (2007).

Inherent from building water projects are political losses and benefits, integration of new technologies of measurement, new building technics, new knowledge and skills… that might be integrated by localities and countries through different processes in a current context of globalization. Indeed, a whole set of different factors and variables eventually transform social relations and define water. Linton poses the idea quite clearly in the following exert:

> The water held in place behind dams in northern Canada is not merely the liquid H2O measured in cubic metres that falls through penstocks and turbines to generate hydroelectricity; this water is held in place by state-run power utilities, the human labour that is extracted to produce the dams, penstocks, and turbines; abstract hydrological calculations; water management protocols; discourses linking national identity with the generation of hydroelectricity; networks of transmission wires; consumer expectations; construction consortiums; and political discourses, which together have the effect of fixing it in a particular way. This water is what it is by virtue of events and processes that transcend the place and time of the water itself (Linton, 2010: 30 f.)

One could draw a parallel between the extract mentioned above and the dialectical relationship between water infrastructure and state power exposed by Karl Wittfogel (1957). Considered to be at the foundation of the water-society relation for his development of the notion of "hydraulic society" – referring for instance to ancient irrigation Chinese civilizations (1931) – Wittfogel acquired perhaps his fame after he asserted, in *the Oriental Despotism: A Comparative Study of Total Power (1957)*, that large-scale irrigation systems were an expression of centralized state power, enabling it to control its people. Today, some concepts seem to have been influenced by Wittfogel's theory, such as the concept of "hydrocracies" from Molle et al. (2009) which echoes Mitchell's suggestion that "[l]arge dams [in Egypt] offered a way to build not just irrigation and power systems, but nation-states in themselves" (2002: 44). So does the

[20] The term comes from the contraction of hydraulic bureaucracy

notion of "hydronationalism" exposed in Worster's *Rivers of Empire* (1992) or in Swyngedouw's study on Franco's hydrosocial dream (2007). Although McCully's focus lies more on the artifact than on the water within it, he also articulates the idea that dams are something more than simple block of concrete storing huge amount of water, as they also are "concrete, rock and earth expressions of the dominant ideology of the technological age" (McCully, 1996: 2). In the case of Kyrgyzstan's dams, Féaux de la Croix interestingly suggests that dams can also be perceived as being embedded within history and political situation, thus dependent on context. While she describes the Toktogul dam "as an example of the 'friendship of the peoples' in the 1960s-1970s", Féaux de la Croix adds, "the Kambar Ata hydropower plant [is] a novel effort of the Kyrgyzstani government to boost its legitimacy and regional power" (2016: 87). One could thus fairly assume that a different relation to the water resource would appear around a dam.

Water, therefore, is given different meanings, relates to different practices and is embedded within different social organizations and environments. People relate differently to it. A State perceives water differently than its citizens and this perception often differs from that of another State. So is the case for Kyrgyzstan and Uzbekistan for instance. Indeed, a multiplicity of waters exists. Consequently, an analysis around water(s) should not abstract the subject from its environment, but be examined within its social context, in relation with society (Linton and Budds, 2014). It should be studied at the level of the "waterscape" as defined by Orlove and Caton (2010: 408): "the culturally meaningful, sensorially active places in which humans interact with water and with each other". Accordingly, an approach that focuses on the hydrosocial cycle takes a critical stance on the orthodox model of hydrologic cycle by (re)introducing human's actions in its analysis and seems to pair well with Orlove and Caton's definition of the waterscape. This can offer alternative perspectives when concerned with the effects of dams, reservoirs and other water infrastructure projects on societies. That is the approach adopted in this study, with hydrosocial relations as a focal point. The next section will therefore introduce the notion of hydrosocial cycle and continue on how the research will be pursued with the help of an actor-oriented analysis proposed by Long (2001).

7.2 The hydrosocial cycle and hydrosocial relations

In this theoretical section, the concept of hydrosocial cycle understood by Linton and Budds (2014) will be laid down. After explaining the Water-Society relation implied in the hydrosocial

cycle, the consequences of adopting such an approach for this research will be presented, before focusing on the second part of theoretical framework, Norman Long's actor-oriented approach.

7.2.1. The embeddedness of water within society

The embeddedness of water within society and the importance of power have received increased attention since early 2000 (Sehring, 2009b: 17). In that regard, Swyngedouw (2009: 58) argues: "[t]rue scarcity does not reside in the physical absence of water in most cases, but in the lack of monetary resources and political and economic clout". This echoes the United Nations Human Development Report that marked a turning point when it was admitted that water crisis was primarily caused by issues of power dynamics and social inequalities. Shifting therefore its focus from questions of absence of water often approached technically to questions of access and perpetuation of social inequalities, the report admits "[t]here is more than enough water in the world […] The problem is that some people–notably the poor – are systematically excluded" (UNDP, 2006: 3). Growing attention has been paid on the role of power and the nature-society relation in water-related studies and efforts should continue to be put in this direction.

Close to the notion of the anthropocene – a term acknowledging the human impact on nature and popularized by Crutzen (2006) – the hydrosocial cycle wants to put individual and their actions back in the cycle of water, as the following extract suggests:

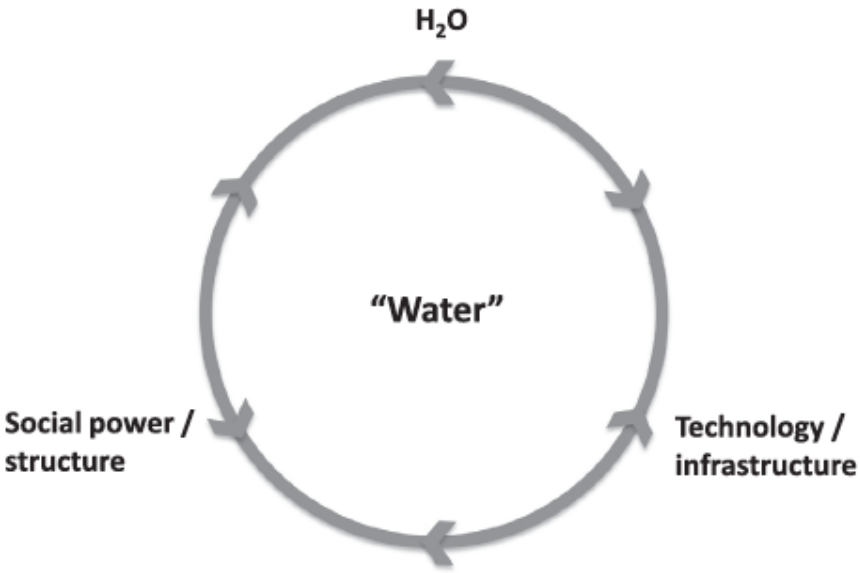
> The hydrosocial cycle represents the process by which alteration or manipulation of water flows and quality affect social relations and structure, which in turn affect further alteration or manipulation of water. As a cycle, there is no necessary beginning or end to this process: alteration of the hydrosocial cycle is always preceded by, or presupposes, a social structure and the application of social power to technological interventions, such as building a dam, introducing piped water supply […] or to policy reforms such as introducing water privatization, shifting the unit of governance to the watershed, or framing water as a human right (Linton and Budds, 2014: 175).

Because a cycle does not possess a beginning or end, constant influences and transformations occur on it. Altering this cycle can therefore stabilize a society – by producing more energy, thus reducing electricity shortcuts for instance – or disrupt it and create "externalities"[21] by reducing the amount of sediment transported by water, an important element for irrigation (Linton and Budds, 2014: 176). In other words, altering water's flow can have positive and/or negative effects on/within society. Fig.2 echoes the above-mentioned extract and shows how a

[21] The Los Angeles aqueduct constructed in the Owens Valley redirected the river and altered its flow, causing the river and the lake to dry up. The dry lake became a source of fugitive dust (Cahill et al., 1996: 622). A costly solution has been to extract groundwater to irrigate the soil and reduce those pollutions (Baichwal and Burtynsky, 2013).

new technology may affect water's materiality (H_2O) by improving its quality for example, thus effecting social relations (social power/structure) and creating different relation to water, namely different waters ("Water"). This "Water" in the center of figure 2 can thus be understood as the result of the three "variables" surrounding the circle. As indicated by the arrows, there is neither beginning nor end nor specific direction.

Fig. 2 The hydrosocial cycle



Source: Linton and Budds (2014: 176)

Linton and Budds clearly acknowledge the impact of new infrastructures (a damn, a new irrigation network…) on this cycle of water or the impact of new policies or unit of governance (from a mere administrative level of governance to a basin governance for instance). In fact, their interest lies in the relation between water and society, the social relations being structured by water, but also structuring it. Influenced by David Harvey's take on dialectics[22], Linton perceives water and society as *internally* related. Thus, the hydrosocial cycle implies a relational dialectics[23], i.e. the internally related water and social power components, described as hybrids by Erik Swyngedouw (Swyngedouw, 2004b, 2009, Linton and Budds, 2014, Linton, 2010).

[22] Linton's approach of the hydrosocial cycle is influenced by Marxist approaches such as David Harvey's "critique of the *spatial* dimensions of capitalism" (Linton, 2010: 26). A good overview of Harvey's work may also be found in Castree and Gregory's *David Harvey: a critical reader* (2006).

[23] Harvey also discusses dialectics and the nature of space and offers one understanding of it –relational space – which has similarities with Norman Long's approach to space that has been taken for this research (Harvey, 1993, Long, 2001).

In other words, the hydrosocial cycle is "a socio-natural process by which water and society make and remake each other over space and time" (Linton and Budds, 2014: 175). Just as the river shapes the physical landscape and this same landscape shapes the flow of the river through centuries, so do society and water affect each other over time. Adding people in the water cycle is to recognize therefore the dialectic nature of water, which Linton admits that it "complicates but does not fundamentally change the nature of the process" of influencing one another (Linton, 2010: 28).

7.2.2. Multiplicity of waters

"The issue here is whether water […] should be handled as a static commodity sourced in one country (like oil), or should be treated as a natural gift" (Féaux de la Croix, 2010: 6)

From the previous section, it is assumed that within the framework of the hydrosocial cycle, nature (water) can be understood as being socially constructed, i.e. "[c]laims about the social construction of nature might be understood as claims about the social construction of our knowledge and concepts of nature" (Demeritt, 2001: 32). Indeed, at the heart of the hydrosocial approach is the interrogation on the production of nature-related concepts that one would hold as universal (Linton, 2010: 127, Bouleau, 2014: 2 f.). One's understanding of water is shaped by the knowledge surrounding it and surrounding society[24]. A form of relativism characterizes this approach, not a radical relativism that would lead one to the point of denying scientific knowledge, but one that recognizes this very knowledge as being a human product dependent on the environment they live in (Linton, 2010: 127, Demeritt, 2001: 26 ff.). A relational-dialectical analysis allows one to understand water not as separate and external[25], but indeed as produced and valued by humans (Linton, 2010: 27, Castree, 2001: 205).

Water can have different meanings depending on whether it is held behind a dam, drank from a fountain or in a bottle, offering recreational activities or whether it irrigates arable land. In his article *Resources are not; they become*, De Gregori (1987: 1247) suggests "resources are not fixed and finite because they are not natural. They are a product of human ingenuity resulting from the creation of technology and science." By the same token, Scott argues "utilitarian

[24] In that sense, it is part of the structure one lives in. The question of structure and its significance for the research is later exposed while introducing Norman Long's actor-oriented approach.

[25] Demeritt offers three distinctive while also intertwined meanings of nature and how its construction can be understood. In a dualist nature-society framework (the third meaning of nature listed by Demeritt), representations of modern people "is [often] based on dominating an external natural environment" (2002: 778).

discourse replaces the term "nature" with the term "natural resources", focusing on those aspects of nature that can be appropriated for human use" (Scott, 1998: 13). Thus, De Gregori recognizes the relationship between nature, or rather resources, and human beings as essential. In other words, to describe something as a resource is essentially to define it through its relationship to human beings (De Gregori, 1987: 1242).

According to Linton (2010: 150) the water floating in a reservoir and going through turbines was perceived and defined by W.J McGee[26] as a state resource in 1909, in his article *Water as a Resource* (1909). A scientific environment composed of advances and improvements in water sciences, and a conservation movement promoting rationale and efficient use of water led him to talk of a human conquest of nature.[27] Indeed, this particular context is defined by academics as the "hydraulic mission" that already started with the industrial modernity at the end of the 19th century (Allan, 2005) and was articulated in many region, including in the Soviet Union, whose leaders were eager to follow Stalin's plan for the transformation of nature, but also Lenin's will to achieve the electrification of the whole country (Molle et al., 2009: 333 ff.). The hydraulic mission refers therefore to a timeframe in which the industrialization and development of the country comes through investments in water management projects, controlling flows of water and putting water to the benefits of mankind. This understanding of and approach to water has prevailed because of the expansion of scientific institutions spreading a "scientific hydrological discourse" eventually translated into water projects driven by modern states (including the Soviet Union) and colonial powers (Linton, 2010: 148).

This illustrates the power of knowledge to spread ideas, i.e. how hydrology and scientific environment did shape a certain understanding of water and nature that prevails today. Indeed, this not only shows the power of ideas and knowledge, but that of the individual too, as agent capable of influencing and to a certain degree transforming and remodeling the environment as it suits him/her, i.e. "[h]umans are the active agent, having ideas that they use to transform the environment for human purposes. Resource, then, is a property of things - a property that is a result of human capability "(De Gregori, 1987: 1243).

Distinguishing from the water that has been dealt with through history, Linton defines the scarce resource that composes the "water crisis" as modern water, one shaped by a particular context. Modern water[28] is characterized by an abstraction of water into one unique chemical equation

[26] member of the National Conservation Commission of the United States

[27] Schmidt however argues that although McGee was a key scientific figure of the conservation movement, his writings on hydrology dismiss claims of a reductionist view and show that "water was neither passive nor socially inert" (Schmidt, 2014: 224), hence recognizing water's agency.

[28] Modern Water results from a conception of modernity where society is separated from nature and the lifeworld of people (Linton, 2010), what Latour calls the "Modern Constitution" (Latour, 1993)

– H2O – that overlooks the variety of different waters previously recognized by anthropologists, historians or geographers; "In essence, modern water is the presumption that any and all waters can be and should be considered apart from their social and ecological relations and reduced to an abstract quantity" (Linton, 2010: 14). This modern abstraction reflects the increasing importance of hydrologists on the subject of water, while dismissing other sciences and experts such as social scientists[29]. This, Linton argues, results from a shift from a world of unquantifiable differences to Galileo's modern science of nature (2010: 100), for whom "nothing is scientifically knowable except what is measurable" (Collingwood, 1945: 103). Indeed, in the late 19th century, according to Derek Gregory:

> A new discourse of hydrology and hydraulic engineering emerged which translated 'nature' into mathematical formulae. In these there would be no place for 'local' knowledge, and the hydraulics of irrigation channels and the mechanics of dam construction could be made the same the world over (Gregory, 2001: 97)

One kind of knowledge, Linton argues, prevailed over others (at least in the West), and consequently created "modern water" (Linton, 2010). A reference to Foucault's knowledge-power nexus and the power of discourse seems here appropriate (Foucault, 1992, 2014). As water became the subject of expert and as mentioned earlier, the increasing importance taken by hydrologists and a powerful discourse allow Linton to talk also of an "*hegemonic* construction of water" (2010:9), reflecting then a gramscian perspective on power. But could the discourse on hydro-energy in Kyrgyzstan be understood as such? The question of power within social interactions is therefore of central concern when dealing with the hydrosocial cycle. It is also important here to define what is understood by discourse. *The Dictionary of Human Geography* (2009: 166) defines discourse as a tool composed of representations and practices that generates meanings and identities and establishes social relations. Although controversial within the social sciences – critics often accusing its proponents of extreme relativism by claiming "there is no reality" – authors of the dictionary propose four dimensions characterizing its use within the discipline of human geography. Thus, discourses are heterogeneous in that they are not the product of one single entity and alternative discourses can still appear. In order to be coherent, they must be regulated by "regimes of truth' that include or exclude. Discourses are also embedded within institutions and practices. Finally, discourses are situated within a specific geographical and historical context, i.e. "their formations and economies are the product of historical practices and geographical location. As

[29] James C. Scott comes close to this argument while exposing the development of scientific forestry and the power of forest science and geometry. Supported by the State, they were able to transform a diverse and chaotic forest into a uniform and orderly one (Scott, 1998: 15).

such, they provide SITUATED KNOWLEDGES, characterized by particular constellations of power and knowledge always open to contestation and negotiation" (ibid.: 166).

7.3 Long's actor-oriented approach to development intervention

To study social changes and social interactions within development framework and water management, sociologist Norman Long proposes to focus on the actors themselves and tries to comprehend how they overcome certain transformation in their everyday lives. The implementation of development policies or development interventions are rarely a straight line. According to Long, interactions between actors occur at every stage. In fact, "there are processes of negotiation, renegotiation, and multiple perspectives that occur at any implementation stage that can significantly and in unpredictable ways change the expected outcomes" (Ervin, 2016: 104). Hence, Long positions himself as a critic of orthodox intervention models that tend to be too linear and mechanical (Ibid. 104).

To understand and successfully analyze the interrelations and how differences in social interests, interpretations, power and knowledge are transformed or reproduced, Long proposes to use his concept of social arena as a spatial dimension in order to approach development intervention and its practices.
The section presents therefore the concept proposed by Norman Long and what it implies. After introducing the actor-oriented approach and its cornerstones, the characteristics of this approach to a development intervention such as the Kambar-Ata 1 project will be revealed. His understanding of agency and structure will also be further developed as those are crucial elements to understand interactions occurring within the framework of such intervention. The central notion of social arena to approach development intervention will lately be presented.

Within the post-war literature, Long (2001) identifies a divide between two approaches. The first one, interested in macro-studies, deals with large structures and would adopt a structural or institutional perspective. Within it, two positions ideologically opposed have played a central role in the sociology of development: i) modernization theory and ii) Political Economy. While obvious differences can be spotted, Long argues that they both seem to explain development or underdevelopment through the expansion/development of capitalist society, on a global scale. External forces would thus be the primary cause of development and social change. Composed of determinism and linear view on social change, they fail to convincingly explain, still according to Long, where or how social differences emerge, as their explanation eventually

undermine the heterogeneity of local life and leads to more centralization. The second approach rather focuses on micro-studies and deals with "the nature of change at the level of operating or acting units […] explore the livelihood strategies and cultural dispositions of the social actors involved" (Long, 2001: 10). An actor-oriented approach is situated within the latter and wishes to go beyond an explanation of social or structural changes through external forces or intervention affecting the lifeworlds of social actors, as they themselves are affected by these actors and existing structures. It recognizes therefore that internal and external factors mutually affect each other (Long, 2001: 13 f.). Similar to the hydrosocial cycle approach, which includes or reintroduces a social dimension, Long feels the need to focus on "human action and consciousness" in order to understand social change (Long, 2001: 13) An actor-oriented approach begins "with an interest in explaining differential responses to similar structural circumstances, even if the conditions appear relatively homogeneous" (Long, 2001: 13). Adopting an actor-oriented approach requires then to identify different patterns of actions (which could later reveal agencies) and the context and conditions under which they appear[30].

An actor-oriented approach is interested in social life and the changes occurring within it, i.e. social change. Because "[s]ocial life is heterogeneous, [it] comprises a wide diversity of social forms and cultural repertoires, even under seemingly homogeneous circumstances" (Long, 2001: 49). The necessary question therefore is to understand how the differences mentioned above are (re)produced within a social environment, in our case around the project of the Kambar-Ata 1 dam. To identify those differences and the social processes occurring within this social life, one needs a theory of agency allowing actors to influence and/or affect their everyday environment, actors who are able, or rather who are recognized as having the ability to change the structures they live in and knowing about their situation and their environment. That is what Norman Long's actor-oriented approach attempts to do. Social actions occur within a certain structure or "networks of relations" (2001: 49), comprised of experiences, customs, culture, rules, power relations that are often reproduced through times. Those actions and behaviors are therefore bounded by "social and institutional constraints" (ibid.) and can be viewed as "context-specific and contextually generated" (Ibid.: 50). History and past experiences thus should not be swiped away as they remain part of that specific context, i.e development intervention should not be isolated into a specific time-space setting because

[30] This relates to the notion of structure, for which Long's model is not primarily focused upon. Recognizing nonetheless its importance, Long rejects the idea of structure as simple *explanans* (that what explains a phenomenon), and rather proposes to deconstruct it, which entails focusing on agency and social heterogeneity (Long, 2001: 61 f.).

"interventions are linked to previous interventions [and] have consequences for future ones" (ibid.: 32). In that view, it is "an ongoing, socially constructed and negotiated process" (ibid.: 31) in which values, social practices, meanings…, i.e. constraints, are constantly reinterpreted. This understanding of development intervention as being part of "the continuous flow of social life and ongoing relations [evolving] between various social actors" (Ibid.: 32) reveals similarities with Anthony Giddens' understanding of actor's action or agency, referred as "*a continuous flow of conduct"* (Giddens, 1979: 55) and the importance he places in the "time-space contextuality of social life" (Dyck and Kearns, 2006: 87). Indeed, as previously noted, Giddens' influence can be spotted in Norman Long's approach and what Giddens calls "time-space relations" should later be discussed.

Offering a critical perspective to orthodox intervention models, Long's actor-oriented approach does also face criticism. For some, according to Verschoor et al. (2001), Long and his followers "added complexity to development processes […] probably [creating] the image that reality was very complex, and thus not easily managed by scientific 'experts' and 'do-ers'" (Ibid. 11). Although one may admit and criticize that Long's actor's perspective does indeed generate a more complex perspective on reality, it is nonetheless important to acquire this more inclusive or holistic perspective on development interventions and acknowledge this very complexity. It is in fact the very same goal that Linton (2010) or Barnes (2014) try to reach: adding the missing complexity of the reality to the theories or model one uses to approach water issues.
Verschoor et al. (2001) also argue that Long's understanding of agency represents "a rather optimistic flavor as far as the room for manoeuvre of social actors is concerned" (Ibid. 12). It is true that every social actor does not necessarily enjoy equal "room for manoeuvre" when faced with challenges, and attributing to social actors the capability and knowledgeability to cope with a particular situation "even under the most extreme forms of coercion" (Long, 2001: 16) may seem to hide the fact that many people possess indeed only limited ways to improve their living situation and the room for manoeuvre. Between the old farmer living in the small village of Kara-Suu near Toktogul and the government agent established in Bishkek, social interaction are not always easy and local populations, more importantly, are not always integrated into the decision-making process, thus making them more vulnerable. Indeed, despite its democratic character, Kyrgyzstan is not especially a country in which all individuals have the capacity to act and weight on government's decisions[31]. Long notes however, that "one

[31] The country has been described as a neopatrimonial state by Sehring (2009b), arguing that while indeed experiencing phases of liberalization and democratization after independence, it became more and more authoritarian, referring to Akayev's and Bakiyev's presidency. The Freedom House (2017) gives Kyrgyzstan the

should also address the question of how far notions of agency […] can be imposed on local groups" (ibid.: 19), which should prevent against the impulse to define every person or group as agent.

7.3.1. Deconstructing development intervention

If transformation in the water resources management is part of a broader societal and political process that implies social relations, interactions and negotiation between stakeholders, then an actor-oriented approach could allow the researcher to better understand actor's behavior, discover the lifeworlds of the actors involved, their strategies to cope with a particular situation and the power dynamics surrounding it.

At the core of the research, the construction of the proposed Kambar-Ata 1 dam relates to what Long calls "development intervention" (2001), which he suggests deconstructing in order to perceive the proper nature of the concept of intervention, i.e. "an ongoing, socially-constructed, negotiated, experiential and meaning-creating process" which may entail unexpected responses from actors and does not automatically designate a top-down process (ibid.: 25). Focusing on intervention practices – which are shaped by actor's interaction – should help one to see the social interactions, practices, discourse, culture and emotions surrounding and also internalized in the project of the Kambar-Ata 1 dam (ibid.: 26).

If one assumes that a multiplicity of social actors leads to "multiple realities", then potential conflicting interests (social and normative) may appear. One must therefore thoroughly examine "whose interpretations or models […] prevail over those of others and in what circumstances" because it implies various configurations of knowledge (ibid.: 19). Yet common interests may also appear and lead to cooperation, i.e.

> knowledge processes are embedded in social processes that imply aspects of power, authority and legitimation, and thus they are just as likely to reflect and contribute to the conflict between social groups as they are to lead to the establishment of common perceptions, interests and intentionalities (ibid.: 19).

In other words, social interactions constitute processes of power and knowledge that do not inevitably entails permanent conflict. One should not necessarily assume the presence of social struggle, but also the possible emergence of cooperation and acceptance of other's knowledge and "delegation" of power (ibid.: 20). In this regard, the concept of agency, which gives to the individual knowledgeability and capability to formulate decisions and strategies to cope with

status of 'partly free' with political rights and civil liberties scoring 5/7, 7 being the least free. Herd and Ryabkov (2015: 321) describe Kyrgyzstan as "a typical post-soviet oligarchic ethnocentric state" instead of the island of democracy for which it was sometimes referred (Anderson, 1999).

the situation is of central relevance. Agencies is therefore meant to shape one's own actions or social behavior as well as others (ibid.), and a link with the concept of "institutional bricolage" (Sehring, 2009a, Cleaver, 2002) can possibly give answers on actors' strategies and behaviors. How actors behave and whether they act as agent or not is important for the research question. Indeed, by tackling the question of agency within the framework of an actor-oriented approach, one does acknowledge the ability of actors to influence and assess his/her own environment.

7.3.2. Time-space definition in orthodox intervention models.

The temporal and spatial dimensions, or what Long calls "time-space conceptions", are important notions to understand his approach to development intervention. He mainly criticizes "the time-space definitions […] implied in orthodox intervention models […] to expose the limitations of certain theoretical conceptions that underpin them" (Long, 2001: 30). He perceives in these theoretical conceptions several issues as they offer a rather fixed or static image of the development intervention both in time and space and "involving the interaction between 'intervening' parties and 'target' or 'recipient' groups" (Long, 2001: 32). This leads to the reproduction of a form of dualistic discourse where the intervening parties are usually state institutions or development agencies and the target or recipients are the local communities. In the case of the Kambar-Ata 1 project however, such distinctions are hard to maintain, because it is both temporally and spatially difficult to outline social actors and their agency.

The dam was planned in the 1980s by the soviet administration, perhaps eager at the time to provide its people with electricity and stay true to Lenin's words "Communism is Soviet power plus the electrification of the whole country" which can be seen at the site of the Toktogul dam (Féaux de la Croix, 2011: 495) Since the fall of the USSR, the construction of the Kambar-Ata 1 has been proposed by the succeeding government of Kyrgyzstan as the path towards energy security[32] and maybe turn the country into an export-oriented economy with the help of other projects such as CASA 1000. However, one should not simply focus on the actions and plans of today's government for two reasons at least. First of all, as Allouche argues, the interdependence in which the Central Asian States currently find themselves makes it difficult for each of them to actually drive a national water policy on their own. Cooperation is required. This is due, as Allouche adds, to an explicit will of the soviet regime to create a form of hydraulic interdependence (Allouche, 2004: 290). Perspectives of the riparian states, and more

[32] Energy security refers here to the ability of the State to secure its energy supplies, in this case by producing its own energy. Hence, as many policymakers, it is used here as synonym of energy independence (Ocheltree, 2010: 8)

specifically Uzbekistan, shall be considered. Second of all, as Sehring notes, actor's behavior is characterized by "institutionalised Soviet and Pre-Soviet patterns" which later shape, accompany or undermine formal state rules. She sees it as a form of path dependency and borrows Frances Cleaver's concept of "institutional bricolage" to define it (Cleaver, 2002, Sehring, 2009a: 61). Therefore, temporality is important and this could correspond to what Giddens – whose structuration theory has a big influence on Norman Long's approach – identifies as recursive behavior or "instances of social reproduction" (Gross, 1982: 83). The construction of the Kambar-Ata 1 dam could thus be perceived as part of an ongoing process aimed at the development of the region through energy production that started with the first dams in the Toktogul valley and/or on the Naryn river.

Analogically for the spatial dimension, it would make no sense to define the local population living in the Toktogul region as being the sole recipient or beneficiary of the construction of the dam. Indeed, the impact and effects of such a construction cannot be limited to a region of the country, but are rather felt nationwide. Every Kyrgyz citizens, as far as electrical access is provided and guaranteed, would theoretically benefit[33] (again, in terms of electricity) from a dam such as the Kambar-Ata 1, as it would allow to produce hydroelectricity in winter. One could even spread the spatial dimension further and argue that other countries in the Central Asian region, notably Uzbekistan, would be affected by this construction.

In opposition to orthodox intervention models of which some of the characteristics have been mentioned here above, Long proposes to see development intervention as "a 'multiple reality' made up of differing cultural perceptions and social interests, and constituted by the ongoing social and political struggles that take place between the various social actors involved" (Long, 2001: 30). In other words, "multiple reality" resulting from interaction between social actors create potential differing cultural perceptions and social interests that ultimately emerge in the social arena.

7.3.3. Agency and structure

Agency is a notion that has been greatly debated within social sciences. The usually agreed upon definition of the term describes the capacity of an individual "to process social experience and to devise ways of coping with life […]. Within the limits of information […] social actors possess 'knowledgeability' and 'capability'" (Long, 2001: 16). In other words, agency is the

[33] One should be careful here with how beneficial it would be. Even if the production of electricity would increase, it is not clear that access to electricity, financially speaking, would improve. In other words, how much would a household pay for electricity once the dam is built?

capacity of an individual to act freely – within a certain structure and with the help of available information – and cope with a given situation. Hence, individuals should not be "depicted as simply disembodied social categories […] or passive recipients of [development] intervention, but as active participants who process information" (Long, 2001: 13). Again, agents do have the ability to freely decide about their own actions within the scope of their knowledge and the information available. To freely decide also implies that although agents' actions are embedded within a structure, behavioral choice is not completely predetermined by dispositions and the environment, but responds to "feelings, emotions, perceptions, identities and the continuity of agents across space and time" too (Long, 2001: 18).

This definition does not limit itself to individuals but also concerns other entities considered as social actors, with the ability to reach decision. In the case of a development intervention such as the proposed project of the Kambar-Ata 1 dam, this would mean that people, but also other entities such as government's institutions, NGOs or International Organizations, try to solve potential problems resulting from the construction of the dam, deal with its consequences and attempt therefore to improve the situation. One must be prudent when determining agency however as previously argued. As Long warns against the abusive use of actor/agent, it should not refer to social categories that do not have a discernible pattern of decision-making, i.e. whether it really represents the expression of a population:

> To suggest, for example, that 'society' in the global sense of the term, or classes and other social categories based on ethnicity or gender, make decisions and attempt to implement them is to attribute mistakenly to them the quality of agency (Long, 2001: 16).

Asserting that action taken by individuals or agents should not solely be explained by their social identities for example – because it often implies pre-conceived ideas of their social roles – he argues that such behaviors vary according to the changing social arrangements. He therefore seems to admit the potential effect of a form of structure or environment composed by a network of social actors.

At this point, it is necessary to introduce the notion of structure, which is never far from agency, even if the actor-oriented approach focuses rather on the analysis of lifeworlds, struggles and interactions between parties. Structure and agent are often discussed together and their relations or influence upon one another is a subject of debates. One of the main issue lies in the primacy of either agency or structure in influencing one's behavior. Following Long's actor-oriented approach to development intervention, one recognizes the influence of Anthony Giddens and

his structuration theory on this matter[34] and his (Giddens) wish to go beyond the structure-agency dualism. For Dyck and Kearns (2006: 87) "[s]tructuration theory […] essentially views society as neither existing independently of human activity nor being a product of it". Long maintains that "agency (and power) depend crucially upon the emergence of a network of actors who become […] enrolled in the 'project' of some other person or persons" (2001: 17). Although the term "structure" does not necessarily appear here, the mention of a "network of actors" tends to refer to some form of structure within which actors live. Willing to distance himself from the idea that structure would just be reduced to an *explanans*, Long, in fact, understands structure as the result of interlocking actors' 'projects' within an arena, i.e. "it is through the way in which they interlock that they create, reproduce and transform particular 'structures'" (2001: 62 f.). Yet, if Long does not put as much emphasis on structure as Giddens does, he nonetheless detects issues in which his approach could improve an actor-oriented analysis, thus recognizing the importance of structure:

> [A]ctor-oriented analysis has to learn how to handle better the issues of 'structure' and 'structural constraints', while continuing to accord sufficient room to the central role played by diverse forms of human action and social consciousness in the making of development (Long, 2001: 28)

As agents or social actors interact with each other, confront themselves or cooperate within a structure (which does not necessarily determine behavioral choices), power is wielded and exercised by and upon these very actors. And so are various types of knowledge. Agents with a particular project and a particular knowledge will try to win over and convince other undecided or perhaps reluctant agents to comply with their plan (Long, 2001: 19 f.). This process of winning over implies the use of discursive practices deployed by critical actors in order to 'spread the word'. Recognizing the central role of power in his approach, Linton claims that ideas also have power and that "[they] can play an important role in the production of water" (Linton, 2010: 26). In our case, Linton believes that this process results in a hegemonic construction of water, referring to the concept of cultural hegemony articulated by Gramsci.

For Gramsci, power is more easily exercised when people recognize or identify the interests of the state or of a ruling elite as their own. In this case, power is exercised through organization of consent or what Gramsci identifies as hegemony or 'predominance by consent'. In the civil society, people share a common world-view or 'organic ideology' with a dominant class or a fundamental class, which could later become the hegemonic class. According to Gramsci, this hegemonic class takes into account, supposedly, the interests of the subordinate groups (Ekers

[34] Although Giddens' structuration theory has been vastly criticized, it remains an important subject of debate in the sociological theory (see Stones, 2005).

and Loftus, 2013, Ramos, 1982). Translated into the case of this paper, the modern vision of water and ideas of water conservation were articulated by state and scientific institutions. Swyngedouw (2007) for instance also underlines the key role played by engineers in the creation for large-scale water control projects in Spain and could be linked to Wittfogel's argumentation on despotic states who supposedly found in the control of water a way to control their population (1957).

This research elaborates on the connections emerging between Long's view on "the mutual determination of 'internal' and 'external' factors" (2001: 13) and a similar mechanism proposed by Linton on the Water-Society relation. For Linton, water is internally related to the social and considers it a hybrid as mentioned before. He opposes the idea of nature and society as being two separate things. A relational-dialectical analysis, Linton (2010: 28) maintains, "effectively dissolves such dualism by considering how each term of the binary is dependent on – and is internally related to – the other".

With regards to the agency of water or agency of things discussed by Strang (2014) for instance, this paper understands Linton's attribution of agency, not to the chemical components H_2O, but to the idea of water, to what one makes of water, to its social construction. The relation further generated through this construction or idea of water has power, according to Linton (2010: 26).

7.3.4. The notion of social arena

Related to the spatiality of this research, the notion of social arena is of particular interest, as it represents a social location where "contests over issues, resources, values, and representations take place" (Long, 2001: 59). Hence it enables the researcher to identify the actors present in this arena, confronting and/or cooperating, interacting, using discourses and knowledges (Long, 2001: 59). The location of this water project is then perceived as a social space where actors interact, may give different meanings and values to water, spread different forms of knowledge, express different discourses, hold different views and different understandings of nature and of how Kyrgyzstan should develop.

The concept of social arena is not completely geographically bounded and answers the critique on the time-space equation implied in the orthodox intervention models. While it is taken as a definite location in space, it is composed of involved actors/stakeholders who are themselves not geographically restricted. The situation of the Kambar-Ata 1 in the Naryn basin might very well involve national actors located in the capital Bishkek, where the government sits and final decisions are usually taken. It might also involve international agencies and organizations that are maybe financing or driving water projects in the region. Common international actors are

the World Bank, The Asian Development Bank or even the Organization for Security and Co-operation in Europe (OSCE), eager to witness an enduring transboundary cooperation in the extended region of Central Asia. It would also, according to the different news reported, involve a foreign private company willing to finance and, depending on the contract, operate and maintain the infrastructure. Long (2001: 59) explains it quite clearly:

> [E]xternal and geographically distant actors, contexts and institutional frames shape the social processes, strategies and actions that take place in these localised settings. Furthermore, local situations, struggles or networks are, as it were, often stretched out or projected spatially as well as temporally to connect up with other distant social worlds.

A social arena can therefore be composed of geographically distant actors, potentially along external institutions, which shape events taking place in a location. Furthermore, this very location might also be linked to prior events, thus relating to the temporality aspect mentioned earlier. Although path dependency might refer to a more deterministic causal mechanism (Mahoney, 2000), the notion of institutional bricolage, as proposed by Sehring (2009a) could be linked to the social arena.

Therefore, this paper understands the notion of social arena as the defined geographical space – i.e. the location of the Kambar-Ata 1 – composed of stakeholders or actors involved who may be geographically distant. This social arena is furthermore situated within the Toktogul waterscape, "the culturally meaningful, sensorially active places in which humans interact with water and with each other" (Orlove and Caton, 2010: 408) that, along with the actors' interests and perspectives, form a 'structure'. Following the precepts of social constructivism, approaching a place as a social construct enables the researcher to see the social relations occurring in this space, relations that create or at least affect the place.

8 RESEARCH QUESTION

The notion of hydrosocial cycle rests on the idea that water and society influence each other through time, and is defined by Linton and Budds as a socio-natural process (2014: 175). At its core is the concern of how water management influences social organization and vice versa. Opposed to the nature/society dualism, the hydrosocial cycle claims that different social relations produce different waters. Beside the important role played by the materiality of the resource, recognizing the social dimension of water is therefore a critical step in the hydrosocial cycle (ibid.).

Coming from the political ecology with authors such as Swyngedouw (2004a) and Budds (2009), the term of hydrosocial cycle hopes to bring into light the social relations and power

dynamics surrounding water. As stated above, the construction of water infrastructure qualifies therefore as a potential transformation of the hydrosocial cycle. Thus, the broader interest of this research is to understand the way water projects on the Naryn river may transform the life of citizens of the Toktogul *raion* and their relations to water. Having a focus on the hydrosocial relations then, the research question is the following: **How is the waterscape of the Toktogul *raion* in Kyrgyzstan produced by, and simultaneously influences the Kambar-Ata 1 project started in the 1980s and never finished?**

By approaching the location of the Kambar-Ata 1 dam as a social arena within which different social actors may hold different perceptions and relate differently to water, the research question aims at presenting how social actors interact with each other and with water, and discover power dynamics surrounding this water infrastructure project.
This question mainly entail a description of the "watery relationships" (Krause and Strang, 2016: 633) within the social arena of the Toktogul region, as it aims to map out the different livelihood strategies and relations to water hold by different actors in a same location at a specific time.
The broader international context entailing neoliberalism approaches and water privatization should be kept in mind, as such development intervention can also tend to (re)distribute property relations to water, i.e. "water management has become permeated with market-based mechanisms leading to enclosure and privatisation, alongside discourses around neoliberalism's allegedly technocratic, rationalist and apolitical nature" (Palomino-Schalscha et al., 2016: 884). To successfully implement the project, privatization of hydropower plants was indeed approved by the Kyrgyz parliament in 2007 to start dealing with Inter RAO EES and KasKuat, respectively Russian and Kazakh energy providers (Giese and Sehring, 2007: 488, Bar, 2015: 255), thus altering its water management policy with regards to water infrastructure. Furthermore, the CASA-1000 project is also present in discourse on water. In other words, global phenomena also affect Central Asian and Kyrgyzstan water politics, institutions but also people's relation to the water resource.

In order to answer the main research question and respect the theoretical framework previously exposed, the following aspects should be considered through the course of the research. However, it does not obviously correspond to an exhaustive list of aspects and it is possible that other dimensions appear.

Because those aspects were selected by the researcher, they do not necessarily entail every issues and notions that might be mentioned by the social actors during the field research. As such, these aspects may be argued to go in line with a constructivist' worldview in the sense of Creswell (2009: 6 ff.). Due mainly to the methods used (bottom-up and actor's perspective), one should however not strictly stick to the above-cited aspects alone, as others may appear to be more relevant in the eyes of the actors, thus dwarfing the one listed here, i.e. "the goal of the research is to rely as much as possible on the participants' views of the situation being studied" (ibid.: 8).

Actors involved

As the multiplicity of water evolves with its use (Sehring, 2009b: 17), various interested actors such as citizens, companies, government's institutions, NGOs, IOs… compete over it. In order to go beyond the simple exposé of the motivations and interests of individuals (Long, 2001: 15), one should identify the actors involved, their interest(s), as well as their agency in order to lay out the power dynamics and the possible social inequalities (re)produced or reduced by those. Consequently, competing meanings of water in the waterscape and in the social arena of the Kambar-Ata 1 project should also be revealed in order to answer the main research question, and could discover possible conflicting lifeworlds.

Power dynamics

The apparent absence of public disapproval should not be a reason to dismiss such a case, as power dynamics and rivalry over water may still occur. Whether a form of resistance to the project or cooperation occurs and the reason to it should be answered. Indeed, through the notion of everyday politics Tria Kerkvliet offers another perspective on political actions that could be missed "if one looks only for politics in conventional places and forms" (2009: 227). McMann (2007) and Wooden et al. (2016) argue that the well-perceived experiences of Soviet hydropower seem to give base for approval of the several water projects already implemented, as well as the apparent absence of social upheaval regarding this specific project. Transboundary issues also entail power dynamics, on a regional level, notably defined by the 1992 Almaty Agreement or the 1995 Agreement on the use of water and energy resources of the Syr-Darya Basin. The perspective of the different social actors present in the social arena is considered and issues related to the construction of the dam should be revealed by them rather than imposed by the researcher. Hence, whether opposition to the planned project exist or not, or whether transboundary relations affect actors' understanding and approach to the water of the Naryn river may reveal itself irrelevant for some actors.

Decision making process

Whether actors are represented or not during the decision-making process reveals which interests are on the table and what is negotiated. It could also reveal agencies. Looking at the decision-making process finally exposes if and how participation occurs.

Considering the hydrosocial cycle requires therefore in-depth analysis of the relations that actors involved around this "development project" have with the water and with other actors. An interesting approach that fits well into the framework of the hydrosocial cycle, as previously exposed, is the actor-oriented approach proposed by Norman Long and mentioned earlier. Adopting such an approach allows the researcher to look at the lifeworlds of the social actors and agents, their social practices and social organizations (Long, 2001), which in turn can reveal the human-nature relation, i.e. the hydrosocial relations. It also lets one perceive the proposed dam as a social space.

Development discourse regarding water resource management of the country

Discourses held by government's agents and international institutions advocate, and represent at the same time particular approach(es) to resource management. They articulate their perceptions of the resource and the role attributed to it for the development strategy of the country. In other words, it is important to understand the role of water in this development strategy and exposed how the project of the Kambar-Ata 1 integrates the framework of the renewable Energy strategy. As development intervention should be thought within the geographical and historical circumstances it is surrounded by, one may as well ask how discourses around water infrastructures evolved in Kyrgyzstan and consequently, what is the current discourse around water in the waterscape of the Toktogul valley and what position international organization adopt in light of such discourses?

9 METHODOLOGY AND METHODS

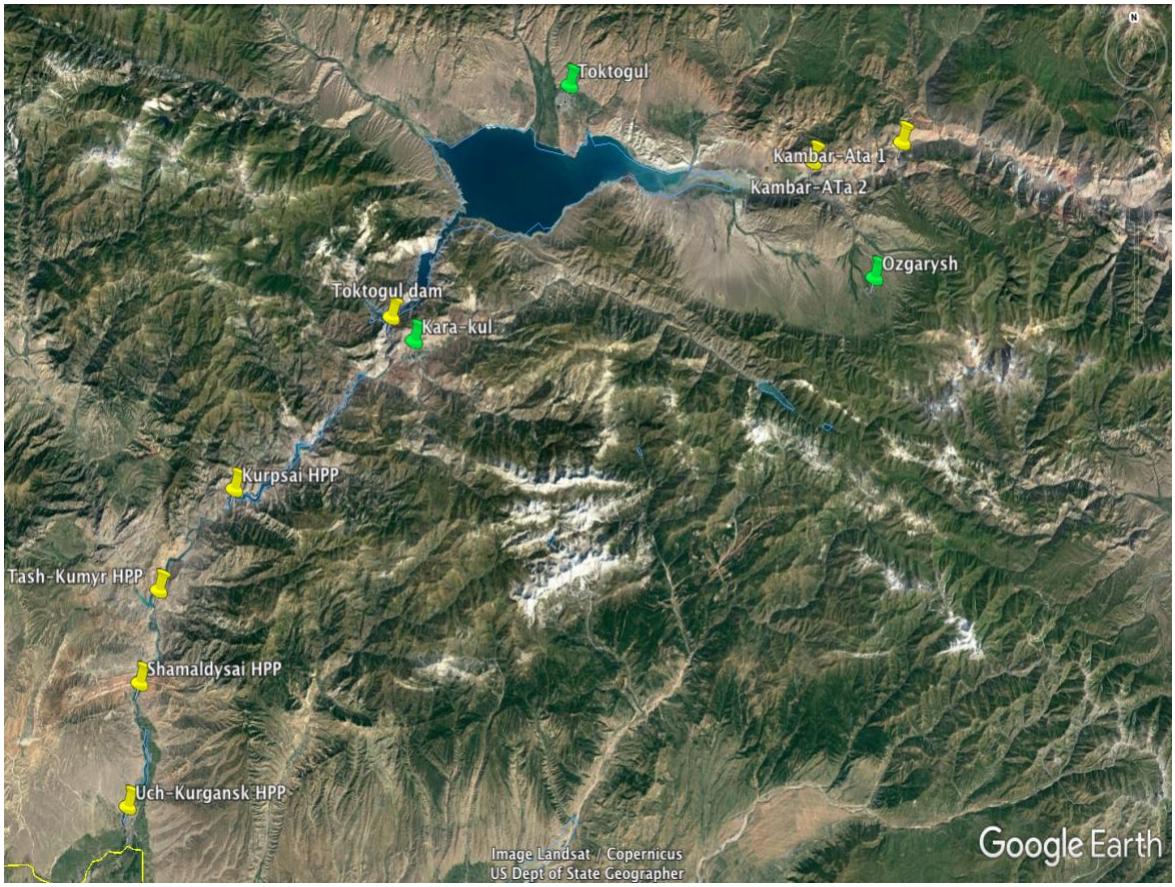
To answer the research question, several methods of data collection were used. Qualitative data were gathered from a field research in the region of Toktogul as well as in Bishkek during the month of July and compose the primary method of data collection. These qualitative data were acquired from a series of interview in English, with the help of a translator as well as one interview in French[35]. These were conducted with social actors surrounding the location of the Kambar-Ata 1 dam, whether in the area of the Toktogul valley or in Bishkek. Contact with

[35] See Annex 2 for an overview of the data collected on the field.

acquaintances living in the region and/or related to the hydropower sector and water management issues had been previously established, which made my entry into the field a lot easier, if not entirely possible. My formidable encounter with Urmat, a young hydro-engineer from Kara-kul was crucial for this thesis. Introducing me to his entire family, many of his friends and co-workers, he ensured access to key sites and important people. Acquaintances of the like of Urmat played therefore the role of gatekeeper. Indeed, knowing them led me to spend time in Toktogul, Kara-kul and Ozgarysh (see Fig.2) and discuss with the local population, something that would have been difficult without their presence and help. According to Schensul and LeCompte (2013: 22 ff.), it is important to have made acquaintances with people from or people knowing the area before entering the field which later allows researchers to collect qualitative data during their stay. Following those advise, I contacted several people beforehand such as Urmat and the young translator trhough social medias. More formal contacts were also established with experts in the region and have been very precious to evaluate the feasibility of this Master thesis and also reshaped some aspects of the research.

Semi-structured interviews were mainly constructed in line with the theoretical framework and methodology of this thesis, but also amended throughout the field research and following discussions with experts and other social actors. Questions were built from related literature and key publications on the subject. The interviews differed according to the respondent. Due to different point of view, social positions, and many other possible variables, conversations tended to slightly differ. Discussing with a local actor living in Kara-kul brought different subjects than conversing with an employee of the Water Department living in Bishkek. Thus, each interview was adapted to the respondent based on the general information I could gather beforehand on the interviewee, his/her location and social environment. Seven interviews and eight informal discussions were conducted in Toktogul, Kara-kul, Ozgarysh, Kara-Suu and Bishkek (see Annex 1). The interviews and informal discussions lasted between 40 and 80 minutes and generally took place in a quiet environment e.g. in their home or office, which allowed open and free discussions. Only one interviewee appeared concerned about what would be said in the discussion and what would be done with the information gathered. After reassuring him of my intention and carefully explaining the goal of the research, the conversation started and lasted 70 minutes at which point he offered me to come to his *jailoo* on the next day. It must be noted that all interviews have been anonymized for the safety of the participants, which might have allowed them to speak more freely.

Fig. 3 map of the Naryn river with dams and places mentioned in this research



Source: Google earth (2017)

Central to the approach, but also to the methodology is the actor-oriented analysis and the notion of social arena. Different social forms and realities appear as actors attempt to deal with the situation they are faced with (Long, 2001: 20). Thus, it is useful to identify the actors/stakeholders living within the surrounded area of the Kambar-Ata 1 dam, and could potentially be affected by its construction. Adopting an actor-oriented approach and approaching the location of Kambar-Ata 1 as a social arena within the Toktogul's waterscape, affects the methodology too. As exposed in the theoretical framework distant actors should also be considered. Physically absent in this area, they still may have a stake in the development of the region. To this end, the following actors have been identified[36] and some of them successfully contacted and approached through different media. Although this could rightfully be perceived as a question or sub-question to be answered within the analysis of this Master thesis, it also has implications on the methodology of this paper and the way the field research was approached.

[36] Sehring (2009b: 107), Herrfahrdt et al. (2006: 53 ff.) and Mehmood Ul et al. (2004: 9) present the institutional structure of the Kyrgyz water governance which helped for the selection of actors above.

- Local actors:

  Identified as one of the main actor of the research, semi-structured interviews were conducted with local actors in order to understand their relations to water, social organizations and practices as well as their relations with government's agents. Those individuals are often non-elites and do not influence (water) politics as government's agent would. Interviews were conducted in English with the help of translators, with the exception of an interview in French with Bakyt, a young Toktogul resident of 27years old.

- International Organizations (IO):

  IO are identified as relevant actor due to their knowledge, experiences, and presence in the region. Within the respective literature and/or media reports on either Kyrgyzstan alone or Kyrgyzstan and water issues, a couple of institutions appear on a regular basis, which led me to select some of their main reports, rather than those of other IOs. As Jessica Barnes maintains, water "cannot be disconnected from those who fund water development projects and who help shape what this resource comes to be" (2014: 19). Orlove and Caton (2010: 411) also recognize the influence of water experts, which can be identified as spreading "global knowledge" and thus part of the current globalization phenomenon.

- Journalists/Media:

  Contact have been made with a media company aiming at improving citizen's access to information on natural resources management in Kyrgyzstan. After confessing that they were not up to date and fully aware of what happened on the issue of the Kambar-Ata 1, it was decided to abandon this track, due to time constraints and focus rather on interview and discussions with local populations. The Water Code adopted in 2005 states that the National Water Strategy should be communicated to the population through mass media (§ 18 al.4). Toralieva (2014: 214) affirms that environmental issues do not receive much coverage in the Kyrgyz media, often overshadowed by the more salient political problems. Threats and censorship seem also to belong to the media landscape as 27 attacks or threats to journalists were registered by Internews, a media organization funded by donors, between 2010 and 2013 (ibid.: 215). It remains therefore challenging to report on such issues in the country.

- NGOs:

  Kyrgyz NGOs offer other perspectives to the situation of people with regard to water. They can be more accessible than local citizen and also have another relationship with them than state agents. After successfully contacting two local NGOs, it turned out that they were not active in the Toktogul region. Attempts to contact UNISON, a NGO focused on environmental issues were unsuccessful.

- Water Department, Energy Department and government's institutions

  State authorities have been found to be rather uncooperative and difficult to reach, even after several attempts. Document analysis will provide information on how the Kyrgyz government perceive the issue of the Kambar-Ata 1 project. The Electricity sector in the Kyrgyz Republic is divided according to the three main tasks related to the sector: generation, transmission and distribution of energy. Logically, the focus will be on the energy generation, as this is the goal of water conservation and of the construction of the dam. The Open Joint Stock Company (OJSC) "Electric Stations" whose majority of shares are owned by the Kyrgyz Republic is the proprietor of large HPPs (Kurmanbek, 2016: 5).
- Water User Associations (WUAs):

  WUAs entered the structure of Kyrgyz water governance in 1995 when water users first formed such a body (Wegerich, 2001). Hence WUAs play a role in the local water management as they are in charge of the distribution of water to the end user. Although the Kambar-Ata 1 project does not have an irrigation purpose, agriculture could still be affected by this construction e.g. the reduced quality of water for irrigation due to quantity of sediment kept in reservoirs. Within the greater Kyrgyz water governance structure, WUAs are supposed to represent farmers and water users but seems to be questionable (Wegerich, 2001). They are the lowest level of water management and are supported by the Department of Water Management (Sehring, 2009b: 107).

As mentioned above these interviews were conducted in Bishkek and in the Toktogul region, as some stakeholders surrounding the project are also located outside the limits of the lower Naryn Basin. Indeed, as Long advances (2001: 13):

> The different patterns of social organisation that emerge result from the interactions, negotiations and social struggles that take place between several kinds of actor, not only those present in given face-to-face encounters but also those who are absent yet nevertheless influence the situation, affecting actions and outcomes.

The series of interviews were recorded, stored and later analyzed with the help of the qualitative analysis program ATLAS.TI and a deductive as well as inductive approach to analyze data was used. Adopting inductive and deductive procedures was found adequate to this research and responded to some of the issues encountered while using either only one or the other method of analysis. When adopting a qualitative analysis, Friese (2012) offers a good reading on the strategy to select and stay in line with the theoretical framework of the research while using

ATLAS.TI. Referring to Norman Long's actor-oriented approach, Alexander Ervin suggests that the "[t]heory here is empirical and built from the bottom-up" (2016: 102). In qualitative analysis terminology, this refers to open coding (or inductive method of analysis), which is used in Grounded Theory. While being possibly time consuming, this method of analysis allows, according to Kathy Charmaz (2006), a flexible approach to better understand the complexity of social phenomenon. Although Grounded Theory does not possess a closed research process, thus allowing "[r]esearchers […] to adopt and adapt [the research process] to conduct diverse studies" (ibid.: 9) , it is nonetheless difficult to follow a precise Grounded Theory. One of the difficulties comes with open-coding or open sampling, i.e. generating codes out of the collected data, which implies a complete openness of the researcher when entering the field (Schultz, 2014: 80). In fact, when talking about the importance of theoretical sensitivity[37] and how to attain it, Glaser believes that "[d]er erste Schritt, theoretische Sensibilität zu erlangen, besteht darin, das Forschungssetting mit so wenig vorgefassten Positionen und Vorstellungen wie möglich zu betreten" (2011: 148).[38] It may prove itself a difficult task not to be influenced by any theories or ideas, i.e. previous knowledge (*Vorwissen*) that could bias or influence the research approach. Indeed, every researcher, every individual has a certain background, studied within a certain school of thoughts which would eventually affect their research process or determine the choice of a research question. Acknowledging such possible bias, Glaser and Strauss admit that by open coding, personal experiences can play a role in the choice of units to be investigated at the beginning of the process (2010: 61, Schultz, 2014: 80). Nonetheless, to proceed (at least partly) with a bottom-up approach may reveal itself valuable as it seems to fit well with the theoretical framework of this research. Indeed, following an actor's perspective, preordained behavior and answers given by interviewed actors should not, in a best-case scenario, be expected as actors may act differently in "similar structural circumstances, even if the conditions appear relatively homogeneous" (Long, 2001: 13). Social changes therefore may appear where one did not necessarily expect it, due for instance to the processes of negotiation and interactions that come with development interventions.

Deductive approaches on the other hand, rely more on previous knowledge taken out of the researcher's readings. It aims to take central concepts or notions not directly from the data, but out of one's theoretical framework and use them as codes or categories within which the collected data will fit. Thus, these codes and/or categories are embedded within and come from

[37] For Glaser and Strauss (2006: 46), theoretical sensitivity allows the researcher to "conceptualize and formulate a theory as it emerges from the data". By restricting oneself to the data, rather than preconceived notions encountered in the literature, the researcher increases this theoretical sensitivity.

[38] The importance and meaning of previous knowledge (*Vorwissen*) is however unclear and remains a subject of debate between Straus, Corbin and Glaser (Schultz, 2014: 87).

a theory. This entails a theoretical bias which could be trumped by using a mix of top-down and bottom-up approach, or semi-open coding (*halb-offene Kodierung*).
Consequently, following such a method requires one to define beforehand a series of codes taken from the literature, out of the related theories or even from the very interview-guideline used for the research. Additionally, during the coding process and trying to stay as theoretically sensitive as possible, one generates other codes that may not have previously appeared, thus following an inductive course of coding (Friese, 2012: 10 f.).

Furthermore, document analysis and analysis of secondary texts such as official documents, academic research, but also international organization's reports or newspapers articles on the Kambar-Ata 1 also helped to answer the research question. This method of data collection was used due to the difficulties to get in contact with the Kyrgyz authorities, i.e. Water Department's or Energy department's stakeholders with the exception of one employee of the Water Department. As I had been previously warned, they were not willing to answer questions from foreigners on this subject[39]. Additionally, focusing on an intervention planned by the state, it only makes sense to analyze the government's point of view and understanding of water via available documents. To understand the role attributed to water, the Naryn river and hydropower within the development strategy of the country, I decided to enter the words "Kyrgyzstan sustainable development" in the Google's search engine in order to get a broad picture of the country's policies on sustainable development. The results let appear that an official document called National sustainable development strategy 2013-2017 compiled by the National Council for Sustainable Development of the Kyrgyz Republic was available under UNPEI website (UNPEI, 2015). This document can help understand how sustainable development is articulated in the country and if development of the Kyrgyz Republic relies on a perspective of domination over nature. Still out of the results from the search engine, the 'sustainable development knowledge platform' hosted by the United Nations Department of Economic and Social Affairs offers documents, statements and other information for every country. Unfortunately, no relevant documents or reports are available but a brief statement from the minister foreign affairs made during the United Nations Sustainable Development Summit in 2015, which was still retrieved.

[39] In an email exchange with Dr. Jeanne Féaux de la Croix, she explained to me that neither the police nor the Energy Department were cooperative when asked about the Naryn cascade project. Alerted by my presence and finding my discussions on the dams with the population provocative, I was personally questioned by the police, while in Toktogul, on the reason for my presence, as well as the reason for my interests in the Kambar-Ata 1 and more generally on the construction of dams in the region.

Mentioned several times in the literature (Bichsel et al., 2010, Sehring, 2009b, a) the legislative paper of the Water Code adopted by the Kyrgyz parliament in 2005 was also analyzed in order to give a broader perspective of the government's understanding of water. Despite its adoption in 2005, this Code was not fully implemented, due apparently to the unrest following the Tulip revolution of the same year and the 2010 revolution. Nonetheless, this legislation helps shape the waterscape of the country in the image desired by the state.

Defined by Lancaster (2007: 53) as "in effect, broad development planning documents", the Poverty Reduction Strategy Paper 2014 for the Kyrgyz Republic is also looked at and analyzed. PRSP were created in 1999 by the IMF and World Bank as a new tool to assess eligibility of concessional lending to low-income countries of the like of Kyrgyzstan and debt reduction (IMF, 2016, Reynolds, 2006). Designed around four core principles – country driven; set in long-term vision; recognizing the multi-dimensionality of poverty; partnership-oriented, which involves the participation of development partners (Reynolds, 2006: 387) – they meant to answer criticisms regarding the conditionality aspect of earlier instruments. they have received criticisms on the respect of these principles and on the nature of their content, arguing that a government emphasizes on what international donors want to see, thus altering the purpose of the PRS process, as well as claiming it "a way for the World Bank and IMF to retain their dominant position among the world's poorest countries" (ibid.: 400) thus reducing the claimed national ownership of the process. One should therefore be careful before analyzing such a document, keeping in mind the framework within which it belongs. While proponents of the International Financial Institutions welcomed the PRS approach as "a move away from policy conditionality towards country ownership and home-grown development strategies" (Rückert, 2007: 92), others argue that it "should be seen instead as direct responses to […] "threats to neoliberalism," which are, in turn, targeted at reconfiguring and deepening neoliberal domination over the growing number of poor in the South" (Soederberg, 2005: 339). Acknowledging the conditional character entailed of the PRSP in order for a country to receive financial aid, it could therefore be argued to further deepen the Kyrgyz Republic's dependence on aid and foreign capital.

Finally, field-notes and observation were also considered as potential data collecting tool, and were stored in ATLAS.TI after rewriting them properly. Field notes were particularly important and were rewritten and gathered within one electronic document. An excel table composed of the important observation, interviews, discussions and events was constructed in order to

properly navigate between the different element (see Annex 2). This allows the researcher to get a clearer view of the data collected, and more essentially, allows one to engage in a comparison of the different data collected.

However, the whole process also comes with its complexities. First of all, some difficulties already appeared during the preparation phase of the field research. Authorities seemed to be less compliant than expected, as reported by fellow researchers. Contact with local population was also challenging due to the language barrier, and the help of an interpreter was critical to continue this research. Through mutual friends, contact with an interpreter was made prior to the trip to Kyrgyzstan. The challenge of working with an interpreter lies in entrusting the person to speak on behalf of the researcher and respect as much as possible the essence of the research. To make sure that the interpreter would understand the subject and that he would be able to hold a conversation on my behalf, I first sent him an abstract of the research and elaborated on the central concepts, to give him a first idea of what the thesis was about. Several email exchanges prior to my travel to Kyrgyzstan allowed us to further understand each other and gave me the opportunity to emphasize key points of the thesis.

I then met him in Bishkek and went through every critical point of the thesis to ensure a process as smoothly and fluid as possible. I expressed my concerns on the interview process and how I would like them to be structured. An important point is to have a translation as accurate as possible, meaning that the translator must use – to the extent of his abilities – the exact words spoken by the person interviewed. This reduces possible bias appearing in interviews led in a foreign language. To further reduce potential bias possible mistake in the translation from Kyrgyz or Russian to English, an additional verification of the translation was made by a third person for what I considered important part of the conversation. This extra step was also taken to reduce potential loss during the translating process, i.e. to avoid a translated summary of what is said in the interview.

Filep (2009) warns that working with an interpreter may further bias the research as the translator will makes his own interpretation and translation of the interview. Indeed, according to Temple and Edwards (2002: 6) “Like researchers, interpreters bring their own assumptions and concerns to the interview and the research process. The research thus becomes subject to ‘triple subjectivity’”. To overcome this matter, communications were pursued prior, during and after the field research to fully and comprehensively explain the goal of my research and the possible intricacies that would occur during the interviews. After each interview and at the end of each day, conversations with the interpreter on the different events of the day were necessary

in order to avoid as many misinterpretations or misunderstandings as possible. In order for the respondent to feel at ease, it was decided that the translator would first quickly introduce me and the reason of my presence in Kyrgyzstan. The challenge of working with a translator comes also in the way the translation is made. Letting the respondent speak can be problematic as the translator will generally not remember every detail and the specific words a person has used. A corollary is that the translation will tend to be a shorter version or a summary of what has been said. Because the idea was for the respondent to feel at ease, the translator usually did not interrupt the person speaking. To allow a translation, each respondent was informed that a translation would be taking place during the interview and that interruptions were necessary. This allowed a balance between a good flow of information and a conversation as free as possible.

As Schensul and LeCompte note (2013: 29), not speaking the local language makes entering the field, learning about the local culture and the subtleties of interaction more challenging to grasp. This not only requires attention from the researcher on the issues mentioned above, but can influence informants' behavior too. Recognizing that my own background also influences the process of this research and my interpretation of the data (Creswell, 2009: 8), my positionality within this new environment should be clarified.

Coming from a canton of Switzerland whose development is strongly linked to water, it seemed natural to me to research and write on this resource. As dams, rivers and *bisses*[40] are, in this region, the mark of human control over this natural resource, concepts of water management and water conservation are thus familiar. The most prominent examples of this are probably the containment of the Rhône, a river running from the Rhône Glacier to the Mediterranean, and the construction of the Grande-Dixence dam, the tallest gravity dam in the world; both affects people's relation to water. I grew up playing around these various water site, perceiving them as recreational locations, while also fearing them.[41] This omnipresence of water made me conscious of its importance, especially through an economic prism, as debates on the financial benefits of dams are recurrent (Le Temps, 2017a, b). I therefore tend to value them for their energy production while being aware of their impacts (positive and negative) on society. In that

[40] Bisses are historic irrigation channels in Valais conducting water sources often coming from mountain lakes down to the vineyards or agricultural fields. They are still in use and have today also recreational purpose as promenade site.

[41] Sirens are ringing annually across the region to evaluate to level of emergency preparedness in case of dam breaching as large areas of the Rhône valley would be flooded. Risk of flood coming from the Rhône river itself is also present, requiring a third massive intervention on the river to contain its water (Canton du Valais, n.d.).

regard, the case of Kyrgyzstan was not completely new for me and some of the challenges faced, recognizable.

My presence did not usually attract attention or curiosity from the resident of the area, and they always greeted me with warm welcome and conversation were easy. the famous Kyrgyz hospitality was immediately felt. As a male researcher however, I mostly encountered with other men, Kyrgyz women being often accompanied by their man who sometimes monopolized the conversation. Thus, the collected data tend to represent the perception and representation of a situation from the point of view of men. If improvements have been achieved since independence, residues of a patriarchal system still remain and could be spotted during the field research. This was revealed for instance when my translator asserted that women were not particularly interested in issues of hydroelectricity and water conservation.

Women's position in the Kyrgyz Society was difficult to assess beforehand due to the limited amount of literature on the subject. It is often reported that although Kyrgyzstan has ratified many international conventions preserving women's right, the lack of political will and financial capabilities froze those signed conventions into simple pieces of paper without implementation (Ford, 2015). In 2012, a minority of women were represented in tertiary education for engineering and manufacturing as well as in agriculture (World Bank, 2015). While employment rates reflect a similar gender asymmetry with regards to the energy sector (83% of men), the agriculture sector was estimated to count 61% of women in 2013 (UNDP, 2013: 70). The two surveys also mention disparities between rural and urban areas. With regards to decision-making, a piece of legislation is supposed to guarantee at least 30% of female candidates in political parties represented in the Jogorku Kenesh[42] of the Kyrgyz Republic, but women representation in 2015 amounted to 20,5% (UNFPA, 2016: 11 f.).

Finally, one should not expect someone to talk easily about one's own everyday life and experiences to a stranger, as it requires trust and time. This is where my many conversations with Urmat, prior to my arrival on the field paid up. He acted as a gatekeeper through which other meetings and visits of significant places were made possible. Due to the short stay in the country, I unfortunately could not afford to build up stronger ties and benefit more of a snowball effect to meet better informed people. This might therefore affect the quality of the data, additionally with the difficulty to approach state officials. Dealing with these issues, the use of secondary text such as Jeanne Féaux de la Croix's account of peoples' interaction with water in the Toktogul region (2011) and her book *Iconic Places in Central Asia: the moral geography of dams, pastures and holy sites* (2016), did help me fill a potential void.

[42] Parliament of the Kyrgyz Republic

The analysis was based on the data collected and key notions mentioned during the interviews. Because the subject of the Kambar-Ata 1 – or any such dam on the Naryn river for that matter – is embedded in a transboundary management of the river that is not only characterized by an intersectoriality but is also inherited by the USSR's organization of space, it seemed futile to dedicate distinctive chapters of the analysis for these notions. Instead they are integrated in each of the next chapters, as the paper follows the idea that historical and geographical circumstances effect on current thinking around water (Linton, 2010: 38 f.). Consequently, some chapters may overlap or repeat issues and notions previously mentioned. The analysis starts with a contextualization of the Kambar-Ata 1 within the waterscape of the Toktogul valley. Located in the western middle of the country, many respondents claim that they often are forgotten by the government. The events that occurred under the Soviet Union affect the relation people have with the Naryn river and its water. After exposing the main understandings of water hold in the region, the subject of water conservation is elaborated within the hydraulic mission carried by the Soviet Union and the implications it had for the population. With the independence of the country and the current globalization phenomena, global knowledge and IWRM have been integrated by the Kyrgyz government, increasingly relating to the idea of modern water. The importance of Water User Associations (WUA) in the irrigation network will be exposed to contextualize, on the country's level, the persistence of the conservation/hydro-energy discourse around the Naryn river. The implementation of IWRM did not occur without hiccups and these issues will be exposed. Finally, the understanding of development by the population as well as the authorities seems to be linked with the expansion of an export-oriented economy. The consequences of such an approach to development will thus be laid before exposing the final results and conclusion of the analysis.

10 A KYRGYZ WATERSCAPE

10.1 Social production of space and water

10.1.1. The identity of a place

Being in the Jalal-Abad oblast, and more specifically in the Toktogul valley where lies the massive Toktogul reservoir, it is hard not to recognize the considerable role of water conservation for this region. It makes it therefore equally difficult to concentrate only on one

specific artifact, i.e. the Kambar-Ata 1 should rather be considered as embedded within the waterscape of the Toktogul valley. The goal of this chapter is thus to show how this waterscape has been and is impregnated by water conservation, and how it (the waterscape) may influence people's perceptions, relations to and activities around water (Tilley, 2009: 29). By exposing the role of dams in the history of the region and for the Kyrgyz Republic, this section relates to the time-space conception of a development intervention, the importance of the context in which the intervention appears, and discusses the potential agency of things (nature, water) previously explained in the theoretical framework.

Picture 1 an abandoned working site at the beginning of the Toktogul reservoir

Source: Photograph by the author (July 2017)

Dams and hydropower generation historically participated in the development of this region laying between Bishkek and Osh, the two main cities of the Kyrgyz Republic. The Toktogul valley, including Kara-kul, has been affected by previous water control projects and policies during the soviet era. Today, the so-called Naryn cascade (see Fig.2) located in the lower Naryn accounts for about 80% of the total existing power generation capacity in the country (Bar, 2015: 254) and makes up for 97% of the hydroelectric capacity of the country (Laruelle and Peyrouse, 2015). On a national level the region subsequently has an essential role to play in the

electricity sector. Because the majority of electricity is produced via hydropower in the mid and southern region of the country, the northern part of Kyrgyzstan, including the capital Bishkek, depends on the good maintenance and operation of those dams and the maintenance of electricity transmission (ADB, n.d.).

The town of Toktogul hosts The Special Fund or *Spets* Fund, a government's institution which historical task has been linked with the pecuniary compensation or the restitution of the lands people lost following the creation of the Toktogul reservoir. In addition to this social service the *Spets Fund* oversees construction of irrigation canals and more generally of financially supporting the development of the water-resources infrastructures mainly for the Toktogul *raion*. This fund is based on an annual contribution of KGS 43 million[43] from OJSC Power Stations, the entity running Toktogul dam[44]. According to Bakyt, the Spets fund is the only government institution to be in town and is consequently the only government agent with which Toktogul residents have a relation (beside the police). Often referred by interview participants in town as a repayment bank for the land people lost under the water, it belongs to the institutional landscape of the region and might remind people of the negative consequences the dam brought on some of the people.

The way the Special fund is funded also showcases perfectly the development mechanism understood and described by the population. First, electricity must be produced, which then generates a revenue that is later allocated to water-resource management activities. In other words, the first objective is often the production of electricity and this issue will reappear while discussing the development model followed by the country. However, the existence of such a body and its activities beyond the mere compensation for losses could also be seen positively. Reflecting on how local populations could benefit from large dams in West Africa, Skinner et al. (2009) expose the issue of resettlement and propose for instance to form a local development fund financed by hydropower revenues that would answer the various needs of local populations in infrastructures, irrigation system…instead of simply compensate people for their land loss. Integrating a share of the revenues from the Kambar-Ata 1 HPP into the Spets fund could help gather more people around the project and more importantly help these local populations with their development needs.

[43] USD 618'990 or € 521'856. Although several residents of the town talked about an increase of this annual contribution, it was not possible to find any source confirming this information.

[44] Ministry of Finance of the Kyrgyz Republic, 2011, Medium-Term budget framework for 2012-2012-2014, Bishkek, [Online] http://www.gafspfund.org/sites/gafspfund.org/files/Documents/%24MTBF%20for%202012-2014_0.pdf [Accessed 3 January 2018].

Past experiences as well as the current situation of being the country's electricity producer generated and continue to generate a space in which the water of the Naryn river is primarily perceived as a factor of energy production and eventually of strategic value for the development of the country. Linton (2010: 30 f.) asserts that the water held behind a dam integrates discourses, technologies or even the social relations occurring at the time of the construction. McCully (1996: 2) believes that dams are more than simple block of rocks and joins Linton's idea. Of course, dams did not come naturally on the Naryn river. They come from a certain idea of the human-nature relation that perceives nature as a factor of production and external to society: a nature that needs to be dominated. If the region may have a propensity to host such water infrastructures, this is admittedly due to the topography of the area but it is only recognized as such because people saw this potential value of nature through controlling water. They saw the benefit of dominating nature for their own development. As de Gregori asserts on the development of agriculture, "it was agriculture that created arable land and not the reverse" (1987: 1243). Analogically, if this region is critical for the generation of power, it is partly due to its geographical circumstances and because of the use-value people attributed to it in a particular social environment. In this sense, dams are the result of this process and is a hybrid or socio-nature, the product of a certain human-nature relation. This translates into what Linton (2010: 38 f.) calls "historical-geographical circumstances":

> [o]f course, the ideas that people form of and with water are dependent on historical-geographical circumstances: people inhabiting deserts have tended to form ideas (and metaphors) that differ markedly from those formed by people living in humid regions. **All ideas of water are hybrids in the sense that they are at once social and natural, internalizing the emergent – that is, historical and geographical – properties of H2O along with the historical and geographical circumstances of the thinker**. Nevertheless – and at the same time – the development of a water-borne idea takes on a life of its own and itself becomes a force in what we call the history of water. (ibid.) (emphasis added).

In lign with that argumentation, Féaux de la Croix (2016: 29) proposes to approach the place of the Toktogul dam as a social construct, and thus could equally be applied for the Kambar-Ata 1. An approach that can even be adopted for the broader environment within which the planned project is located, the waterscape of the Toktogul region.

The historical-geographical circumstances present in this area may therefore very well have influenced and continue to influence people's idea about water. Palomino-Schalscha et al. (2016: 888) exposed how the identification of the Ñuble region as a Chilean agro-food power "shaped discourses and identities around this area and its farmers, [and] their role in national development". Analogically, people's awareness of the detrimental role their region plays in the electric sector of the country influences their identities and discourses around water. Those are partly shaped by their relation to nature and by what this place has become.

It should be noted though that this does not mean that a place (its history and meaning to people and other regions) fully determines one's identity; it merely affects and influences it. Non-human agency is debated within the social sciences and it is not meant here to give causal power to places[45]. It is rather the social relations implied within a place that act, or as Massey (2001: 123) puts it "[i]t is not […] the places themselves which interact but social relations which take place between agents 'within' them".

Comparing three theories often cited when analyzing the impact of place on identity – place-identity theory, social identity theory and identity process theory – Hauge (2007: 45) asserts that place and identity influence one other "as a result of a holistic and reciprocal interaction between people and their physical environment". In that sense, it is very familiar to the precepts of the hydrosocial cycle laid down by Linton and Budds (2014) for whom water and society influence each other. A place being often thought of as a location or space, the concept of a sense of place alludes to the relationship humans carry with the environment (Qazimi, 2014: 307).

This is the case of Ulan's family, who originates from Kara-kul, a small workers' town between the mountains nearby the Toktogul dam. The topography of the place restraining agricultural activities, one of the main activity in the area relates to the HPPs, for which the town was originally built. Ulan and his wife Acel both work for the *cascade Toktogul hydroelectric stations*, the company in charge of five of the hydropower plants along the lower part of the Naryn river. Admitting that there are certain advantages of working there which might have affected his choices such as job security and salary relatively higher than by other employers, he nonetheless also recognizes the influence of his father in his choice to become electrical engineer:

> My father was one of the chief engineers in charge of the construction of Toktogul dam. He was an important person in this project. This probably had an influence on me (Urmat, interview, 8.07.17).

Before linking his life choices to this geographical place, he describes what may be perceived as a form of behavioral action that reveals bourdieusian notions of habitus or "embodied history", itself linked to cultural capital (Bourdieu, 1979, 1981: 305). Despite criticisms, Long believes that actor choices are indeed influenced "by larger frames of meaning and action" (2001: 14). He argues that the respective literature has not paid enough attention to this larger

[45] David Harvey writes in *Justice, Nature and the Geography of Difference* (1996: 320) : "To write of "the power of place," as if places (localities, regions, neighborhoods, states, etc.) possess causal powers is to engage in the grossest of fetishisms".

framework or adopted an extreme methodological individualism to explain social behavior through motivations and interests (ibid.), e.g. the few advantages of working for the hydropower plant listed above. Indeed, job security and higher pay fall under motivations and interests one may have when making a choice. His relation to a certain knowledge that shapes his view on nature goes beyond simple motivations and integrates emotions for instance (being proud of his father's achievement as engineer) and is linked to his relationship with his father (ibid.: 18). Habitus are characteristics and dispositions, the way of being that an individual possesses with the appropriation of specific knowledge and experiences. Those are typically transmitted through schooling or within family environment. Because it cannot be directly inherited, it is often concealed (Bourdieu, 1979: 4). In the case of Urmat, keeping for his own interest and on his free time a small personal journal with daily records of discharge of water from the Toktogul reservoir and the electricity produced by it, shows his deep interest for a specific water – i.e. a specific relation to water – and could be described as a habitus transmitted by his father, himself hydro-engineer in his time.

On a society-level, the account of his uncle Asel reveals how present dam thematic already were in the region and how pregnant it was in Urmat's extended family:

> When I was young I wanted to become electrician. We heard a lot about the dams and we were interested in that. Unfortunately, I did not pass the exam. But my brothers, all my relatives, my sons and daughters, all of them are electricians. That is why I was also always interested in that […] But my brother, Urmat's father he built that dam. In his youth, he already built some dams, toys dams. He wasn't interested in other games. He just wanted to build dams. And then he became one of the very good specialist of hydroelectricity (Asel, interview, 22.07.17).

10.1.2. Discourse of a place, discourse of a river

Acknowledging and exposing the presence of a discourse in an environment is one thing, but it is necessary to understand how it can be articulated and how it reaches people who will later help spread it. Discourses are not necessarily articulated through big political or technical ideas verbalized in text. As Long notes, "it [discourse] is equally manifest in non-verbal behavior […] in how people relate to specific goods, artefacts and technologies that come, as it were, already endowed with particular social meanings and valuations" (2001: 3). Discourses are part of everyday life and can appear within simple conversation. Jones et al. (2004), elaborating on the notion of "discourse of place" assert that jokes can even have the function of communicating a discourse for instance. Hence, the town of Kara-kul is sometimes amusingly referred to as "the city of electrician" by Kyrgyz citizens as revealed by my translator and my host Urmat. Making such jokes about a place has the function of "mak[ing] sense of [one's] locality and its relation to the wider world" (Jones et al., 2004: 113). It gives meaning to the locality for its

people and define its role in the broader national context. Discourses of place are often strongly linked to discourses of power and are articulated "in the writing of local history, in folk tales and folk songs, in guide-books and postcards, by jokes […] and by 'official' symbols such as coats of arms and flag" (ibid.: 126). Extending this line of argumentation, other elements suggesting the presence of a discourse of place is articulated in the region, which reinforces the importance of water and its management and eventually the "identity" of the region. At 75, Asel is still a professor at one of Bishkek's University and a history enthusiast. In his childhood, he used to listen to his father telling him stories and describing places in the Ketmen-Töbö valley, stories that were at the inception of the book Asel would later write. Showing a lot of interest for this research, he shared a fairy tale his father once told him[46]:

> There is a fairy tale that is related to the mountains around Toktogul dam. There were once kings living here, and with them lived a giant coming from the Naryn oblast. There was a mountain there. The giant took his *ketmen* [tool] and went up on this mountain. He wanted to stop the water from flowing down there. When he hit a second time the earth with his *ketmen*, the *ketmen* broke. He then tried to find a piece of wood to stop the flow of water, but could not find any, so he got the idea to plant 3 big trees. Those trees became big, but the water was still running under it… This idea still lives until today. In general, the water also had to flow in the direction of Talas oblast [in the North]. In fact, this fairy tale still exists in Kazakhstan too. Once, this idea will be true. My father told me this story, and I also wrote about it in my book… Ketmen-Töbö is name after this…They say that the giant put the mountain here. (Asel, interview, 22.07.17).

It would therefore seem that the once-called Ketmen-Töbö valley was named after this fairy tale. Ketmen-Töbö was described by a woman met in the small park of Toktogul City as a beautiful valley where people used to live by and cultivate land. It was the valley where the old Toktogul city was located before the construction of the Toktogul dam and its respective reservoir. Today, the old city lies about 120 meters under the water.

As stated before, the story above illustrates how the region was influenced by the management of water, but also how essential it was for the territories that grossly corresponds to current Kyrgyzstan. It ultimately reveals its historical relation with water through the ambition to control and divert it. These kind of stories, myths or historical events travelled through time and as such belong to the history of the place and its identity. They help produce a certain narrative of the place.

Moreover, visual elements are also exposed, whether it be a billboard from the *cascade Toktogul hydroelectric stations* on the side of the Bishkek-Osh road in Kara-kul in order to convince people and affirm the benefits of building a dam (picture 2), a leaflet dating from the USSR exposed in the Toktogul museum of Kara-kul, illustrating the importance of dam

[46] Fairy tales such as the following are numerous in Kyrgyzstan and similar stories may probably have been spread around

construction in the region for the electrification of the country (picture 3) or a map found in this same museum displaying the presence of dams on the Naryn river (picture 4).

Picture 2 “Lights, warmth and coziness in your homes!”

Advert from cascade Toktogul hydroelectric stations, main distributor of Kyrgyz electricity on the side of the road Bishkek-Osh, in Kara-kul. (Photograph by the author,

Picture 3 Leaflet exposed in the Toktogul museum in Kara-kul. (Photograph by the author, July 2017)

Picture 4: Map of the tamed Naryn river exposed in the Toktogul museum in Kara-Kul, with Toktogul dam (1), Kambar-Ata 1 (6) and Kambar-Ata 2 (7). Source: Photograph by the author (July 2017)

All of these different elements, be they visual, verbal or historical, help at the production of space, therefore compose the identity of the place as strategic for hydro-energy production and are fully part of the waterscape of the Toktogul area. As individuals invested the place, they recognized the importance of water. When the soviet engineers came, they recognized the potential use-value that water hold for the modernization of their territory. Alain Cariou (2015) reports that Moscow considered the territory of Central Asia as an internal frontier[47] rich in natural resources that was to be included in the national territory. In this context water was to play a critical role in the socio-economic development of the region, as Cariou underlines (ibid.: 33; Translation F.R.):

> Water has been the cornerstone of land-use planning and socio-economic development. The hydraulic mission […] has tried to erase deserts with policies of big-projects. Hydrogeologists, engineers and bureaucrats mobilized themselves […] Their mission was to tame nature by transforming the flows of rivers in economic resource.[48]

This mission, led by water experts on behalf of the state, transformed the rivers' flow in an economic resource and was possible through the achievement of large-sized multi-purpose dams of the like of the Toktogul dam[49]. Pétric (2011) also exposes this relation between the formation of identity and a territory or the resources located on it. For him, the work of soviet ethnographers "enabled the census of ethnic and national identities, but equally the division of Central Asia in different political spaces called republics" which deeply influenced the formation of identities and social relations (ibid.: 351, Translation F.R.) [50]. Historically important for the production of wool in the planned soviet economy, Kyrgyz citizens were considered as nomads and sheep herders (ibid.). With the construction of dams, the slow disappearance of nomadic activities, and the transformed access to resources after independence, and echoing Linton's (2010) or Strang's (2006) argument on a type of water and the construction of identity, one could claim that hydropower generation's activities and

[47] The term frontier, as Cariou notes, does not refer to the common understanding of the word, but rather to a new territory to be conquered and echoes the concept of the American frontier. "Il faut entendre ici par frontière […] un 'espace-frontière', vaste territoire faiblement maitrisé où s'exerce une politique de développement destinée à occuper, valoriser et *in fine* intégrer une région périphérique" (2015: 33).

[48]French Original citation : "L'eau a été la clef de voûte de l'aménagement et du développement socio-économique. La mission hydraulique […] a cherché à effacer les déserts par des politiques de grands travaux. Hydrogéologues, ingénieurs et fonctionnaires se sont mobilisés […] Leur mission était de dompter la nature en transformant le flot des rivières en ressource économique" (ibid.).

[49] Although Cariou speaks here principally about agriculture, he nevertheless moves on to water as a development tool and political tool further in his text and applies Mitchell's assertion for Central Asia that massive hydraulic projects allow a nation to base its economic activities on irrigation or hydropower but serves also the purpose of nation-building. (Cariou, 2015: 40, Mitchell, 2002: 44)

[50] French Original citation : "Le savoir qualitatif des ethnographes soviétiques a permis l'élaboration de recensements de l'identité ethnique ou nationale, mais aussi le découpage de l'Asie centrale en différents espaces politiques appelés républiques. Cette politique d'État constitue un héritage considérable dans la construction des identités et la manière d'envisager les rapports sociaux" (Pétric 2011 : 351).

discourses took a preponderant place in the formation of identity on a national level for the government as well as on a more local one, for the people within the Toktogul waterscape.

Hence, the notion of production of space seems here appropriate. Through the constant perception of the Naryn water or its basin as a factor of energy production, "nature [became] a *universal means of production* " (Smith and Harvey, 1990: 71) under the soviet administration, which paradoxically could be argued to have created a form of capitalist space by giving water a particular value, the value of generating electricity for the whole region of Central Asia. This further shaped the Nature-Society relation, in which human is at the center of nature, dominating it for the its own good (ibid. 91). Today, the billboards advertising the merits of hydropower plants, the jokes, the leaflet found in the museum, all take part in this production of space as they communicate the discourse of the electric station company, a discourse logically based on the production and domination of nature by and for mankind. The red leaflet with a sun at the center of a hand – a symbol found again on an obelisk at the entry of the town – illustrates the well-deserved results of hard working men and women who brought light to the country and can be linked with the map of a conquered Naryn river.

It is worth noting that the current discussion regards the representation of one specific water, the water of the Naryn river. Of course, one could argue that water is simply water. The water kept in the Toktogul reservoir, the one flowing in the Kara-Suu river or in the Naryn river or the water coming from a source directly from the *jailoos* are all composed with the formula H_2O when described in mere physical terms. However, as has been stressed in this thesis, the relation one has with water may vary and so does the social construction of water. Linton proposes to revisit the perception one has with water, by explaining that romans used to recognize different waters that were then used for different purposes, ultimately engendering different relations to the waters (Linton, 2010: 82 ff.). As Féaux de la Croix (2016) explains, water can indeed be perceived as improving health in Kyrgyzstan. People of Kara-kul do fetch water from a small source outside the town for instance or in the tunnel leading to the top of Toktogul dam for the luckiest ones who are granted a pass through the tunnel. Water is also perceived as recreational; the fountains and small lakes in Kara-kul offer a nice recreational point for children to play. The smiles on adult's faces when water start jumping out of the fountain around 8.30 pm[51] also support this idea. In Toktogul, children swim in a pool next to the municipal park and some adventurous enough go on the shore of the reservoir. Yet as Féaux de la Croix (2016: 101) explained, "[a]lthough the Toktogul reservoir was […] planned as a

[51] Municipal employees who filled water from the basin into the fountain told us that the water pump was defective and the water fountain consequently only functioned around 8.30 pm.

leisure zone, it remains a strangely deserted place" and the water is principally referred in terms of quantity.

According to Libert and Lipponen (2012), water quantity has generally been a big focus in Central Asia at the detriment of quality aspects. The authors affirm that: "[t]he management of water quality in Central Asia is a largely neglected issue; water quantity and its allocation is the centre of attention" (ibid.: 570). This focus on water quantity is strongly felt in the region, and the water of the Naryn river is often qualified as too strong, too big or even too dirty by many people interviewed:

> The Naryn river did not hold much interest for me, because it was a big river […]. Its stream is very strong and the water pretty dirty. There are also lots of sand and dirt coming with it. (Kurmanbek, interview, 9.07.17)

After being relocated on the higher sides of the valley to give place to the Toktogul reservoir, Kurmanbek did not feel as if he experienced a big loss, in terms of access to the river. Seeing it as unfit for their daily requirements, people do not necessarily attach much importance to it. Interestingly though, those same reasons make the river attractive for the state, who then leads the task of taming nature, the river and controlling its water[52].

10.2 Actors, agency and counter-discourse(s) in the waterscape

Long writes that agency is revealed "when particular actions make a difference to a pre-existing state of affairs or course of events" (Long, 2001: 17). Yet, this could be problematic as it would suggest an *ex post* attribution of agency. Consequently, it is hard to rightfully and unequivocally attribute agency to the Kyrgyz society when it comes to the construction of the Kambar-Ata 1. Indeed, it is difficult to distinguish a change in the decision to build this dam. From the interviews conducted, it appears that one of the reason explaining the apparent absence of opposition is the focus of people on other issues that they consider important, such as employment:

> People are actually not against the construction of dams, but there are not interested in that. They are only interested in the question of jobs. People were against the Toktogul reservoir, because they lost their places there. And the question regarding Kambar-Ata 1 is the same. People do not show interest for the

[52] It should be noted that people actually do see the importance of the Naryn river, but from the perspective of the State, be it for energy purposes or embedded within international relations. "For Uzbekistan, water is also very important, that's why the two government should solve the problems of using the water in the borders, and cooperate" (Asel, interview, 22.07.17). Taming the river and building dams becomes more important for some, as it would create jobs. It is however not clear whether local resident would actually benefit from this as report Féaux de la Croix and Suyarkulova (2015: 123).

> construction. They are interested in getting money for that. They want to get job there. They are only interested in that. They are not interested in places that would be lost […] (Asel, interview, 22.07.17).

Although these last words should be taken with care – he speaks for someone else – it is true that employment is an important issue for the Kyrgyz population. A 2016 survey from the World Bank Group affirms that job creation is, for the respondents, the fourth subject that would help reduce poverty in the country (2016: 10). Participants interviewed for this present research also expressed their concerns regarding the unemployment issue, just as Asel did. They often linked their idea of development with job opportunities for the youth.

Another reason for the apparent absence of opposition, and maybe the most often cited reason is that projects of water infrastructures or water control are relatively welcomed – which can be explained by the well-perceived experiences of past hydropower projects as Wooden et al. (2016) affirm. Indeed, development of the water-network by the soviet administration slightly balance the removal of people according to Urmat:

> I don't want to critique the soviet administration, because there were some advantages in there. Because one day you were removed outside of Toktogul valley, but they were building new channels for irrigation (Urmat, interview, 12.07.17).

However, this should be balanced by the opinion of Kurmanbek, an old man in Kara-Suu who lost his land and reveals the heterogeneity of public perception on the soviet experience.

> For centuries, people were living in the bottom of the lake. They knew very well the land, they cultivated the land. And suddenly, they were forced to move on the really dry sides of the valley (Kurmanbek, interview, 9.07.17)

Beside their relative contradictory views, both Urmat and Kurmanbek base their reasoning on their experiences or the perception of past experiences. As the good perception of an experience is very often a variable determining the position on present and/or future similar projects, it is therefore important to distinguish those different experiences.

Furthermore, if Urmat supports the Kambar-Ata 1 project, the old man does not oppose it automatically, even if he is quite skeptic about the government promising development for the region. Both of them seem to recognize the benefits of new dams for the whole country mainly through electricity production. This very idea that water shall not be wasted but used efficiently to produce energy – which in this situation is synonymous of tapping water – forms the core of discourse(s) articulated by the people interviewed.

To identify *ex post* a change in the course of events would theoretically requires the various interests to have been considered and the dissident voices to the development project, if any, to have been heard and their influence on the original project identified. However, as suggested in this paper and by other authors (Féaux de la Croix and Suyarkulova, 2015, Wooden et al.,

2016, McMann, 2007), counter-discourses to water conservation and opposition to damming the Naryn river tend to be rare. Because the decision to build the Kambar-Ata 1 was forced upon the population, i.e. a top-down decision that often characterizes countries pursuing a hydraulic mission, the agency of the local population is limited by the scope of their relations with the state. Consequently, their agency does not weight much power on this matter and does not generate a change of action.

Related to the decision-making process, Azamat and Urmat were sometimes casting doubts on whether public opinion – although mandatory as a local deputy told us – is really taken into account. They expressed forms of resignation:

> […] of course there will be people against the construction of this cascades, but in one way or another, the State will reach its purpose anyway. They will find new ways to get permission from these people (Azamat, interview, 15.07.17)

> if people say no, they will find alternative way. People that are taking decisions…they will … trick them sometimes (Urmat, interview, 12.07.17).

Resigned, some people ask themselves what is the point to demonstrate and protest if it does not change the end result, as did Bakyt. Once participating in a town meeting and debating on the price of electricity with what he described to be a political-activist[53], he quit and focused on his own matters and problems after losing sight of a possible improvement. By concentrating on his own life and trying to improve his conditions to the best he can, Bakyt exercices a form of politics of patience. Proposed by Satybaldieva (2015b), who also challenges the common depiction of non-elite and poor groups in Kyrgyzstan as being deprived of agency due to their apparent lack of political engagement, working-class individuals in the country "profess a politics of restraint, patience, and prudence to improve their own circumstances and to secure the tranquility and stability of the larger society" (ibid.: 100 f.)

Approaching local actors such as Bakyt with this notion could then reveal a form resistance against big hydropower projects. More generally, it could offer a key of analysis to better understand local actor's and non-elite's political behavior, who "despite possessing little political capital […] engage in everyday forms of resistance and mediated politics" (Satybaldieva, 2015a: 370).

But if one attributes more largely agency to every human being endowed with the capacity to speak, i.e. if human agency is to be understood as the capacity of an individual to act upon a social environment or a situation they cope with (Long, 2001: 16, Strang, 2014: 165), this very

[53] An interview with this person was scheduled but had to be cancelled because the questioning of the police that I experienced uneased him.

capacity/capability to act *de facto* must be questioned. As revealed in the critique observed by Verschoor et al. (2001) on Norman Long's understanding of agency, this capacity may be, in certain environment, very restrained. Long acknowledged however this issue when he asserts that the range of agency possessed by an individual depends on the power dynamics in play (Long, 2001: 17). He affirms:

> the ability to influence others […] depend crucially upon the emergence of a network of actors who become partially […] enrolled in the 'project' of some other person or persons […] Hence, it is essential to take account of the ways in which social actors engage in or are locked into struggles over the attribution of social meanings to particular events, actions and ideas (ibid.).

What Long suggests is to inquire the social relations occurring within a particular action or development project such as the Kambar-Ata 1; for instance, what sort of interactions do local individuals have with the State? Considering the way this kind of decision is made, and taking into account what has been said above, it appears that this very capacityto act upon the construction of the Kambar-Ata 1 is, for a common citizen, quite small.

In that regard, public opinion is rarely considered as suggested earlier, and relations with State agents are nearly non-existent when it comes to that matter. Answers from the interviews participants on how the decision is taken practically always end up with: "the State decides" or "the President decides". Revealing one issue of the decision process for such a project, while at the same time supporting the construction of the Kambar-Ata 1, Nikolai, an *aksakal*[54] of Toktogul describes the centralization[55] of power on such issue and the decreasing role played by the *aksakals* such as himself:

> Today, the *aksakals* do not have much weight on the final decisions. All we have left is respect. To respect us, they created a union where we sit as counselors, but the decision is always taken from the top […] Only the prime minister and the president decide. This [Kambar-Ata 1] is a national project… These are not regional questions. The *aksakals*, the Toktogul chief, the regional chief, they do not decide (Nikolai, interview, 14.07.17).

This simply reinforces the power of the ruling elite over the population and the institutional structure in place.

Interestingly, and despite the strategical importance of the lower Naryn basin for the country, this lack of consideration is enhanced by the geographical situation of the Toktogul valley on the country's map. Located between the two main cities Bishkek in the North and Osh in the

[54] Literally: white beard. Respected male elder living in the community.

[55] Although decentralization of water management in the Kyrgyz Republic has been argued (see for instance Bichsel et al., 2010), notably with the privatization phase that followed after independence and in respect of the IWRM principles, decision regarding activities around dams such as Toktogul or Kambar-Ata 1 rests with the State as article 8 and 19 of the Water Code stipulate and not the *oblast* or *raion*. In this sense, it is meant as a centralized decision.

South, the region tends to be forgotten, according to Ruslan, a 56-year-old municipal employee of Toktogul city:

> We are between Bishkek and Osh and Jalal-Abad and there is no development of Toktogul undertaken by the government and we are forced to do the efforts for development by ourselves. For example, there is one school that the government could not afford to finance and build and that is a problem for us, because the children are then forced to go to another school that is not near to them. And there are empty fields on which schools could be built, but the government does not build new school there. Those are the social problems here (Ruslan, interview, 10.07.17)

For other participants, the distance to the main road Bishkek-Osh represents a non-negligible variable that would influence the presence of good infrastructure and development.

Added to the relative indifference or even support of the public, the decision coming from the state level rather than local (§8, 16, 19 of Water Code) suggests that the State leads the way and exercises clear power over its population.

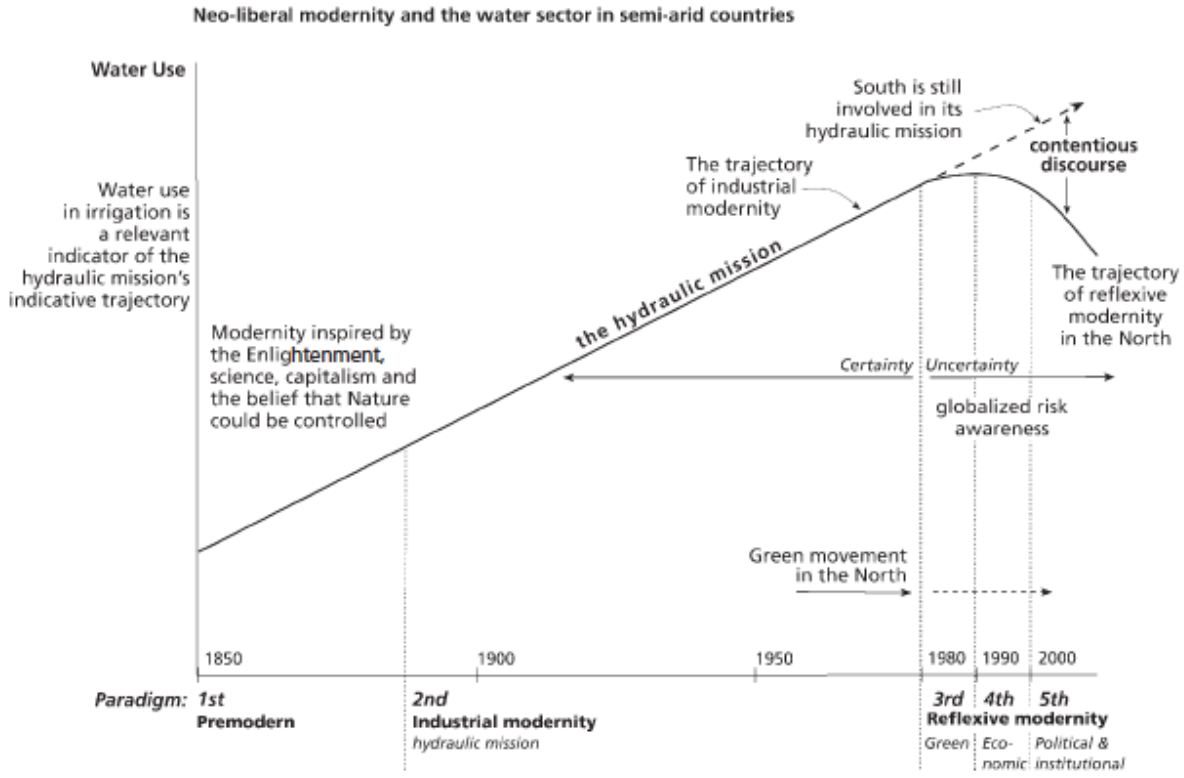
This Master thesis argues, as the theoretical framework suggests, that such a decision-making process – one that does not include local voices – comes out of a particular understanding of the water running in the Naryn river, as well as an approach to the river itself: an anthropocentric vision of nature already carried by the Soviet Union in the region (Cariou, 2015), a vision that sees water as a factor of electricity production and thus holds economic value. Because such an exercise is critical for the (economic and political) stability of the country, it is the responsibility of the State to lead this mission successfully and legitimizes the government's decision for the general interest. As Long writes (2001: 17), "development intervention models (or policy measures and rhetoric) become strategic weapons in the hands of those charged with promoting them". This relation to water is embodied in the project of the Kambar-Ata 1 as it was in previous dam project, and eventually reinforces the Kyrgyz Republic in its role as water conservation country, i.e. in pursuing its task for the hydraulic mission which maintains quasi the same structure and power dynamics already in place.

11 THE HYDRAULIC MISSION OF KYRGYZSTAN

Although no specific mention of the hydraulic mission was made in the interviews, apart from discussions with academics, literature on the historical development of the region and the way people described their relation to nature and water suggest that such a mission was and may still be occurring. To discuss the notions of the hydraulic mission, this thesis mainly refers to two papers written by authors previously mentioned: John Anthony Allan's *Water in the Environment/Socio-Economic development discourse* (2005) and *Hydraulic bureaucracies and the hydraulic mission* written by Molle et al. (2009). Allan's presentation of the hydraulic

mission is somehow less interesting for this research than the presentation of Molle et al. (2009) due to his reference of the hydraulic mission primarily as governments activities aiming to expand irrigation system, thus overlooking somehow the hydro-energy factor. Based on the assumption that demographic growth will increase water demands, it is true that one may tend to think of agriculture activities and food production first, while perhaps ignoring electricity demands. Yet, he is still worth mentioning as he interestingly exposes (Fig.2) the shift in discourse led by the green movement in the USA in the end of the 1970s from "certainty" that extraction of water for agricultural purposes was good, to "uncertainty" of the benefit of such activities (Allan, 2005: 189). This move towards uncertainty however did not take place in Central Asia, leading to the tragic environmental situation of the Aral Sea (Wegerich, 2005: 119 f.). It is also true that the notion of hydraulic mission strongly relates, historically, to the irrigation of arid and semi-arid lands. The rhetoric of 'let the desert bloom', or the 'Israeli wonder' of gardening Palestine echoed in many regions (Molle et al., 2009) and relates to the understanding of water as a 'Resource'.

Fig. 4 The five water management paradigms



Source: (Allan, 2005: 189)

To understand the notion of hydraulic mission, one must first look into the irrigation development of the 19th and 20th century driven by colonial powers, who basically repeated the

work of great empires of ancient times such as the Chinese, Mesopotamian or Egyptian empires. As those empires saw the need of controlling rivers to produce agriculture while enabling them to administer their territories, so did the colonial powers who embarked upon the transformation of the landscape, waterscape and local labor for agricultural purposes. What defines the hydraulic mission is that the development of irrigation systems, which were previously driven through private initiative until the beginning of the 20th century, were now centralized and taken into the hands of the State. Taming nature for the benefits of men was perceived as a symbol of modernity, and proponents of irrigation were quick to share the idea of 'let the desert bloom', as attested by the cases of Australia, California or Israel, all famous examples of the expansion and the modernization of societies through irrigation (Molle et al., 2009). Hydraulic bureaucracies, or hydrocracies (Molle et al., 2009) were created as a sort of government's arm to pursue the hydraulic mission that would lead nations to prosperity. The US Bureau of Reclamation, established under Theodore Roosevelt at the beginning of the 20th century, embodied the President's utilitarian view of the conservation movement. It is the perfect example of centralized bureaucracy at the service of irrigation, and the presence of W.J. McGee as Roosevelt's confidant, helped shape the notion of water as 'Resource', and thus modern water and its respective discourse (Linton, 2010: 150).

A 'scientific hydrological discourse' around water was in fact wider diffused within society with the help of engineers, water experts and academics. It was spread through the scientific institutions that, in turn, helped create numerous hydraulic bureaucracies. This trend affected not only the United States, but Germany, France, and even the Soviet Union too (Linton, 2010: 148, Molle et al., 2009: 332). Indeed, Wegerich (2005: 119 f.) concurs with the idea of a soviet hydraulic mission by underlining the adequacy of the soviet's administrative structure for this task. He adds that despite their obvious differences both the West and the Soviet Union followed the same 'development model' to improve economic and social conditions of living by allocating state powers and their administrative arms for the control of natural resources and "reshape the environment to create storage and flood protection works that would enhance the economy and rural conditions" (ibid.). Consequently, this period saw an increasing interest in electricity, recognized to be a key developmental factor "that was to radically change conditions of life in the cities and the economy. Controlling water was not only a way of reducing flood damage or irrigating fields, but was also the source of hydropower" (Molle et al., 2009: 333). This, according to the authors, fully belongs to the activities of hydrocracies, and corresponds well to the case of Kara-kul. To demonstrate this, let us break the aforementioned quote in two and deal with them separately.

11.1 Electricity comes to the yurts

With respect to the changing conditions of life, the new production of hydroelectricity coming from dams on the Naryn did transform the society, and people saw their life improved as a result as attests a local deputy interviewed in Kara-kul:

> before 1950s villages were located on the upper side of Kara-kul, and it was not a city, but with the start of the construction of the Toktogul dam, Russians were coming from Russia … (incomprehensible)…lots of trees, and (incomprehensible) dangerous places for those people, because you could not live here at night, you should go to villages, you should not live at dangerous places (Azim, interview, 13.07.17)

This is also expressed by Urmat when he first described his city while sitting next to one of the main electric station crowning Kara-kul:

> The town developed a lot with the construction of the dams. It is hard to imagine how it was before and where they got electricity from before that time (Urmat, interview, 11.07.17)

This corresponds to the well-perceived experiences of soviet hydropower projects. But if Kara-kul benefited from the construction of the several dams constructed on the Naryn River, this experience is not homogenously spread and shared. Inhabitants of Toktogul City tend to relate differently to the Toktogul dam, as they *a contrario* lost their land in the process. Kurmanbek, an old man from the small village of Kara-Suu, nearby Toktogul City told us:

> Until today, people are suffering. For centuries, people were living at the bottom of the lake. They knew very well the land, they cultivated the land. And suddenly, they were forced to move on the really dry sides of the valley […] In the old town of Toktogul, there was twice as much space as there is today. And once we moved, we had only 70 m^2 per family. We lost a good fortune (Kurmanbek, interview, 9.07.17)

As Féaux de la Croix describes (2011: 493), "the Toktogul reservoir is evidence of the sacrifice of land to electricity and modernity […] the reservoir is a measure of absence, of all the homes, graves and good land that lie beneath it". Following this trend of thought, Asel expressed empathy towards the people living in the old city of Toktogul, as did Urmat's mother, but he believes that in the end, the construction of the Toktogul dam benefited the whole country:

> Of course, it was difficult for those people that were living in that valley, but in a way, there was now lights for the rest of the territory. the life of other people in the territory saw a progress. But anyway, it was difficult, but for Toktogul it became better too (Asel, interview 23.07.17)

However, the development of the Toktogul region as being a goal of the government can be legitimately questioned as taxes on the Toktogul and Kambar-Ata 2 dams are suspected to be directly transferred to Bishkek rather than benefiting the region of Toktogul. Some people even doubts that the company running the dams wires the legally agreed share of its revenue to the Special fund for Toktogul. Although this cannot be proven within the scope of this research, it still shows the lack of trust in the authorities from part of the population. Problems of corruption

in Kyrgyzstan are nothing new as would attest the recollection of the 2010 revolution by Urmat and his mother while sitting quietly at the table. The subject of corruption, or cases of alleged corruption, was expressed on many occasions and by different social actors, from the citizens of Toktogul, Kara-kul or Ozgarysh, to higher employees of the state.

> The administration system is very old, it dates back from the USSR. So, it functions bad, corruption is playing a big role as well because of that. The money is not in the right place at the right time and we try to change that through the NWRMP (Bektur, interview, 25.07.17)

The NWRMP or National Water Resources Management Project is a joint project from the government in partnership with the World Bank. For 2016, Transparency International, an organization dedicated to fight against different forms of corruption, ranked Kyrgyzstan on the 136th position out of 176, with a score of 28/100, 0 being defined as "highly corrupt" (Transparency International, 2017).

Although combated and set as a priority by the Kyrgyz Republic for a successful transition to sustainable development (IMF, 2014: 24 ff.), it remains and is recognized by the authorities as a problem to be dealt with if one wishes to witness a successful process of development. Among other things, it puts hurdles on the enforcement of the laws, regulation and policies in place, and shrinks the efficiency of the organizations in charge. Last but not least, it hurts the legitimacy of a government.

Today, all those opinions are still present and surround the social arena of the Kambar-Ata 1 project. In fact, when asked to share their view on this issue, interview participants often tend to talk about the past experiences of the Toktogul dam first. Their view on a new dam is influenced by previous hydropower projects. For this research, it means that the defined social arena is affected by past events occurring in the Toktogul waterscape. As discussed earlier in the theoretical part of this Master thesis, approaching it through Long's lens on development intervention seems therefore adequate. Skeptical about the theoretical conceptions that the orthodox intervention models entail, he challenges, among other things, the time-space definitions implied in those models and proposes to see planned intervention as a socially constructed process occurring through time and negotiated between stakeholders (Long, 2001: 30 f.). To perceive the construction of the Kambar-Ata 1 as an on-going process allows to take into consideration the past experiences faced by the population, i.e. previous dam construction in the region, as influencing factors. There, the well-perceived soviet experiences of soviet hydropower projects (Wooden et al., 2016, McMann, 2007) is part of the Toktogul waterscape

and is considered for the research. It explains, as these authors suggest, the public support of additional dams, or is an explanation for the absence of apparent opposition[56].

While Kurmanbek's account cited above contradict the perception of past experiences related by those authors, they all nevertheless concur that the history of a place potentially affects current and future outcomes.

Although support for the Kambar-Ata 1 and hydropower projects in general was not always explicitly expressed by interview participants, it was often revealed through the enumeration of the benefits that water control provides for the whole country or the region – i.e. the opportunity to export more electricity into neighboring countries or stabilizing the water discharge which would benefit Uzbekistan, thus improving transboundary relations – or by mentioning the critical tasks carried by existing dams. Ruslan, the Toktogul municipal worker explains:

> It will be very good for Kyrgyzstan, because it will give the country the opportunity to export energy to other countries, and not only for its citizens (Ruslan, interview, 10.07.17)

Explaining the mechanism that could be triggered by the completion of the Kambar-Ata 1, Urmat's uncle elaborates:

> That is the most necessary dam to build in Kyrgyzstan now, because once it is built, we can export electricity. But anyway, it will not solve all the problems in Kyrgyzstan. But today, Uzbekistan does not understand us. They don't understand the work we do. Because they think that we will keep the water from them. But with the construction of the Kambar-Ata 1, we will stabilize the water flow to Uzbekistan. For example, today we get more energy from Toktogul dam and in winter time, we are forced to let the water go in winter. And we will finish the construction of Kambar-Ata 1, we will keep the water in the winter time. We will get electricity mostly from KA, and will keep the water in Toktogul (Asel, interview, 22.07.17)

Additionally, the apparent efficiency of the Kambar-Ata 1 is favorably perceived by the interview participants, often repeating that it would be more powerful than Toktogul while requiring a smaller reservoir. Indeed, the installed capacity of the Kambar-Ata 1 would be of 1900 MW for a reservoir of 4650 million m^3 compared to 1200 MW with 19,5 billion m^3 for Toktogul (Bar, 2015: 254, Giese and Sehring, 2007: 487), which convince people of its advantages and absence of major deterioration of nature, again recalling the history of Toktogul HPP. Hence, reasons to build such a dam are manifold for Kyrgyzstan: efficiency in increasing electricity production and the ability to expand exports, stabilizing the water flow for Uzbekistan. In other words, it is the government's preferred solution to the conundrum in which Kyrgyzstan seems to be stuck into. The solution appears however to eternally orbit around

[56] The public demonstration that occurred on November 8th in front of the Kyrgyz white house proves that people do gather for environmental issue and dare oppose the government. An amendment to the Water Code proposed in the parliament would allow mining into Kyrgyzstan's glaciers, thus intensifying the pressure on an already tense situation following the activities of the Kumtor Gold mine (RFERL, 2017a).

hydropower, on the side of Kyrgyzstan while keeping in mind that the irrigation rights and interests of Uzbekistan must also be considered. This brings back the earlier quote of Molle et al. (2009: 333) asserting that among its various advantages, water conservation is also a source of hydropower, something well understood by the Kyrgyz government.

11.2 Controlling water

It is well known among people living in the region that the benefits of water conservation are diverse. Many of them are listed in Asel's quote above and include the ability to produce and eventually to export electricity for instance, stabilizing water flow, and consequentially improving the conditions of irrigation experience for Uzbekistan and therefore improving bilateral relations.

Indeed, two principal activities in the region encompassing the whole basin of the Naryn/Syr-Darya river require and depend on a stable flow of water. Electricity production for Kyrgyzstan depends on it, just as cotton production does, for Uzbekistan, and agriculture for both countries. People thus often speak of "stabilizing the level of water" when listing advantages of dams and water conservation. Hence, the Toktogul reservoir is very important for the region. This dam is here to regulate the unstable outflow of water because of the seasons, and increasingly so with climate change. Managing seasonal discharges of water into Uzbekistan is getting more complex for Kyrgyzstan as irrigation of downstream arable lands depends on climatic variations. Concretely, the amount of water needed for the irrigation of Uzbekistan's cotton fields and agriculture may vary with the amount of snow/rain that felt that year, therefore determining the outflow from the Toktogul dam and eventually Kyrgyzstan's production of electricity. A heavy-rainy spring and summer may provide Uzbekistan's arable lands with sufficient water and without the need for Kyrgyzstan's contribution. In other words, the same amount of water released from the Toktogul reservoir may, from one year to the other, be excessive or too small, generating floods or drought [57].

> Now this is very important, this reservoir. First of all (incomprehensible) the Naryn river, because for example in previous time, there could be instability of water, which would depend on the seasons of winter or spring. But today, the Toktogul reservoir allows to manage this water. (Azamat, interview, 15.07.17)

So, regulating the level of water is essentially related to two activities mentioned earlier. One is irrigation of downstream fields, i.e. Uzbekistan's agriculture:

[57]. This reveals the necessity of meaningful transboundary cooperation between the countries to properly measure, anticipate and communicate water needs from one riparian state to the other.

> it was really important to build these dams and these reservoirs. First of all, because there were increasing amount of people living in Central Asia, and also, they need lot of plants, they need production, they need food, that's why there must be a regulation of water in Central Asia. And it was necessary to build these dams, in order to control the water. Because this water provides a lot of people living in Central Asia (Azamat, interview, 15.07.17).

The second is the production of electricity for Kyrgyzstan:

> People talk about Toktogul, a lot and about increasing the level of water in Toktogul reservoir. Also, it is very important for the dam, because if it is full, there will be an increase of energy (Ruslan, interview, 10.07.17).

Keeping a stabilized level of water allows to forecast the energy production for the winter season and ensure that it meets household's demand. As many households use electricity as their primary source of heating (Balabanyan et al., 2015), pressure on the electric grid is important in winter and shortages are sometimes difficult to prevent. However, a significant share of urban population relies on coal (about 40%)[58] (ibid.: iii) that needs to be imported from neighboring countries.

As both of these activities are strongly embedded in transboundary river basin management that is failing (UNECE, 2015: 38) and arguably absent, they need to be handled carefully as they eventually relate to broader regional politics in Central Asia, which at the same time grants the Naryn river a strategic status of national interest to control the water of the Naryn river as well as the military control of those respective sites. A conversation with Azamat on the importance of the river from a government's point of view went as follow:

> In your opinion, what is the significance of the Naryn river for the State?
>
> respondent: (laughing) It is of very big importance. We use not all the whole potential of this river. And if we would use the whole potential of this river, our life would be better. You can see that with CASA 1000 project, we can sell electricity to other countries in Central Asia (Azamat, interview, 15.07.17).

Although seemingly trivial, his laugh enhances the importance of the river. It can be interpreted as communicating the obvious key role that the river does play for the government. Controlled access and the presence of armed guards at the location of the Toktogul dam or on the road leading to the Kambar-Ata 1 and 2 are elements speaking for the critical significance of dams for the country[59]. Related to dam safety and activities around dams, article 76 of the Water Code distinguishes three categories of dams (national, basin and *raion* importance) according to criteria approved by the National Water Council, a body chaired by the Prime Minister (§9

[58] measured on the whole territory of the Kyrgyz Republic, the households relying on coal stoves makes up for about 60% of the population, 17% of it being connected to the district heating and the rest using on electricity, wood, dung or gas (World Bank, 2017b)

[59] Access to the Toktogul dam was granted to us after Urmat asked us a few days before our visit to print a copy of our passport, which he then handed to his company for an identity check by a government agency in Bishkek, the national security agency according to Urmat. Access to the Kambar-Ata 1 & 2 were denied.

al.3 of Water Code). Criteria being among others the international importance and the height of the dam (§76 al.2), Toktogul dam most certainly enters into the first category and so would Kambar-Ata 1, as its construction would represent a clear benefit in the national energy sector. Mention of the strategic character of dams for the national security is also found in the PRSP as a priority for the transition to sustainable development (IMF, 2014: 19 ff.). The interference of a policeman questioning the purpose of this research, an experience similar to the one accounted by Féaux de la Croix and Suyarkulova (2015: 124), also translates the high sensibility of this issue.

Being a strategical node for the country gives therefore legitimacy to the government to concentrate powers and decide on its own.

A hydraulic state however, not only rules over water, but over people too. In fact, the mission of a hydraulic state could be: controlling its people through the control of waters. Wester et al. (2009: 395) write that state articulation of water management has been, during the 20th century a frequent political strategy to control space, water and people. Féaux de la Croix (2016: 90 f) puts it in other words when she says that "controlling water [might be] an even greater source of material and symbolic power than controlling land". Hence, the control of the water from the Naryn river by the government provides the latter not only with economic benefits but political benefits as well. At the same time, the chase for political benefits makes (control of) water subject to rivalries between political factions. Indeed, both water experts and Kyrgyz citizens explained that water issues were more the subject of tensions between political personalities willing to gain power in the country than with their Uzbeks neighbors:[60]

> There is no… This is not a struggle between nations, but there are many interests from political groups, many politicians who want to get power, take the power. That's why they somehow manipulate this question of water, that's why this question can lead to the conflicts (Asel, interview, 22.07.17).

The question of water control and more precisely those of the Kambar-Ata 1 and Upper Naryn cascades are then politicized in the sense that they are perceived by the government as well as by the opposition as a political tool allowing to hold onto or take over power. Rent-seeking opportunities, such as the alleged activities of former President Bakyiev may be attractive and thus increase tensions over the political control of the resource.

[60] Tensions between nations however do exist in the Ferghana valley and some respondents believed that any actions that could inflate tensions should be avoided.

The centralization of decisions on the management of the Naryn river is also a way to hold authority and power on its population.[61] To plan hydraulic projects on the river becomes a means to gain legitimacy from this same population by delivering them electric stability.
For Molle et al. (2009), the hydraulic mission was at its peak during the four decades succeeding the Second World War. This period witnessed increased investments in large-size dams and an expansion of irrigated lands. The authors argue that "the hydraulic mission at its height was a celebration of technology and domination over nature, a linear view of history based on Rostowian stages – where mechanization, intensification, and economies of scale would replace backward if not "barbarous" practices" (ibid.: 336).

This kind of discourse seems to enjoy a long life in Kyrgyzstan. On a government's level, Allouche sees in the "renaissance" of old water projects such as the Rogun Dam in Tajikistan or the Kambar-Ata 1 in Kyrgyzstan a proof of the continuation of soviet's water politics in those former Republics (2004: 295). Indeed, as previously mentioned, the decision to build the Kambar-Ata 1 was taken during the soviet ruling of Kyrgyzstan and one may thus conclude that the re-appearance of this project since 2004 and its further promotion by successive governments ultimately expresses a continuity of the politics driven by the soviet regime at the time, bringing along, eventually, a similar discourse on the economic benefits of water conservation.
Such strategies of water conservation also echo the concept of path dependency. As Long suggests "strategies and cultural constructions employed by individuals do not arise out of the blue but are drawn from a stock of available discourses […] shared with other individuals, contemporaries and maybe predecessors" (2001: 18). It is therefore argued that a form of reproduction of government's strategies, through time, seems to be taking place around the Naryn basin. Strategies that preserve the current power dynamics and provide legitimacy to the government in place in Bishkek.
This discourse is also present within the local population, as has already been exposed while talking about the waterscape of the Toktogul valley. With unemployment being an important issue for the population, the construction of the Kambar-Ata 1 is believed to help the economy and create new jobs. The migration of many into current Russia to pursue technical education related to hydrology or hydroelectricity also certainly reinforced the discourse within society that water was a precious resource to be used and extracted for the benefit of the people. Today

[61] While this is the argument hold by Wittfogel (1957), Glick (1970) rather believes that power precedes the control of water.

however, migratory movements in the direction of Russia would rather be qualified as livelihood strategy and correspond therefore to labor migration. Yet, it is still worth mentioning here that the USSR did acknowledge the importance of educating skilled workers. As for other sectors, the number of students/workforce needed to meet the state-led labor-market's requirements. Obviously, electricity or hydro-energy studies were thus recognized by the soviet regime as essential for the construction of dams to a certain extent, but mainly for the operation and maintenance of the hydropower plants. For instance, the still running Kara-kul Technical Faculty[62] was established while constructing the Toktogul dam. According to a report from an agency of the European Commission, mining and hydroelectric power industries were defined as priority sectors for Kyrgyz research activities in 2010 (EACEA, 2012: 13). Today, pursuing this type of education is still possible in the region of Kara-kul, e.g. the Kara-kul Technical Faculty or the Kara-kul college belonging to Kyrgyz State Technical University are the only higher education one can have in the town. Yet, a water expert employed by the Water Department reports that the State fails to incite people, on the national level, to specialize in water issues, mainly because its budget cannot afford appealing salaries.

Ideas and views on water are, to a certain extent, shared and spread, as exposed in the previous chapter, between people, within society with the help of state institutions and international organizations. Recognizing the central role of power in his approach, Linton claims that ideas also have power and that "[they] can play an important role in the production of water" (Linton, 2010: 26). He uses this line of argumentation to explain the hegemonic position that modern water enjoys nowadays and tends to overshadow earlier approaches to water. This "*hegemonic* construction of water" that Linton refers to (2010: 9), is based on Antonio Gramsci's notion of hegemony, as mentioned earlier. If Gramsci tries to go beyond class struggles to explain social changes, his theory seems however to correspond and describe rather the upcoming, or the transformations occurring within a political order and/or society, and this is not the goal of this research. One may then assert that this Master thesis avoids the question of what and if other understandings of water existed before the soviet rulers, but staying within the framework of Norman Long's approach, it would rather be argued that these elements allow this specific view on water to be reproduced or reinforced. Indeed, as identified earlier, the persistent will of successive government to find investors and build the Kambar-Ata 1, and more generally the

[62] JALAL-ABAD STATE UNIVERSITY. 2017. *Kara-kul Technical Faculty* [Online]. Available: https://jasu.edu.kg/kara-kul-technical-faculty/ [Accessed 18 November 2017].

pursuit by the Kyrgyz government of similar projects ran under the USSR speaks for a continuity of water politics (Allouche, 2004).

The hydraulic mission, or politics of water conservation was chosen as a way to develop the Central Asian territory and achieve industrial modernization that would satisfy the needs of the soviet economy. Famous model of development, as would attest a reading of Tony Allan (2005), this approach to water management was dominant not only among western nations, but in communist societies and the Global South as well (Sehring, 2009b: 22). If discussions about management of the Naryn water and its use usually orbit around its critical importance for the State and the production of electricity, the construction of the Kambar-Ata 1 is often justified by Kyrgyzstan's determination to become energy independent and the exporting asset an increased hydro-energy production would eventually create for the Kyrgyz's economy. Exposing the different water management paradigms witnessed by Central Asia through history[63], Abdullaev and Rakhmatullaev (2015: 851) assert that since independence of the CARs, sovereignty was wielded to allow each country to follow its own water politics and follow a path towards modernization through a new kind of economy, i.e. market-oriented economy. In this new environment, global knowledge, i.e. modern water became a bit more entrenched into local knowledge with the help of the concept of IWRM.

[63] Although their paper focuses more on Uzbekistan, Central Asia's water was not managed incredibly differently among the CARs until their independence.

Fig. 5 History of the five management paradigms in Central Asia

Water management paradigm	**Period**	**Main transformation and development features**
Paradigm 1	Until 1860s	Small-scale, community-based water management, nomadic irrigation schemes, individual farmers
Paradigm 2	Between 1860s and 1920s	Decentralized and small-scale cotton production, simple irrigation schemes, small-scale basin transfer projects
Paradigm 3	Between 1920s and 1940s	Collectivization and nationalization, development of new irrigation projects, State influence of water sector
Paradigm 4	Between 1940s and 1990s	Hydraulic mission with mega construction of hydraulic infrastructures, inter-basin transfer projects, cotton basket of Soviet Union, centralized economy, mechanization of agriculture production
Paradigm 5	Between 1990s and 2010s	Sovereignty, market-oriented economy, decentralization of water and agriculture systems, Integrated Water Resources Management, river basin management, transboundary water management

Source: Abdullaev and Rakhmatullaev (2015: 851)

In the next section, the waterscape of Kyrgyzstan is further exposed by looking into the point of friction between global and local knowledge that offers modern water and its implementation in Kyrgyzstan.

12 MODERN WATER IN KYRGYZSTAN

It has been mentioned earlier that, according to Linton, modern water considers social and ecological relations as external factors of the water resource, i.e. "all waters can be and should be considered apart from their social and ecological relations and reduced to an abstract quantity" (Linton, 2010: 14). In a later article on the matter, Linton asserts that

> "Modern water is conducive to a style of hydrosocial relations that is reflected in the idea of 'water resources' and the practices of 'water management': it is characterized by a particular way of representing water, a particular kind of hydrological expertise, a concentration of control in agencies of the state, and a way of defining and approaching many water problems that orients attention toward augmenting water supplies" (Linton, 2014: 111).

The above-mentioned quote implies that modern water entails not only a specific view on water, but a particular knowledge too, and questions how to adequately wield power and organize the institutions in charge to increase water supplies. Linton argues however that the question is not only about the scarcity of water and its physicality or quantity anymore, but should be shifted towards more methodological grounds. In other words, an increasingly relevant question appears to be how to approach water management in a more holistic way and deal with water issues. This in fact one of the main task attempted in these lines. Therefore, it is the focus of this section to discuss how people see the resource, the way water management is approached by the government and how it is implemented.

From a general perspective, looking into the Water Code allows one to discuss the legal aspect of water management and how the government sees it. It is therefore a tool from and for the government to articulate its own view and thus sets the structure/environment of the social arena. In other words, the concept of IWRM, which forms the basis of the Water Code (SDC and ICWC, 2008), can be related to this research and the social arena of the Kambar-Ata 1 dam because it shapes, transforms and/or influence the way the government and its institutions perceive water – whether a public or private good for instance. It also defines how the management of the resource is articulated, e.g. how the department are organized, who is responsible or whether cooperation between departments exist, which should in fact be critical aspects for an integrated approach to succeed.

Conversation with Bektur, a water department's official, and an analysis of the Water Code adopted in 2005 by the Kyrgyz Republic, form the basis of the analysis for this chapter and suggest that the government's understandings of water correspond to Linton's modern water or

hegemonic construction of water. Interview participants also integrates these views as has been previously exposed.

In his famous article *The Tragedy of the Commons*, Garett Hardin (Hardin, 1968) advanced that water issue would not be resolved by technical solutions. He eventually proposed to change the status of water from commons or public good to private good. Identifying distribution and access to water as a prisoner's dilemma where no cooperation is possible, his argumentation has been understood by some as a plea for privatization. One of his most famous critique is Elinor Ostrom, who contests this prisoner's dilemma situation and proposes a set of 8 principles to manage common pool resource[64] (Ostrom, 1990). Hence, the best way to manage water is still openly debated. Arguments are being constantly expressed and dismissed, but within the neoliberal approaches characterizing current policies on nature, one discourse tend to prevail. Reporting on problems resulting from water management, The Economist (2016a, b) acknowledges that poor water policies are a cause of water crisis. By arguing however that solutions lie in setting the price right, i.e. commodifying water in a process of privatization, they do not formulate any alternative answers and rather offer the same solution as Hardin once did, thus reinforcing a process of third wave marketization in which water becomes a commodity (Burawoy, 2013).

Within the constellation of different approaches to water management, it is therefore necessary to critically look at the proposed policies, and focus as Köhler and Wissen advise (2010), on the Nature-Society relation. Political Ecology, as previously mentioned, often analyzes issues of power around natural resources (Benjaminsen and Svarstad, 2009). Presented as a solution to water issues within the framework of the UN Sustainable Development Goals, which have been incorporated within Kyrgyz's government policies, the concept of Integrated Water Resources Management (IWRM) embodies the description of modern water. Despite its notoriety, the concept has its flaws. Already promoted by the United Nations during the 1950s (Biswas, 2008), IWRM became increasingly popular within the international arena, as its later mentioning in the SDGs proves it. A call at the World Summit on Sustainable Development in 2002 in Johannesburg to develop, IWRM and water efficiency by 2005 within their national water management policies, pushed the CARs to get in line with this globally shared view on water (Sehring and Diebold, 2012: 59). The Kyrgyz Republic consequently followed this trend

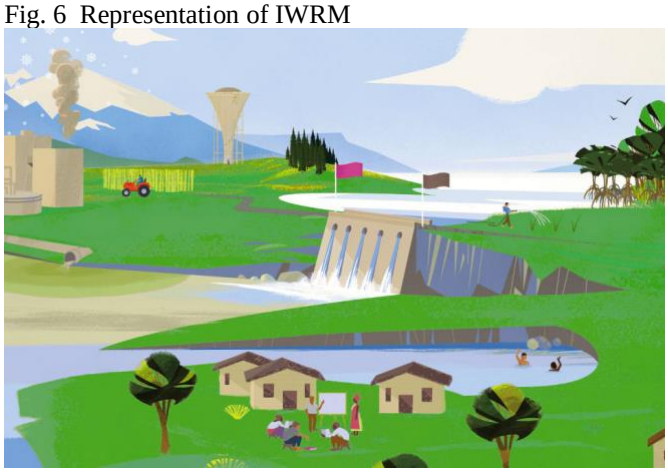
[64] "Common pool resources or CPRs are goods – manmade or natural – large enough in which exclusion from the resource system is costly but consumption of a resource unit is rivalrous (i.e. no longer available to others)" (Araral, 2014: 179)

and adopted in 2005 a Water Code very much based on the concept of IWRM and thus contributing to the spread of one particular view of water which recognition of its economic value[65] is a strong characteristic, i.e. modern water. As reported by the Swiss Agency for Development and Cooperation (SDC, 2017), the political outbursts during the period 2005-2010 prevented the implementation of the Code. Efforts were since undertaken and a roadmap to the Water Code implementation[66] has been articulated as Bektur confirmed.

12.1 The concept of IWRM

To tackle the different water problems, along with other global issues, the United Nations recently adopted the *2030 Agenda for Sustainable Development*, which includes several water-related goals within the 17 sustainable development goals (SDGs) and 169 targets formulated. Rather absent in the previous millennium development goals (MDGs), water became a key subject in the present agenda. SDG 6.5 includes the notion of Integrated Water Resources Management (IWRM), a concept previously defined by the Global Water Partnership in 2000 already as "a process which promotes the coordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems" (GWP 2000). UN-Water *(n.d.)* offers on his website the following description (with illustration) of what IWRM is:

Fig. 6 Representation of IWRM



"IWRM is about balancing the water needs of society, the economy and the environment. Indicator 6.5.1 supports policy- and decision making at the national level by enabling countries to identify barriers to progress and ways in which these can be addressed" (ibid.)

Source: (UN-Water, n.d.)

[65] This very idea of water being an economic good has apparently been at the core of the Uzbekistan-Kyrgyzstan feud. While the latter demanded financial contribution for the functioning of dams regulating inflows for Uzbekistan's arable land, former President Karimov refused arguing that water was a public good and "should be treated as a natural gift" (Féaux de la Croix, 2011: 495), and thus positioning itself against further damming of the Naryn river (Nichol, 2012: 17). Interestingly, the same card is being used by Tajikistan to justify its right to build the Rogun dam (Menga, 2015: 485)

[66] The Roadmap to the Water Code has been handed to me by Bektur and consists of an 8 pages Word document

Those definition of the concept offered by the Global Water Partnership (GWP) and UN Water call for a governance[67] of water characterized by cooperation and coordination at all levels, between different sectors involving water and its different uses (Saravanan et al., 2009: 76). If the concept has been widely embraced by International Organizations and state agencies, critics have been vocal (Biswas, 2008, Linton, 2010) while others try to find common ground in order to solve water issues (Saravanan et al., 2009).

First, identifying IWRM as a process allows some sort of continuity. Proponents arguing that IWRM is an ongoing process or a road map do not however recognize a starting point nor a destination for this process (Biswas, 2008: 19), which plays in their advantage.

Second, the concept of IWRM tends to forget the cultural dimension of water and spreads a global knowledge of water management. Indeed, "IWRM floats in modern water" (Linton, 2010: 217), and thus follows a certain rationale where water becomes disembedded from individual and society. Abstracted from its context, the essence of water would then simply be a quantifiable good and its social nature would be lost (Linton, 2010: 104) This is the discourse that seems to have prevailed in the International Organizations and State development agencies, i.e. "[this] dominant story continues to reproduce nature as an object external to society that is possible to know, monitor and manage from afar" (Lövbrand et al., 2015).

For Saravanan et al. (2009: 76) "IWRM has taken a normative approach of '*how to integrate'* with diverse connotations, various definitions and different approaches." Despite the various methods of integration, some set of standards and norms have to be universally shared if proper assessments are to be made, reinforcing the idea that cultural dimensions are – if not completely dismissed from the concept – at least well overseen.

IWRM could thus be seen as some kind of "one-size-fit-all" solution for water management. If not for its vagueness such a description of the concept of IWRM would fit perfectly, i.e.

> the vagueness of a concept, to a significant extent, increases its popularity, since people can then continue to do the same old stuff (SOS) they were doing before, but can concurrently claim that they are au currant [sic!] with the latest global thinking (Biswas, 2008: 13).

12.2 Articulation of modern water in the Kyrgyz Republic

According to Abdullaev and Rakhmatullaev (2015: 857) the transition from planned to market-oriented economy engendered transformations in the water management system of the countries

[67] A shift from water management to water governance has been recognized in the literature and have been the subject of attention of scholars (Biswas and Tortajada, 2010).

of Central Asia[68] on two level: 1) the introduction of river basin as the unit of measure 2) on the on-farm level with the introduction of Water User Associations. Despite being more directly linked to irrigation rather than conservation and hydro-energy, it is essential to discuss the contribution of Water User Associations into the articulation of specific understanding of water in the country, and in the region. Indeed, WUA are meant to "reorganize" water management at the local level by introducing more participation. This section discusses therefore both of those transformations.

Following the shock therapy and privatization process that occurred after the collapse of the Soviet Union (Abazov, 1999), WUAs were meant to be a bottom-up process empowering people and favoring local approach while seen as central to aim at the IWRM objectives. The introduction of WUAs in 1995 by the Kyrgyz government (Wegerich, 2001: 11), was perceived as an essential reform for the Kyrgyz water sector "as they have great potential for the promotion of IWRM principles" (Herrfahrdt et al., 2006: 57). In other words, WUAs helped to advance the concept of IWRM and the discourse within which it belongs. From that point on, according to Sehring (2005: 6) it meant that water delivery for irrigation would have a cost. She adds, "[w]ater should [then] be used efficiently and economized" (ibid.: 6). Yet, some reports suggest that on the country level, they have not been particularly successful, or did not meet the original goal of representing local actors' interests (Wegerich, 2001, Kazbekov et al., 2007). As Wegerich notes, the results are mixed and WUAs did not become a voice for local population (Wegerich, 2001: 12 f.). Often proposed by external actors, they tend to spread a specific understanding of water that is not always in line with the local perception of water nor its local management[69]. Yet, they still remain important actors for the irrigation system and agricultural sector, as Bektur, a Development Coordinator for the National Water Resources Management Project states:

> Water User Associations are important for the Water Department. In Kyrgyzstan, there are 486 WUA who control about 17'000 km of the total 22'000 on-farm canals" (Bektur, interview, 25.07.17).

On-farm irrigation system corresponds to the O&M of the canals within the perimeters of a farm by the farmers themselves.

[68] While their study focuses primarily on the case of Uzbekistan, the same transformations occurred in Kyrgyzstan as the adoption of the IWRM concept and introduction of Water User Association would attest.
[69] For more on the challenges of implementing rules and institutions from external actors, Boettke et al. (2008) offer an interesting reading.

In the legislative landscape of water policies in Kyrgyzstan, the adoption of a Water Code in 2005 reinforced a perspective of water governance shared on the global scene as it is based on the concept of IWRM (UN-Water, 2013). Indeed, "the Water Code of the Kyrgyz Republic includes almost all regulatory provisions, directly answering practically all IWRM principles" (SDC and ICWC, 2008: 15). This concept of IWRM however seems to suffer from a lack of conclusive results, for reasons such as an only partial implementation of the concept, its vagueness and, as a corollary of these two, a difficulty to correctly assess its impact (Saravanan et al., 2009, Biswas, 2008, McDonnell, 2008).

Nevertheless, it does not prevent many International Organizations and States Agencies to continue to push this approach of water governance, while many academics have a rather critical position towards it (Biswas, 2008, Biswas and Tortajada, 2010, Saravanan et al., 2009, Linton, 2010). Indeed, the presence of the notion of IWRM in the Sustainable Development Goals (SDGs) of the United Nations proves that even without clear results over the years, IWRM still prevail in the water governance landscape (Biswas, 2008, Biswas and Tortajada, 2010).

With regards to Central Asia as a whole, Zinzani (2017) reports that authors such as Molle et al. (2009), Mollinga and Gondhalekar (2012) seem to describe the main purpose of many development state agencies and international organizations as trying to advance "a structural adjustment of the institutional context through the support of neoliberal policies, such as market deregulation, liberalization, commodification and privatization, leading to a roll-back of the state and its power" (Zinzani, 2017: 11).

But if proponents of the IWRM may rejoice of the adoption of the concept by so many, it still faces problems on the implementation level, caused by institutional factors for example[70]. The application of IWRM falls short when one considers the management of a Kyrgyz region such as Toktogul and the lower Naryn basin on the government level. The essence of IWRM being a decentralized approach that promotes the integration and participation of all relevant stakeholders into the decision-making process, it is clear that this does not correspond to the case of the Kambar-Ata 1 and the Naryn basin because of i) a centralization of authority regarding the management of the Naryn river as previously exposed and ii) the lack of cooperation between sectors. First of all, the decision to build this dam was made during the

[70] Abdullaev and Rakhmatullaev (2015: 857) give 3 reasons for the lack of integration aspect of IWRM in the Central Asian region: institutional weaknesses, structural and political constraints and resource constraints. In the case of Kyrgyzstan, they write "having both legal and institutional conditions there is a lacking systematic political support to the process" (ibid.: 858)

1980s under a different political regime than the one currently in place. Without analyzing archives on how this decision was made at the time, it nevertheless seems clear that the stakeholders have changed. The process however remains the same, at least from the people's perspective. Azamat, a friend of my host Urmat and an engineer for Toktogul Waters explains:

> The State says what to do here. First of all, State decides the question related to the development, but of course, they consider the opinion of locals […] it is a democratic state, and of course there will be people against the construction of this cascades, but in one way or another, the State will reach its purpose anyway. They will find new ways to get permission from these people (Azamat, interview, 15.07.17)

Acknowledging the democratic character of the Kyrgyz Republic, he does not believe the government follows a democratic and open-participation procedure when it comes to water projects on the Naryn river. As previously mentioned, this gives a sense of futility to possible resistance or even to the simple consideration of local's opinion. As mentioned earlier, the Water Code clearly states that the decision to construct dams – "water economy constructions" as in the Water Code – derives from state administration and not local administration (§8, 11 16, 17, 19).

The second challenge to be faced for successfully implementing the Water Code and the IWRM principles are more organizational. Although basin organization have been established around the country, they fail to show cooperation, and thus integration, between sectors, according to Bektur, the water department's employee. He deplores a lack of effectiveness due to aging administrative system dating from the USSR and the absence of cooperation between Energy Department and Water Department. The few times they cooperate are within the National Water Council, he says, wishing for more teamwork. This lack of cooperation is also revealed at the broader basin of the Syr Darya as reports an assessment for the United Nations Economic Commission for Europe (UNECE, 2015: 38).

> It is clear that there is an inefficiency of cooperation on management of water resources in and between the basin countries. This constrains the countries' ability to meet their needs for sufficient water quality or quantity and adequately protect the resource.

Taking a decision requires one to balance the different interests presented in front of him/her. As Molle et al. (2009: 336) suggest in the following quote, when it comes to the management and development of water resources, the national interests[71] of a country is often determined by the close relationship maintained by four important types of actors:

[71] When it comes to national interests, the population might be less integrated into the process. Although this comes out of the International Relations' literature and relates to foreign policies taken by a government, it does correspond to liberal understanding of national interest that claim that national interest is not the sum of private interests emanating out of society, but rather corresponds to the national interests of the main social actors (Battistella, 2002). Because foreign and national policies are, according to liberal views, entwined and should eventually not be differentiated, the argument could stand.

> Water bureaucrats, state-level and local politicians, water business companies, and development banks are often tightly associated in 'synergetic relationships' whereby the ways the flows of water are created or modified by water infrastructure are intertwined with flows of power and influence, often manifested in the form of political or financial benefits, whether private or collective (Molle et al., 2009: 336)

Those kinds of activities are common and has been sufficiently well-documented. In fact, a privatization process of hydropower plants was executed in 2007, allowing foreign companies to invest in the construction of dams (Giese and Sehring, 2007: 488, Bar, 2015: 255). Since then, the Kyrgyz people witnessed a waltz between the government and foreign investors interested in the projects of the Kambar-Ata 1 and the Upper-Naryn cascade. News of new investors are common in the papers or on TV, but it usually fails to materialize. This constant coming and going of potential investors tires some people who, as a result, do not pay attention to those news anymore, as a conversation with Azim, the local deputy shows:

> Interviewer: What do you think about the current situation regarding the Naryn river and dams?
>
> Respondent: For example, they said that a new investor from Czech Republic is coming for the [Upper-Naryn] cascade. I was disappointed, because there is often signing of new documents, but there is no progress, because they sign and then resign the documents.
>
> Interviewer: Ok, so they just sign the documents, and then what happens?
>
> Respondent: nothing happens, and they resign the documents again. So that's why I did not observe the news and saw that there was a potential new investor (Azim, interview, 13.07.17).

Report of the Czech company taking the project over and signing agreement was made on July 10th, 2017 (AKIpress, 2017a), but complications appeared shortly after when the company's experience was not properly checked, as the reports tell (AKIpress, 2017b). In September, the agreement was apparently terminated by Kyrgyz Prime Minister (RFERL, 2017b). Because financing the project is one of the biggest issue preventing the construction of dams, the government may often be the subject of such experiences. Thus, one should acknowledge the role foreign/external actors may play in this matter as it reinforces dependence on foreign capital.

Coming back to the previous extract of Molle et al., it echoes Barnes' argument on the important role played by international/external actors in imposing, or rather spreading a specific discourse on water, i.e. in the making of water (2014: 19 ff.). Orlove and Caton, while discussing how anthropology could help and offer a more integrated approach to water management issues, conclude that

> Too often in the past, water consumers have been the sole concern, along with their national governments; this mindset is no longer sufficient when one realizes the profound presence and involvement of the transnational community of water experts" (Orlove and Caton, 2010: 411).

This omnipresence of water experts revealed by Orlove and Caton leads us once more towards Michel Foucault and the power-knowledge nexus. Power and knowledge form, for Foucault, an analysis grid helping one to understand how a particular behavior can become accepted and eventually be further be spread. In other words, which Power is exercised in which knowledge? (Foucault, 1992: 32 f.). Water experts do possess a specific vocabulary on water, and one must acknowledge that two water experts may use two completely different discourses. A hydrologist will tend to focus on the quantitative aspects of the water resource while a human geographer or an anthropologist would rather be interested in the social aspects or the cosmology of it, leaving those scientists to set their discourses apart. Of course, this is an oversimplification of reality, but the point is that each knowledge acquired may spread different discourses, and with it, different forms of power. The government of Kyrgyzstan, through the adoption of the Water Code, along with constant advertisement for the construction of the Kambar-Ata 1, reinforces[72] the projection of the hydrologic cycle, a hydrosocial cycle that focuses mainly, if not purely, on a quantitative aspect of water. The social arena of the Kambar-Ata 1, as well as the Toktogul waterscape, contain those more distant/external actors. These locations can consequently also be the theatre of exchange between global and local knowledges. According to Long, this comes along with the current globalization phenomenon[73], which restructures among others issues on the relation between knowledge, science and technology, such as "the affirmation of the 'power of science' to transform social life and steer change; and the transformation of knowledge and technology at the interface between intervening 'development' institutions and 'recipient' group" (2001: 216). In Kyrgyzstan, distant actors are often embodied by International Organizations, foreign states agencies or even private companies willing to invest, in the case of the Kambar-Ata 1. According to a water expert in the region, those external actors push for a Water-Energy nexus that would divert water to energy for export purposes at the expense of local's interests, an issue dealt with in the next chapter.

The participative character that should rule over water-related decisions is not yet entirely part of Kyrgyz water governance although it is listed under the principles of the management of water resources that "[a]ll interested stakeholders should participate in planning and decision-

[72] the term "reinforce" is used to present a continuity of the view on water held by the soviet regime. Research on the understanding of and relations to water before the USSR could be interesting and would determine whether transformations in this relation occurred. Unfortunately, this does not enter within the scope of this paper.
[73] Globalization as long been present in Central Asia. Long cautions against the belief that globalization is a new phenomenon before listing literature on the subject. The fascinating review of the famous silk road offered by Peter Frankopan's *The Silk Roads: a new history of the world* (2015) could enter this same list.

making processes" (§1, Art. 6 of the Water Code). If the notion of stakeholder can be debated to know whether local residents should be considered stakeholder, there is little doubts that the Energy Department and the Water Department qualify as such. According to Bektur, the basin management principle which would require intersectorial cooperation is yet to be implemented and stronger cooperation is awaited.

To talk about a real Water-Energy nexus articulated in the country within which the water sector and energy sector work together might thus be inaccurate. However, due to a centralization of authority with regards to the decision-making process for the Kambar-Ata 1, the presence of dams to efficiently use the water of the Naryn river for the whole country and a certain continuity of previous water politics evoking the presence of path dependency, the idea of Kyrgyzstan (further) pursuing the hydraulic mission once set up by the Soviet administration (Wegerich, 2010: 323, Abdullaev and Rakhmatullaev, 2015: 856) is recognizable through many of the testimonies collected. The adoption of IWRM principles, even if not yet completely implemented, integrates Kyrgyzstan even more into a global economy[74] where its energy production potential is viewed as an export asset to be developed.

13 DAMMING THE RIVER TO MODERNIZE THE COUNTRY

Because water governance in the Kyrgyz Republic can be defined as "in transition" from a centralized authority on water issues to privatization of O&M and a more participatory approach with the future implementation of IWRM principles, speaking of a hydraulic mission remains relevant as it still characterizes the dominant approach of the state as well as shapes the state-population relationships around water. The idea and discourse that water is key for the development of the country and for the expansion of its economy are very often expressed by interview participants, state agents and in official documents. Along with seeing the development of a stronger and better agricultural sector, discussions with residents in the Toktogul valley regarding the broader development of the country often orbit around infrastructure development, unemployment, electricity prices and the stability of water level in the reservoir. This allows to conclude that indeed a perpetuation of projects and policies linked to a hydraulic mission should help this small mountainous country towards better prospects by

[74] Kyrgyzstan's economy openness was estimated at 105 per cent in 2011 (IMF, 2014: 10)

1) fighting unemployment by building additional dams[75]; 2) increasing electricity production in order to export it and generate new revenues.

Job creation remains an important subject for the populations living in this region, as the statistics compiled by the Kyrgyz government show a 7,7% of registered unemployment rate for the Jalal-Abad *oblast* in 2015 (National Statistical Committee of the Kyrgyz Republic, 2015). In fact, a majority of the people interviewed tend to link the project of the Kambar-Ata 1 with job's opportunity, as was previously shown (section 10). But as Féaux de la Croix and Suyarkulova report (2015: 123), public communications do not always ease people's concerns with regards to unemployment. The authors reveal misunderstandings spotted in the Naryn region around a medium-scale hydropower project, upstream of the Kambar-Ata 1. While villagers awaited the creation of some 3'000 jobs, a representative of the company in charge of the construction emphasized that their primary targets were experienced skilled-workers, a scarce "resource" in the area. It is safe to assume that the same workforce would be looked for with regards to the Kambar-Ata 1 and that the construction would not automatically benefit the job market in the region.

The main argument articulated to support additional construction of dams is that it will help reach energy independence, or reinforce Kyrgyzstan's energy security. Not only this strategy seems to be shared among state and international actors as official document assert, but the articulation of development understood by the population corresponds to the idea of development defined by the modernization theory, i.e. modernization.

The National Sustainable Development Strategy (NSDS) 2013-2017[76] sets the priorities for the development of the Kyrgyz Republic. It defines "the development of the energy sector […] a **priority** in the socioeconomic development of the country both in the medium term and the long term" (NSDS: chapter 10.2). Aiming at ensuring energy security and developing export potentials the development strategy wish, among the seven listed objectives, to "(1) ensure reliability and uninterrupted nature of supply of electricity, primarily to domestic consumers […] (6) develop a competitive advantages [sic!] of the Kyrgyz Republic in the regional electricity market" (ibid.). Objective number one refers to the energy security of the country through a steady and reliable supply of electricity. The solution to a reliable electric network is

[75] Although this might evoke the issue revealed by Molle et al. (2009: 328) that "infrastructural development has often become an end in itself", it should not be understood as Keynes' "hole-digging" idea in order to create job (2013: 129).

[76] The new strategic paper for the period of 2018 onward was unfortunately not available at the time of this research.

identified by the World Bank in the much-needed revamping of old infrastructures that are today the source of substantial losses and inefficiencies in electricity transmission. Indeed, the bank addresses the issue of transmission loss by supporting a more efficient electricity sector mainly through the rehabilitation of old power plants – a plan that could reduce Kyrgyzstan power deficit by half (World Bank, 2013). To that end the third phase of the rehabilitation of the Toktogul dam is currently under way. The focus on the Kambar-Ata 1 project by the successive government attests however of a determined will to construct the Kambar-Ata 1 and partly dismiss the World Bank's suggestions. In fact, the Kyrgyz government might see in the UNCTAD latest report on the country a support to further tame rivers of the country. The report highlights the fact that only 10% of hydropower potential was used, therefore describing the 90% remaining as potential development asset, i.e. as export commodities (UNCTAD, 2016).
Objective number six relates to the position of Kyrgyzstan within the regional market or global economy. Concretely, the latter means that the government wants to transform the Kyrgyz electricity sector to create an economy that is able to export its electricity in the region at a lower price than other countries. Indeed, a successful implementation of those objectives should "allow Kyrgyzstan to become by 2017 a major producer of electricity in the region and fully provide population with electricity and increase the export of electricity to neighboring countries" (ibid.). It logically appears that both objectives are intertwined and this is made clear when looking at other official documents.

The Kyrgyz Republic Sustainable Development Program 2013-2017 is another strategy paper, which was created as the administrative tool to properly articulate the NSDS 2013-2017 and communicated through the Poverty Reduction Strategy Paper (later referred in this work simply as PRSP). Dedicated to the "Development of strategic economy sectors", chapter 8.1 of the paper states "[t]he goal [of this development] is to ensure the Kyrgyz Republic energy security and develop export capacity" (IMF, 2014: 113). The development of a competitive advantage in the electricity sector that would boost Kyrgyz exports should only come once domestic demand is met and secured. It seems otherwise inconsistent with a sustainable strategy to export electricity if the national market requires then imports of coal and gas from neighboring countries.
As mentioned earlier, energy security can be understood as energy independence, especially in a region that has been characterized by tensions over energy supply between riparian states. Due to its very limited amount of fossil resources and endowment in water resources, Kyrgyzstan's energy security relies heavily on the hydro-energy and thus is strongly linked to

water security. In other words, energy security/independence comes through securing water and this tends to define the water of the Naryn river as an energy resource and thus shapes the water-society relations characterized by the domination of man over the Naryn river.

However, it seems that exporting electricity is a priority, as reported by a Professor at the University of Central Asia and expert of the region. The very question of whether Kyrgyzstan currently generates enough electricity to provide its population and then export the remaining electricity seems unresolved. In mid-2016, as Casey Michel (2016) reported in *The Diplomat*, issues of supply regarding the CASA-1000 project remained. He further informs that back in 2015 Kyrgyzstan, whose power generation have not change much since then, had to import electricity from neighboring Kazakhstan (ibid.). Indeed, without additional generation of electricity it would still have to import energy. Yet, because this event took place in winter this is not enough evidence to assert that Kyrgyzstan favors electricity exports over energy security. Instead, according to this Professor from the University of Central Asia, another trade-off is taking place: Water for energy. Pushed by external actors who see and often report of an unexploited asset, water is diverted to energy generation purposes and increasingly perceived as an economic good to be exported, at the expense of local residents, according to this expert. Identifying possible improvement in the integration of both energy and water sector in policy management in western countries, Hussey and Pittock (2012) see in the proliferation of hydropower plants the proof of this very trade-off between energy security and water security. Interviewed by a news media *24.kg* (https://24.kg/english/), the head of the National Energy Holding[77] said that Kyrgyzstan exports its electricity surplus since 20th December 2017 and until March 2018 into Uzbekistan at a price of USD 2,4 cents kWh (Kostenko, 2017). Since the average consumption/month/household in Kyrgyzstan was estimated to be 460kWh[78] in 2014 (World Bank Group, 2017: 18), and tariff for consumption up to 700kWh/month is set at KGS 0,77/kWh (USD 1,1 cent)[79], there is clear advantage to export and Kyrgyz authorities already tried to create competition between buyers and pick the highest bidder (Laruelle and Peyrouse, 2015: 227). Making clear that "[they] will sell the excess surplus", the head of the National Energy Holding told that total expected revenue could amount to USD 13.2 million (Kostenko, 2017). Because many households are equipped with electric heating, black-outs and electric shortages have occurred in the past.

[77] a new governmental body in charge of regulating the energy distribution market established in 2016 at the stead of the Ministry of Energy (World Bank, 2017a: 15, Kurmanbek, 2016: 6)
[78] As a comparison, a household in Germany consumes 257 kWh/month (World Bank Group, 2017: 18)
[79] see Annex 2 (National Energy Holding, 2018)

It is however difficult to understand where the surplus of electricity during the cold months would come from since the country does not meet its domestic demand in electricity in winter without imports as mentioned earlier (Michel, 2016). Consequently, it can be discussed whether the benefits of exporting electricity and the expected growth it would generate overshadows water security.

Exposing the complex issues of the management of natural resources in Central Asia brought to light by the Rogun dam project in Tajikistan, Laldjebaev (2010) discusses the water-energy puzzle in which the small Central Asia country is entrenched. Quite similarly to Kyrgyzstan, Tajikistan struggles to meet its domestic energy demand during the winter months due to the old sharing agreement on natural resources. A shift from irrigation towards electricity production is thus operated. As Féaux de la Croix and Suyarkulova (2015) argue, there are similarities between the two smallest countries in the region and the situation faced by the Kyrgyz Republic can also be seen as a water-energy puzzle.

Indeed, as articulated in this thesis, interview participants and government tend to relate to water as a factor of energy production and a key for development. What can be defined as a national interest to secure energy supply is reached through water management. As cooperation between sectors does not yet really characterize the management of the Naryn Basin, it is argued here that rather than a Water-Energy nexus, a Water-Energy tradeoff or Water-Energy relation is taking place, which might correspond better to the reality of the situation.

This relation between Water and Energy comes from the territorial distribution dictated by Stalin, which created an interdependence between the riparian republics (O'Hara, 2000a). The management of the Naryn river is therefore influenced by the relations maintained between upstream and downstream countries and does not necessarily affect the population of the Toktogul area. Some interview participants showed empathy and concern about potential effects of additional dams on the population living in the Ferghana valley, a region divided among Uzbekistan, Kyrgyzstan and Tajikistan and already experiencing ethnic divisions enhanced by difficult allocation, access to water and droughts hindering agriculture (Cariou, 2015, Bichsel, 2011, 2009).

Today Uzbekistan and Kyrgyzstan, both entrenched in their former role as soviet republics, carry their respective tasks of cotton production and water delivery. Looking for a more value-added activity and eager to provide electricity to its citizens, the Kyrgyz Republic increasingly became a hydro-energy producer and constructed dams, which deteriorated its relations with its western neighbor, Uzbekistan. Recent events however would argue for an improved

cooperation between the two countries, as the statement of the newly elected Uzbek President Mirziyoyev confirms it after a meeting with his Kyrgyz counterpart: "We will build the [Kambarata-1 station] together. Because it is indispensable to us, we need it […] We should do this in a way that is considered and rational, so that it is advantageous to both sides" (Eurasianet, 2017). Hence the water-energy puzzle of the Naryn water management might see a brighter future.

As explained above, relating to the water of the Naryn as an energy resource to be tapped and a force to be harnessed for economic purposes lie behind the reasoning for the construction of the Kambar-Ata 1. Within the notion of hydraulic mission that is still apparent in the country is the idea of the modernization of society, an idea rather labelled during the soviet era as industrialization. After all, and as previously mentioned, "the hydraulic mission […] was a celebration of technology and domination over nature, a linear view of history based on Rostowian stages" (Molle et al., 2009: 336), and therefore articulates precepts of the modernization theory. Walt Whitman Rostow along with with Seymore Martin Lipset are considered to be the main protagonist of the modernization theory in their discipline, respectively economics and political science. In *The stages of Economic Growth: A Non-Communist Manifesto* published in 1960, Rostow affirms that societies follow a five-stages model and development is primarily an economic question that included social development (Smith, 1997: 171). Lipset correlates the democratic level of a country with its economic development (1960) and both of them concur that social transformation within a society goes from traditional towards modernity in a unilinear way. Within the modernization theory, the primary factors contributing to the development of a country are often recognized to be industrialization and growth, two factors particularly looked after by the government of the Kyrgyz Republic.

Although one tends to associate modernization theory with capitalism or modern western societies and opposed to the USSR's model of development, a modernization discourse was also present in the Soviet Union as Schrader (2010: 9) notes: "unabhängig vom Kalten Krieg [basierte] Modernisierungsdiskurs in der Sowjetunion wie auch im kapitalistischen Ländern auf derselben Prämisse […]: Modernisierung durch Industrialisierung und Wachstum". Looking for greater energy independence by increasing supply, i.e. build more dams, Kyrgyzstan is set on a development path that could lead it towards an export-oriented economy and higher growth, a path in which not only government agents but also interview participants believe. In

other words, investing in hydropower plants, be it small or large-sized dams, is a path to growth and to sustainable development taken by the government and recognized by the population.
Consistent with its sustainable strategy, the fourth priority of the development of the Kyrgyz energy sector passes through satisfying the national economy's need in energy and secure energy independence. To address this objective, a series of planned measures for the implementation of large-scale projects is listed in the PRSP (IMF, 2014: 116 f.), among which:

> […] iii) construction of Kambar-Ata hydropower plant 1;
>
> iv) construction of four small hydropower plants […]
>
> vi) commissioning of the second hydraulic unit of Kambar-Ata hydropower plant 2;
>
> vii) CASA 1000 project works continuation

An increase in the production of energy could be exported and generates new revenues that would help diversify the economy (World Bank Group, 2017: 11 f.). The report also stresses the well-known argument of underexploited hydropower potential.
Promoted by the state, this development ideal is also wished by many interviewees. Development and/or modernization of the country eventually comes through the construction of dams for Azim, the local deputy:

> Dams are the most important thing that Kyrgyzstan needs today, because through those dams we can get money, we can get more electricity, because the production will be increased. (Azim, interview, 13.07.17).

For him, dams are an essential tool for the economy of the Kyrgyz Republic, and their numbers should increase in order to produce and sell more electricity. Bakyt follows the same logic and believes that dams are one of Kyrgyzstan's treasure box that would make life easier through electricity export:

> Our richness are the dams. If all the dams planned are constructed, it will be easier… to earn a living […] an expert from the World Bank once came to town and I discussed with him. He told me they assessed that if we were to export electricity to Afghanistan and Pakistan via CASA 1000, we would get about KGS 3 billion [USD 43,2 million] per year. That's not bad.[80] (Bakyt, interview, 9.07.17)

Although Bakyt first speaks about the value of dams for his country, he talks about its function of electricity producer, or rather about the value of dams through its function.

[80] French original citation : "Notre richesse ce sont les barrages, si l'on voit venir tous les barrages, ça va être plus facile à …gagner la vie… un expert de la banque mondiale, expert en eau et venu ici et m'a parlé. Ils ont fait l'analyse que si l'on exportait de l'électricité vers Afghanistan et Pakistan on toucherait à peu près 3 milliards de soms par an. C'est pas mal" (Bakyt, interview, 9.07.17)

For Asel, dams take a critical part in the modernization of the country, as their inputs further allows other sectors to be developed. Seeing the expansion of railways as one of the major priority for his country, he believes this can only come once more dams are built:

> First of all, we need railways, because we spent lot of oils (gas) and the roads are not of good quality. That's why we need electric railways to move inside the country…And we will not spend a lot of money to move goods. Because today, we are forced to deliver most of our things with the trucks, and it costs lots of money. That's why we need trains. […] And after the construction of railways, we can start thinking about other developments […] That's why we need first of all dams, because we need more energy. Then we can build our railways. Because they will need energy. They use energy (Asel, interview, 22.07.17).

In an informal exchange occurring later in the evening, he asserted while talking about the economic benefits of dam construction, that dams were indeed used by the government as a strategic development tool for the country.

Staying within the framework of the modernization theory and therefore understanding economic growth as synonym for development, not only the significance of dams, but indeed that of the Syr-darya river too and water in general has been expressed by the Kyrgyz government through times, as suggests the preface of "The Agreement on the use of water and energy resources of the Syr-darya Basin" of 1998:

> The Governments of the Republic of Kazakhstan, the Kyrgyz Republic, and the Republic of Uzbekistan, hereinafter referred to as the Parties:
>
> […]
>
> RECOGNIZING the fact that the appointed countries followed the agreed procedure of Syr Darya Basin Water and Energy Uses, ensuring social and economic development of their countries and people's welfare;
>
> NOTING that the Syr Darya basin, comprised of the area of four countries, has water and energy resources to promote the economic growth of the countries

In his speech at the United Nations General Assembly in September 2017, the president Atambayev expressed his concerns on climate change and its impact on the national and global economy. Exposing the disturbing state of the Kyrgyz glaciers, he went on to talk about the importance of water resources management for the economy:

> One of the main factors for prosperity in Central Asia would be the mutually beneficially use of water and energy resources. Kyrgyzstan unwaveringly advocates the development and implementation in our region of economic mechanisms for water use. The limited nature of water resources will sooner or later bring us to an understanding that water is an economic resource that requires reasonable use.[81]

[81] Atambayev Almazbek, President of the Kyrgyz Republic, Discourse at 72nd Session of the General Assembly of UN, New York, 20 September 2017 [Online] http://webtv.un.org/watch/kyrgyzstan-president-addresses-general-debate-72nd-session/5580575513001/?term [Accessed on 12 December 2017]

Both of these quotes highlight the economic character carried by water in Central Asia and Kyrgyzstan. Through both of the Kyrgyz strategic papers analyzed, but also among the majority of the people interviewed the water of the Naryn river or rather the ability to control this water is recognized as a vector of development and a prosperity factor for the country.

After all, this seems quite rational to perceive an abundant resource that is not used at its full potential as a tool to guarantee the security of the country's energy needs. Furthermore, building the Kambar-Ata 1 HPP would not consist of an enterprise that would contribute to the shrinkage of the Aral Sea, as repeated many times by residents around the lower Naryn basin. However, one cannot help but to see once again through those lines the achievement of the promise of the hydraulic mission so rightly defined by Molle et al. (2009: 332) "Not a single drop of water should reach the sea without being put to work for the benefit of Man".

This comes close to what many authors, discussing the human-nature relations within this modern framework, would call the Promethean vision of nature, or Promethean project. This refers to a utilitarian and scientific approach to nature as being a gift to be harnessed for the benefit of mankind. Kaika (2006) sees in the watering of Athens through the construction of the Marathon dam a symbol of modernization within which engineers and scientist became the modern Prometheus, bringing water to human beings instead of fire, to enlighten them [82]. Scott (1998: 90 f.) comes close to this notion as well when defining high modernism[83] as a near unconditional belief in scientific and technical progress for the betterment of humankind. He adds:

> [a]t its center […] a supreme self-confidence about continued linear progress, the development of scientific and technical knowledge […] the growing satisfaction of human needs, and, not least, an increasing control over nature (including human nature) commensurate with scientific understanding of natural laws.

For proponents of a Promethean project, nature (or water in this case) is again interpreted as external to society and defined in dualistic term84. Dominating nature becomes therefore a strategy for the development of the country, which was revealed earlier to be a leitmotif of the modernization theory.

The construction of the Kambar-Ata 1 follows those patterns influenced by a rather straight forward and linear economic mechanism found in the modernization theory. Strongly relying

[82] Asking "earth, mother of all" to witness his suffering, Prometheus narrates his wrongdoing: "I hunted down fire's stolen spring and hid it in a fennel stalk, revealing it to mortals as teacher of all arts, a great resource" (Aeschylus and Roberts, 2012). For Ruffell (2012: 62), Aeschylus description of fire "becomes […] the idea of progress itself".

[83] The term is borrowed from David Harvey's *The condition of post-modernity: an enquiry into the origins of social change* (1989).

[84] This corresponds to the third meaning of nature presented by Demeritt mentioned in the theoretical framework of this paper.

on scientific knowledge, rationality and positivism, societies go through a linear process of development, from the lowest to the highest stage. As Greig et al. (2007: 74) put it,

> progress involved breaking the chains of traditional society and moving towards the enlightened space of modernity, where individuals increasingly took control of their social and physical environment through an ever-expanding appreciation of science and experienced high levels of material affluence […] this process could be observed and measured in a scientific manner now that social scientists had a historical model – the modernization of the West […] methodologically, this framework presented a 'dualist' model of history that measured the change from 'ideal type' poles of tradition and modernity and compared […] the contemporary reality of poorer countries with the history of the western industrialized world.

Coming from the West, it often represented traditional societies living with nature as "undeveloped" while western societies' development, who successfully dominated their environment, was the goal to reach and the model to follow. Behind it lies the dualistic thinking of nature-society previously mentioned, or water-society dualistic relation denounced by Linton (2010) on modern water.

Dams could here be defined as a sort of black box that generates essential elements for a development according to the modernization theory. Dams create electricity that is sold to neighboring country – at a higher price than home, but still retaining a competitive advantage regionally – leading to growth. The increase of electricity supply generated in winter by the Kambar-Ata 1 would trigger a reduction of energy imports and thus improve the balance of trade. The process describes the idea of import substitution, an ideal shared by both modernization theory and import substitution industrialization (ISI) proponents, sometimes referred to as cepalismo[85] and part of the dependency theory. However, as Greig et al note (2007: 88), the difference between the two approaches lies in the role of exogenous factors such as foreign capital, which is sought by the Kyrgyz government for the Kambar-Ata 1. While the former views foreign investment positively because it is believed to ease the development process of Kyrgyzstan, the latter considers unwise to rely on such investment and asserts it intensify dependency of the country and vulnerabilities on external conjunctures (ibid.).

Nevertheless, one must also note that steps have been taken and are taken to develop a renewable energy resources sector. The adoption of the Law on renewable energy in 2008 goes in that direction. This law distinguishes large-sized dams from small hydropower plants as it defines dams with an installed capacity up to 30 MW as renewable energy sources (Botpaev et al., 2011). Within the sustainable development strategy, renewable energy resources are promoted and fostered through the development of financial incentives, development of "the

[85] The term comes from United Nation's Economic Commission for Latin America (CEPAL). Raul Prebisch, economist and former director of this Commission implemented the idea of import substitution industrialization (Kingstone, 2011: 32).

Kyrgyz Republic wind, sun and biogas atlas" and the construction of small hydropower plants around the country (IMF, 2014: 115 f). Despite these efforts and the good (natural) conditions for its use, Botpaev et al. (2011) note that the share of renewables outside hydropower remains negligible.

Potential alternatives of renewable energy production are unfortunately hindered by the perpetuation of a hydraulic mission through the push of a "water for energy" agenda, which further increases the reliance of the Kyrgyz Republic's energy sector on hydropower.

It also allows Kyrgyzstan to integrate the more globalized economy of trade and liberal exchanges. With projects such as CASA-1000 pushed by USAID for instance, the country enters the free market and, following the path described by Rostow (1961), wish to finally reach the final stage of modernization. It has been exposed however that this future is uncertain when one considers the lack of financial autonomy on the Kambar-Ata 1 project and the crucial need of financial aid to realize a project which estimated cost amounts USD 3 billion (Bar, 2015: 255).

Because of this high cost of construction, it is rather unlikely that electricity prices would go down as many resident hope.

Yet, without a price increase, this could also mean that the ownership of the Kambar-Ata 1 would stay longer in the hands of its investor, more than likely to be foreign. This simply further reinforces the country's dependence on foreign direct investment (FDI) in the electricity sector[86]. In 2015, Laruelle and Peyrouse (2015: 234) noted that Russia remained the largest foreign investor in this sector in Central Asia. The situation could thus be summed up as followed:

> For both Kyrgyzstan and Tajikistan, a dilemma has emerged: should large power stations be privileged on account of the fact that they would guarantee both countries substantial export revenues, or is this outweighed by the cons that include their exorbitant cost (several billion dollars), the environmental damage caused, and interstate tension? Arguing in favor of smaller power stations is the fact that they are relatively cheap, are less politically contentious regarding neighboring countries, and provide more for local populations? (Laruelle and Peyrouse, 2015: 232)

Again, small hydropower plants would represent a possible viable alternative within the sustainable development strategy of the Kyrgyz Republic as it would increase electricity generation while releasing few CO_2 emission and remaining financially more affordable, thus relying less on foreign capital, a strategy considered by the World Bank (Gassner et al., 2017)

[86] FDI in the whole country accounted for 17% of GDP in 2015, while Net Official Development Assistance (ODA) accounted for 11.5% of GDP for the same period (World Bank, 2018).

14 CONCLUSION

"If dams are not a good thing, what was the point of it all?"
(Féaux de la Croix, 2010: 6)

Approaching the Kambar-Ata 1 as a social arena embedded in the Toktogul waterscape, section 10 tried to demonstrate the historical influence of the USSR's industrialization strategies on nature, people's behavior and, their relations to nature and the Naryn river. Soviet experiences are still very present in the mind of the respondents and as has already been argued, can be recognized as factor determining people's position on current projects. Indeed, the industrialization strategies driven by the USSR in Central Asia, including the erection of the Toktogul dam offered improvements on the Kyrgyz territory and the development of new location such as the workers' town of Kara-kul. However, this also generated the forced migration of populations of the Ketmen-töbö valley on less fertile lands.

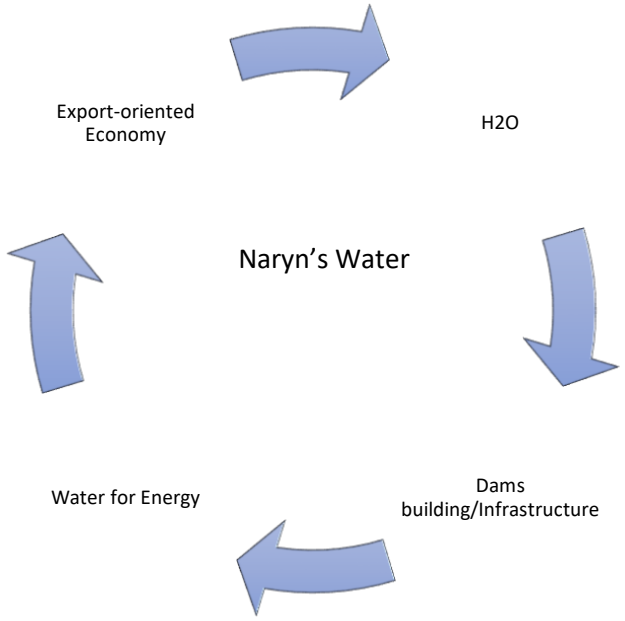
Recognizing the improvement that came with previous similar projects as well as the potential asset it may bring to the economy of the country, interview participants predominantly support nonetheless a project that has been around since the 1980s, and promised them a better future. Several unclear arguments came to be mentioned by people to support the construction of the dam. With the painful memories of what lies today under the Toktogul reservoir, it is important that no population is relocated. With the exception of a few pastures, the location of the dam would not create displacement of population according to the respondents, the authorities and impact studies. Then the question of unemployment can also be counted as important factor. People see in the construction of the Kambar-Ata 1 an opportunity to fight unemployment, create new jobs and allow family members to come back. The question however remains open as it seems that skilled-workers would be needed. Finally, electricity prices were a recurrent subject and it is unclear whether the construction of the dam would mean cheaper electricity for the resident of the Toktogul valley.

Because this research focused on an area and a river already highly regulated by several dams, it is hard to evaluate how much would the Kambar-Ata 1 dam affect the hydrosocial cycle and the waterscape of the region. By approaching the location of the Kambar-Ata 1 as a social arena, and staying within a social constructivist framework, this research argue that a social production of space has been occurring that enables people to identify their region as strategic for the national electricity production. Considering and defining water infrastructures on the Naryn river as strategic for its national security but also for the development of the country, the

government of the Kyrgyz Republic reinforces its position as decision-maker in this social arena. The lack of consideration for public opinion, or lack of participation speaks for a continuation of social relations based on the same power dynamics, which is maintained and justified from a positioning of the state as pursuing a form of hydraulic mission, ensuring national and energy security and promoting development by exporting electricity (section 11).
Through the relationship "maintained" between the authorities and the population of the area, it is difficult to focus on the perspective of the population solely. To that end, the State perceptions has also been considered. Furthermore, this same population seems to have integrated the same discourse as the State, one of water conservation and domination of nature for the betterment of human beings.
The relationship between the two comes from the framework of the hydraulic mission set by the former USSR regime, of hydraulic mission. This gives the current state legitimacy to take unilateral decision regarding the management of the Naryn as it is defined as national interest, for security reason (with the already built dams of Toktogul for instance) and for energy security too (reason for the construction of additional dams). This thesis argues that the water of the Naryn river is essentially seen as a mean of energy production, a perception of and relation to water that has been integrated by the local populations and advanced by the government. It is important to note that this research mainly focused on the representation of one specific water, the water of the Naryn river, and require sometimes, for contextualizing purposes, to discuss about water on a State level.

People therefore agree with the construction of dams, as they recognize the need to create more energy and sell it afterwards, and transforming the country into an export-oriented economy, a form of development shared by other nations in the Global South as the case of the hydraulic mission in Ecuador shows (Warner et al., 2017). Furthermore, the apparent efficiency of the Kambar-Ata 1 dam also convinces people that it is a rational choice. (1900 MW with a smaller reservoir than Toktogul, which has minor consequences on the environment according to the interview participants).
Because they are already on this path, a Water for Energy relation is further advanced and the construction of additional dams is seen as the most rationale choice, because of the availability of the resource and the apparent cost of investing in other renewables. Thus, the hydrosocial cycle of the lower Naryn basin could be represented as in Fig 7.

Fig. 7 The hydrosocial cycle at the lower Naryn river



Source: own representation inspired from Linton and Budds (2014: 176).

Yet the cost of such a strategy could be high if private companies or foreign agents were to keep their hands on the dam, and Russia seems to be hold in favor by the Kyrgyz Republic, recreating a form of dependence on the big brother from Moscow (Pannier, 2017). Therefore, it is argued that following such a development strategy is risky and may reinforce the current power relation on the international scene, as Kyrgyzstan crave for foreign direct investment for the dam. Assumptions derived from the dependency theory could reveal themselves true. However, lights may also come from Uzbekistan as the thaw initiated after the election of the new President Mirziyoyev could push his country to actively participate in the construction of the Kambar-Ata 1 (Eurasianet, 2017), and therefore offer new opportunities for cooperation that is considerably needed in the region.

Dragged into this vision of water and nature – i.e. a construction of water – the development of the country follows the precepts proposed by the modernization theory, namely industrialization and growth, two objectives already pursued by the Soviet Union in its time (section 13). Dams are perceived as development tools creating new revenues to be further reinvested, but they are also political tools. Building the Kambar-Ata 1 could help secure national and energy security. It could also help to realize Kyrgyzstan's electricity export ambitions through an increase of supply.

Setting his actor-oriented approach against a modernization theory approach to focus on the micro-level instead of the more macro-level perspective adopted by the latter, Long asserts that

social changes occur on the level of the individuum rather than exercised by external forces. However, this does not mean that the Kambar-Ata 1 project, as development intervention, cannot correspond to what modernization theory defines as process of development. Indeed, the decision to build the dam is a top-down decision that is more easily accepted because of the construction of water in the Naryn river as a quantifiable factor of energy production.
The development path on which the Kyrgyz Republic is set requires a promethean vision in which nature must be dominated. The assertion from Benedikter (2014: 270) that "[t]he past and present hydro-social modernization in the Mekong Delta has been driven by the government's boundless faith that scientific rationality and modern technology can put the deltaic hydro-ecology in the service of human development" corresponds to the vision of the Kyrgyz government, and shared by the population, on the lower Naryn basin. It reflects therefore the development model of the modernization theory.

In this modern water framework, a solution for transboundary issues for Kyrgyzstan would be to put a specific price on water, as "[r]ising gas prices and the shift to a more market-oriented economy have prompted Kyrgyzstan's lawmakers to re-evaluate the value of water as a resource" (Bichsel, 2011: 26). Uzbekistan, on the other side, is critical of this view and argue against the fact that water can be owned by a country "and whether the water supply should be treated as an economic commodity" (ibid.).
Dealing with the notion of modern water through the implementation of IWRM and WUAs (section 12) also shows that a form of standardization of values and norms is occurring in Kyrgyzstan. Through the implementation of IWRM, the management of water surrounding dams on the Naryn river could be improved, especially in terms of cooperation between countries and intersectorial cooperation. This would reduce possible silo-thinking.
If small HPPs are considered as viable alternative, other renewables may also be worth looked into, as the potential is also there. Incentives to reduce consumption of electricity should be found and alternative to proper heating system proposed. Furthermore, as international institutions of the like of the World Bank suggest, repair of existing infrastructures, whether it be dams or transmission lines should be a priority in order to cut transmission losses due to ageing infrastructures. Thought within the SDG agenda and the own sustainable strategy of the Kyrgyz Republic, creating incentives to reduce consumption and better information on this matter should also be considered.

By trying to answer the main research question, an important sub-question needed to be answered: Why are oppositions against the Kambar-Ata 1 not more vocal? “If dams are not a good thing, what was the point of it all?” (Féaux de la Croix, 2010: 6). This quote sums up the opinion of many who borne the cost of electrifying the region by losing their home and their land to water. This question helped structure the research in order to understand how a water infrastructure, its surrounding environment and a society can mutually influence each other?
The answer can be found in the relation people have with the river, and with previous constructed dams / past experiences. Those, with other relations to nature in the region, englobe what has been called “Waterscape” in this research.
Following a social constructivist approach and argumentation, and adding the time and space equation proposed by Long when analyzing development intervention, this waterscape is thus constructed by the succession and overlap of the historic hydraulic mission driven by the Soviet Union at its time, the introduction or rather confirmation of modern water in the country, and the high modernist idea of dominating the wild water of the Naryn to modernize the country.

The approach to water governance adopted for this research allows the researcher to consider the lifeworlds of the actors surrounding the social arena of the Kambar-Ata 1 dam. The analysis shows that the idea of water for energy is already strongly embedded within society and the construction of additional dam only reinforces this view, as well as the relations between actors and their relation to water.

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16 ANNEX

Annex 1 Table of principal data collected

What	Who/Where	sex/age	City	Occupation	main subject of discussions
interview	Aksakal	male/65	Toktogul	aksakal, use to be sales man, teacher, policeman	1)role of aksakal 2)water situation in the region, 3)importance of dams
interview	Kurmanbek	male/72	Karasuu	retired, worked for newspaper	1)consequences of Toktogul dam construction, 2)opinion on dams
interview	Spets fund chef	male/52	Toktogul	work for govt, nominated by prime minister	1)role of spets fund, activities, 2)water situation 3)dams in the region
interview	Azim	male/44	Kara-köl	local deputy/hydroelectric company employee, mgmt	1)role of local deputy and organization of society 2) water situation in Kara-köl region, 3)relation to water, 4)importance of dams 5)dvpment
interview	Azamat	male/50	Kara-köl	hydro-engineer	1)technical aspects of dams (rather toktogul and the rest than KA1), 2)dvpment and importance of water and river
interview	Asel	male/70	Bishkek	Professor of historical astronomy	1)water perception, 2)role of water and dams, 3)history of Toktogul region (he wrote a book on history of the region)
informal discussion	Ruslan	male/64	Toktogul	municipal worker	
informal discussion	Nurlan	male/ 75	Kara-köl	retired, work for Toktogul and KA2 construction	1)opinion on dams, 2)water situation
Informal discussion	Bektur	male/48	Bishkek	work for Dept of Water Resources, on project with WB (I still have business card).	1) role of WUAs 2) organization of WUAs 3) cooperation within Water Department 4) importance of water
informal discussion	sales woman	female/35	Toktogul	sales woman	1)electricity price 2)meetings

informal discussion	taxi driver	male/42	Toktogul-Kara-köl	taxi driver	1)water infrastructure
informal discussion	Acel	female/31	Kara-köl	Toktogul waters	role of local deputies
informal discussion	Urmat's mother	female/64	Kara-köl	self-employed, manages a Kindergarten	living in the region, empathy for Toktogul people who suffered more than her
informal discussion	Bakyt		Ozgarysh		irrigation canals built by Spets fund, funded by WB.
informal discussion	X	male/40	Bishkek	CA University Professor	1)perception of water in KYRG and CA, 2)role of dams and water for economy, 3)role of external actors pushing for Water-Energy nexus
informal discussions	Bakyt	male/27	Toktogul	guesthouse manager	1)water use and situation in the region 2) water perception and relation (agriculture, hydro-energy, to drink, leisure)
informal discussions	Bakyt's Friends and a sheperd		Ozgarysh		dam constructions
interview & informal discussions	Urmat	male/33	Kara-köl	hydroelectric engineer	1)water perception(hydro-energy, leisure, drink water), 2)electricity. 3) relation to water
being questionned	policeman	male	Toktogul	policeman	reveals how sensible this subject is and how strategical (security wise) dams are/can be seen
observation	visit of Toktogul museum		Kara-köl		history of Kara-köl, the construction of dams, fotos of events, important figures,
observation around kakar-köl	with Urmat's family		Kara-köl		1)relation to water
observation around Toktogul dam	on top of Toktogul dam and on the way to it		Kara-köl		1)perception of dam 2)strategical site(security) 3)water source(healing/healty virtue)
observation on the street	children and 1 adult		Toktogul		water "waste"?

Annex 2: Electricity Tariff

No.	Consumer groups	Tariff (tyiyn for 1 kWh)
1	Population including:	
1.1	at consumption up to 700 kWh per month (except population, high mountains and separate zones)	77
1.2	when consuming more than 700 kWh per month	216
1.3	population living in high mountains and remote areas of the KR, when consuming up to 1000 kWh per month in the period from October 1 to May 1	77
1.4	population living in high mountains and remote areas of the KR, when consuming more than 1000 kWh per month in the period from October 1 to May 1	216
2	Pump stations	77.9
3	Non-domestic (industry, agriculture, budget, other) consumers	224

Source : (National Energy Holding, 2018)