Dams of Damocles

between rivers, states, and geopolitics

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Abstract

Theories of transboundary water politics have failed to explain the *status quo* in many river basins: fragile political relations between riparian states and nationalist domestic politics, as well as weak regional institutions and huge economic inefficiencies – but also an absence of wars over water. This is due to an uncritical approach to scale, power, and geopolitics. It is the purpose of this thesis to address these conceptual gaps by critically evaluating the multiple relationships between the logic of large dams and the politics of international rivers.

The meaning of dams, the politics of their operation and construction, and their impact on international relations are much more ambiguous, opaque and complex than existing explanations have suggested so far. In turn, their logic influences, competes with, and contradicts the logic of river basin governance. Dams produce alternative spaces of development, energy, and state power that complement or are superimposed on existing spaces of riparian cooperation. This thesis argues that the contradictions between these spaces explains the geopolitical limbo of many international rivers in the developing world.

Drawing from Foucault's governmentality theory, the literature of critical geopolitics, and post-structural approaches to spatial scale the case-oriented research design of this thesis evaluates two geopolitical processes in contentious transboundary river basins: the construction of the Grand Ethiopian Renaissance Dam on the Nile and the operation of the Toktogul Dam in the Kyrgyz stretch of the Syr Darya River.

By unpacking these processes, this thesis makes three substantial contributions to existing scholarship. Firstly, it is argued that regional river basin management is essentially a geopolitical project that contradicts the geo-economic imperatives of the dam. Secondly, power and agency in water politics is diffused far beyond the nation-state and can be understood in terms of "network effects". Thirdly, to marry the concerns of the geopolitical and the geo-economic, I propose that the contrasting logics give rise to "geopolitical entrepreneurs" – actors who use geopolitics for wealth accumulation, legitimacy, nation-building, and other ends. While dams may provide power, wealth, and authority an allegorical *Sword of Damocles* is let down on the riparians.

Acknowledgements

A great number of people have lightened the travails of this DPhil project. I would like to thank my supervisors Prof. Judith Pallot and Dr. Patricia Daley for the constant support, detailed feedback, and fruitful insights into empirical and theoretical questions. This work and my intellectual development are highly indebted to you.

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I would also like to thank my colleagues from the MPhil and DPhil courses, friends from St. Hilda's and Brasenose Colleges, as well as the students I had to pleasure of tutoring. Moreover, this project would not have been possible without the company of my good friends in Oxford and elsewhere, or without the continuous love and support from my family and Evelyn.

The periods of fieldwork have made this research project a truly special experience. Arguably, the most risky part was the scheduled meeting with my local guide in Bukhara, at seven in the morning on the square in front of the Ark – the last time two Oxford geographers "met their guide" there, they were captured, thrown into a vermin pit and subsequently beheaded on the same square.[1] Luckily, my explorations in the field ended on a more positive note, but for these encouraging experiences I will have to thank more people in Ethiopia, Kyrgyzstan, Uzbekistan, and Kazakhstan than I can possibly list here. I am grateful to all.

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All mistakes remain my own.

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[1] This were Charles Stoddart and Arthur Conolly, who explored Central Asia in the context of the "Great Game" during the 19th century.

[2] The namesake was a servant to King Dionysus II of Sicily, who was known to be very rich. Damocles remarked one day that his king was very fortunate to be a great man of wealth, power and authority.

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Chapter 1 A tide in the affairs of men

The logic of large dams, the politics of their operation and construction, and their impact on international relations are issues much more ambiguous, opaque and complex than theories on transboundary rivers have suggested so far. This introduction chapter presents a case-oriented research design to investigate the multiple relationships between the logic of dams and the geopolitics of rivers, which will address some of these analytical voids.

1.1 The study of dams and transboundary rivers

The question of scale poses a fundamental challenge to the study of transboundary rivers. Is an international river global or local? In response to this question – in the context of a railroad – French social theorist Latour claims that it is both (Latour 1993). A river is local at each single point of its flow, but it is also part of national, regional and global processes. The geography of a river is, therefore, highly complex.

Hydraulic interventions in river systems, such as the construction of dams, further complicate the geography of rivers. The concrete structure of a dam is local, because it is visible in landscapes and can be captured in geographic coordinates. Yet its impacts are felt in places far removed from the immediate locality, even beyond the river valley. Unpacking the geography of dams further, we find a permeable line between the natural environment and society. We see an uneasy relationship between the science and engineering involved in the building and the politics of decision-making. We also find that the distribution of impacts, in terms of the costs and benefits, is very unequal spatially and among different groups in society, as the final report of the World Commission on Dams attests (WCD 2000).

If geography is essentially about power (Allen 2003), then the tale of a dam is a story of power in its most complex and contested form. The most important stories to tell are those of dams on international rivers, because geopolitics presents the management of dam and river with additional formidable challenges.

Nevertheless, there appears to be a critical gap in the literature between the analysis of transboundary water politics – which is conducted at a river basin scale – and the analysis of the politics of construction and operation of dams – which is observed from a local or national scale. In fact, most social research is framed in only one of these two scales. But choosing an analytical scale presupposes a distinction between the global and the local, against which Latour and other thinkers have warned.

In response to this contradiction, it is the goal of this doctoral thesis to critically evaluate the multiple interactions between the logic of large dams and the politics of transboundary rivers. The argument in the pages to follow is that the rationale of large dams may be opposed to, or conflicting with the rationale of managing the river basin. The tension between the logics of different spatial scales does not only pose a challenge to academics, but to hydraulic bureaucrats, diplomats, and politicians alike. Worryingly, this tension can have rather adverse geopolitical consequences. Only problematising the "politics of scale" can reveal some of the underlying power relations that reproduce the contradictions of the *status quo*. This argument is supported by a case-oriented research design, featuring the Grand Ethiopian Renaissance Dam on the Nile River and Kyrgyzstan's Toktogul Dam on the Syr Darya River.

While the title of this study, *Dams of Damocles,* enjoys the benefit of alliteration, the classical reference can hopefully offer more than a style figure. It refers to the Greek legend of the "Sword of Damocles".[2] The sword signifies the risk and fear that often accompanies wealth, power, and authority. Cicero wrote about this legend that 'there can be no happiness for one who is under constant apprehensions' (Cicero AD45 [1888]: 186). Great dams may offer enormous wealth, power and authority to certain groups in society too, but this is frequently complemented by risk and fear in turn. Sometimes the balance hangs on the proverbial horse's hair.

1.2 The geopolitics of water

The term "hydro-politics" was coined in the late 1970s by Waterbury (1979) and a burgeoning literature on the geopolitics and international relations of transboundary rivers has developed in

[2] The namesake was a servant to King Dionysus II of Sicily, who was known to be very rich. Damocles remarked one day that his king was very fortunate to be a great man of wealth, power and authority. The king offered to switch places and Damocles readily accepted. Although he was now able to command a virtual unlimited wealth, the former servant was never to be happy. A large sword was let down from the ceiling, suspended by a single horsehair, so that it would always hang over his head. Although the legend itself is probably older, the *locus classicus* is found in Cicero's *Tusculanae Disputationes*, published around the year 45 AD.

the decades since. Instead of seeing the governance of international rivers as an engineering or management challenge, Waterbury and other scholars argue that it is a political challenge. [3]

In the last twenty years, the debate on the geopolitics of international rivers has been dominated by two opposing narratives. One predicts upcoming "water wars" over increasingly scarce water resources, whereas the alternative argues that scarcity leads to cooperation among riparian states instead. More recently, the academic dispute has tilted convincingly to the side of the latter, although the popular press and certain policy communities seem to cling to the water conflict discourse for a variety of reasons.[4]

The popular geopolitical discourse that warns us of the risks of imminent water wars is based on a neo-realist understanding of international affairs. In an anarchic world system, nations-states will do all they can to maximise their gains. Under this assumption, water scarcity provides a rationale for violent conflict (Cooley 1984; Starr 1991). The relationship between scarcity and conflict that these authors presuppose has been borrowed from the environmental security paradigm proposed by Homer-Dixon and others (1999).

But this worldview has led to exaggerated statements by highly influential figures such as former Secretary-General of the United Nations Boutros-Ghali, as well as former Vice-President of the World Bank Serageldin.[5] Under influence of this discourse the United States Senate Committee on Foreign Affairs published a report as recent as 2011 concluding that 'the United States cannot expect [South and Central Asia] to continue to avoid 'water wars' in perpetuity' (Kerry et al. 2011: 12). Such conclusions are worrying because they are increasingly diverging from the academic consensus.

While there is also academic work that can be identified with a neo-realist worldview, its conclusions have been more nuanced and its contributions more meaningful. Lowi's book

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[3] Waterbury's *Hydro-politics of the Nile Valley* (1979) is acknowledged as the foundational work of the academic sub-field. His study was an analysis of the international relations of the Nile riparian states.

[4] Katz (2011) evaluates the incentives of different actors for maintaining this discourse.

[5] Boutros-Ghali has stated repeatedly that the next war in the Middle East will be over the water of the Nile River (for instance Pipes 1997). Serageldin suggested likewise and repeated in 2009 that 'the wars of the twentieth century were fought over oil and the wars of the next century will concern water' (in Andelman et al. 2009: 25).

Water and Power (1993) on the politics of the Jordan River for instance, but also the classic Nile study of Waterbury (1979), look at the relationship between relative power, location of the riparian state, and water demand in an attempt to explain and predict international behaviour.

The second discourse, which is now dominant in academic communities, proposes that water scarcity is either socially constructed (Aguilera-Klink et al. 2000) or that it will lead to cooperation rather than conflict. Innovative research into transboundary water resources has been conducted by a team from Oregon State University. Collecting information on transboundary water conflicts in a large database, Wolf and his colleagues concluded that history has seen only one instance of a war over water resources – but this was thousands of years ago. However, other types of conflict do occur and its drivers merit further research (Wolf 1998; Wolf 1999).

Seeing the international configurations in a river basin not as zero-sum, but rather as a win-win game this school of thought further argues that states will seek cooperation when their modes of thinking shift from a national to a regional scale (Alam et al. 2009). With their benefit-sharing model, (former) World Bank economists Sadoff and Grey propose that if all riparian states recognise the benefits of hydraulic developments and share these rather than water, cooperation is the most likely outcome. Regardless, everyone's share of benefits will be larger than before (Sadoff & Grey 2002).

Others highlight the importance of international law and global institutions, even though international water law has been generally ineffective thus far (Conca 2006). The *UN Convention on the Law of non-Navigational Uses of International Watercourses* has been open for signature for almost fifteen years, but still has not entered into force for lack of signees.[6] Nevertheless, bi- or multilateral rivers agreements work in well-developed institutional contexts such as Europe (Wouters 2000).[7] Some authors see a positive trend and ground their belief in

[6] Although its main principles – do-no-harm, equitable-use, and consultation of other riparians – have been enshrined in many bi- and multilateral agreements.

[7] One rare positive example is the dispute between Slovakia and Hungary over the Gabcikovo Dam, which was resolved by the International Court of Justice in the Hague (Ingram 2004).

the cooperation discourse in the assumed capacity of nation-states to achieve legal cooperation over rivers (Blatter et al. 2001).

Another proponent of the cooperation discourse is Allan, who invented the concept "virtual water" to explain the absence of any wars over water (Allan 1998). Because water is scarce in some places but relatively abundant globally, arid states can import "thirsty" commodities rather than produce them domestically. He argues that water wars do not make sense when it is cheaper to import goods than wage a war to secure the water source:

> riparians would go to war over water but the invisible and silent remedy of virtual water trade is so invisibly and silently effective that riparians take the economically attractive and politically costless route to water security (Allan & Mirumachi 2010: 21).

Yet the crux of the argument of both narratives – scarcity leads to cooperation or conflict – fails to explain what is happening in many international river basins worldwide (Zeitoun & Mirumachi 2008). There is neither cooperation nor conflict, but an uncomfortable relation between the basin states, ineffective regional institutions, and inefficient economic systems where all forego many of the rewards that could be reaped from good water management. It seems that 'conflict and cooperation are in fact ever-present and may be two sides of the same coin rather than opposing ends of a spectrum' (Cascao & Zeitoun 2010: 29).

1.2.1 Hydro-hegemony and its limitations

This idea – the absence of water wars does not mean that there is absolute peace – has been taken up by Zeitoun, Warner, and others to evaluate the role of relative power in the geopolitics of transboundary rivers (Zeitoun & Warner 2006). Assuming that most international settings have weak institutional arrangements, there must be power asymmetries between riparian states.

The authors follow the three-dimensional model of power developed by Lukes (1974) to differentiate between structural, bargaining, and ideological power. Structural power is conventionally understood as hard power, measured in terms of military strength and financial might. Bargaining power is the power to control the rules of the game and to set the agenda of international discussions. Ideological power includes the control over knowledge production,

scientific data, and ultimately "the truth". States use their relative power to capture as much of the water resources as possible, with tactics such as coercion, treaties and discourse construction. In most cases studied by the authors, a single hydro-hegemon emerges that is best able to exploit its power.[8]

The theory of hydro-hegemony has made important headway in conceptualising the politics of transboundary water resources. A special issue of the journal *Water Policy* in 2008 on hydro-hegemony suggests that the approach is gradually becoming more mainstream (Jägerskog 2008). Nevertheless, there are a number of fundamental conceptual gaps remaining in both hydro-hegemony theory and alternative explanations of the geopolitics of international rivers such as those underscoring transboundary legal regimes.

Hydro-hegemony is essentially a framework for international relations (IR). The only actors are assumed to be nation-states, which are necessarily perceived as stable and static entities with fixed interests. In turn, hydro-hegemony has taken over many of the assumptions of IR theory, which notoriously neglects many of the political processes that take place *within* the state. Buzan and Little (2001) call this conceptual void "IR's Westphalian straightjacket".

Awarding agency in geopolitical affairs only to the nation-state is unsatisfactory, because, by extension, dams and other hydraulic structures are reduced to tactics of power rather than seen as political processes in their own right. The continued relevance of the nation-state should not be underestimated, but these theories of transboundary water politics risk the territorial trap Agnew warned against (1994).

The analytical shortcomings concerning state, agency, and power follow from an uncritical stance towards scale. Implicitly, the modellers of hydro-hegemony use scale to frame their analysis, rather than attend to how scale is socially constructed and politically contested. Some suggestions for a more critical stance towards the politics of scale can be found in the literature on dams and the state.

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[8] Zeitoun and Warner present case studies of the Nile, Jordan, and Euphrates-Tigris basins, where Egypt, Israel and Turkey are the respective hydro-hegemons (Zeitoun & Warner 2006).

1.2.2 Dams, states, and the construction of scale

One way forward is by framing water management strategies in the context of the hydraulic mission. This is a conceptualisation of the relationship between state power and the unprecedented rate of hydraulic improvements over the last century. The hydraulic mission is defined as the ideological rationale to harness rivers for development through the construction of dams, storage reservoirs, and irrigation canals.

Wester distilled a definition of the hydraulic mission from earlier work of Reisner (1986) and Swyngedouw (1999): 'the strong conviction that every drop of water flowing to the ocean is a waste and that the state should develop hydraulic infrastructure to capture as much water as possible for human uses' (Wester 2009: 10). Almost by definition, the hydraulic mission has been led by the state which authorised domestic political elites to redraw the spatial and scalar contours of waterscapes.

Earlier, Wittfogel's landmark study of ancient hydraulic civilisations has been an early attempt to analyse the political consequences of the hydraulic mission. Because of the immense labour required for the construction of hydraulic works, only states with central control over capital and the population manage to build dams and networks of irrigation canals. In turn, these hydraulic civilisations concentrate power among a small elite that tends to turn despotic over time (Wittfogel 1957).

Worster takes up the idea that large-scale irrigation leads to a particular, authoritarian form of state organisation. But rather than studying ancient civilisations, Worster looks at contemporary California. Surprisingly, he discovers many parallels with Wittfogel's study, albeit mediated by the modern-day capitalist system (Worster 1985). His landmark findings have subsequently been popularised by the journalist Marc Reisner who writes in *Cadillac Desert* (1986) the oft-cited phrase that 'water flows uphill to money and power'. Those with power and capital can mobilise the resources to move water to where a favoured group of users can benefit. These conceptualisations of the relation between state formation, power, and elites

on the one hand and control over water resources on the other problematise static conceptions of agency in geopolitics.

Another group of scholars has examined the relationship between dams and the politics of scale. Swyngedouw, for instance, writes that the transformation of waterscapes during Franco's dictatorship in Spain has been a political project aimed at securing territorial integrity and "rescaling" power from local to national levels. The water crisis may have been acute, but the response –building more dams – has been tightly linked to the goals and interests of the domestic elites (Swyngedouw 2007).

Moreover, it has been theorised how modern hydraulic developments embody society's triumph over nature (Kaika & Swyngedouw 2000). In a different strand of the same argument, Mitchell declares in his book *Rule of Experts* that: 'large dams offered a way not just to build irrigation and power systems, but nation-states in themselves' (Mitchell 2002: 44). It seems that dams are more than merely a tactic of power.

In addition, Bakker's study of hydropower development in the Mekong basin makes the link between dams and the geo-economics of capital accumulation. Hydraulic development, in particular for the purpose of generating exportable hydroelectricity, 'will operate primarily, and most importantly, as a means of commodification, and simultaneously as a means of extending state control into predominantly rural areas' (Bakker, 1999: 212). The decision to build dams is, then, driven by processes of power and the territorialisation of the state, rather than by beneficial cost-benefit analyses alone.

The literature on dams, power, and the politics of scale has made important contributions by questioning the scale and agency of dam construction and operation. The meaning of dams, the politics of their operation and construction, and their role in an international setting are much more ambiguous, opaque and complex than theories on transboundary rivers have suggested so far. This insight is the starting point for the current research project.

1.3 Research design

The geopolitics of water is essentially about the power and authority to govern a river. Effectively, it is the purpose of the hydraulic mission to subject rivers to certain forms of rule and control. I propose to look at this process by extending Foucauldian governmentality theory to include the "government of rivers".[9] The governmentality of water requires discursive and material "technologies of government" in order to construct spaces of water management. Power, according to this perspective, is not held by actors but circulates through society (Dean 1999; Foucault 2001).

If the hydraulic mission is theorised as a programme to govern rivers and the population living in the basins, it logically follows that the water is not supposed to flow unimpeded to the ocean, but ought to measured, controlled, and managed by humans in order to maximise its benefits to society. The construction of dams, canals, and reservoirs are, then, particularly suitable "technologies of government" to exercise this power. However, the discourses that inform the ideology and authorise these interventions are also important.

While the framework will be discussed in more detail in later chapters, governmentality theory and its philosophical assumptions help frame the research questions of this project. Some water scholars have famously declared that the politics and international relations of water resource allocation and management are virtually un-researchable (Allan 2002). This is purposively provocative, but with a robust theoretical framework and a rigorous research design I want to make the case for the opposite.

1.3.1 Research questions

The gaps in the literature and the discussion above raise a number of questions that I will arrange in a systematic way here. The main research question of this study is how does the logic of large dams influence, compete with, or contradict the logic of governing international rivers?

[9] Foucault introduced the concept of governmentality during a Paris lecture in 1978 to describe government as the "conduct of conduct" (Foucault 1991). This includes the conduct of people, but also of the natural world, as recent extensions of his theory propose (e.g Rutherford 2007).

This question seeks to connect debates at what are traditionally perceived as different spaces, by questioning conventional conceptualisations of scale. The purpose of this question is to challenge existing theories of transboundary water politics, which use scale as a framing device.

In order to formulate a response to this question I rely on case study methodology. While the research question is formulated in general terms, the units of analysis are the two geopolitical processes of my case studies.

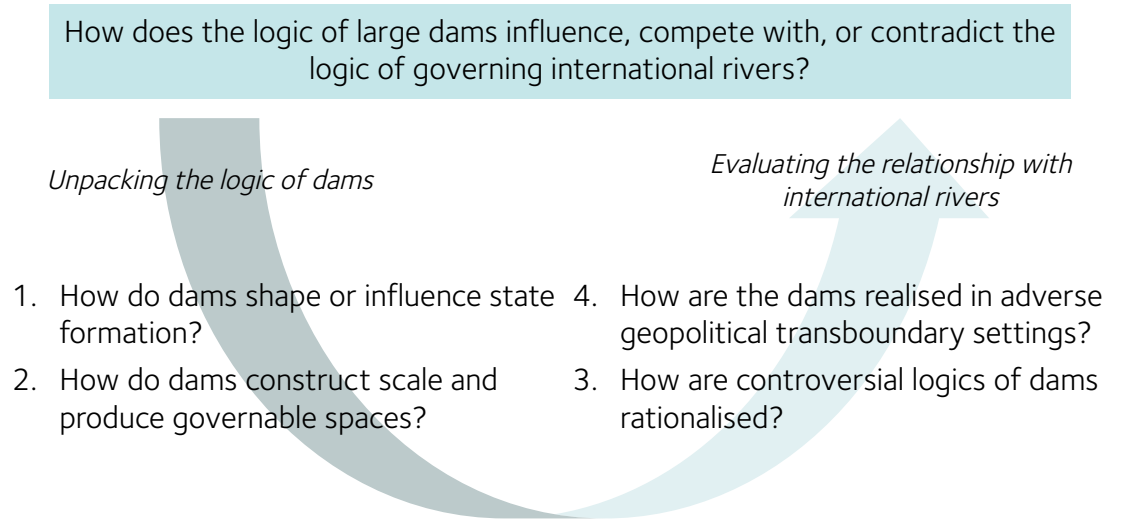

Figure 1.1 Schematic overview of the research questions.

In an attempt to theorise *the logic of large dams*, the first sub-question is how do dams as particular forms of hydraulic control, shape or influence state formation? The purpose of this question is to understand the rationality and irrationality of large dams – and the hydraulic mission in general – while formulating a hypothesis on the multiple relationships between dams, power, and state formation.

The next sub-question problematises the conventional distinction between the national/local space of dam construction and the regional space of the transboundary geopolitics. It asks how do dams construct scale and produce "governable spaces"? The units of analysis are historical accounts of the hydraulic mission in the rivers of both case studies.

The last two sub-questions are more empirical and answered separately for each case study, but the findings will come together in the last chapter. They concern the discursive rationalisation and actual realisation of the geopolitical rationalities of large dams, and how

these affect the river basin. Of course, rationalisation and realisation are overlapping domains of geopolitical logic, but the formulation of separate questions functions as a structured departure point.

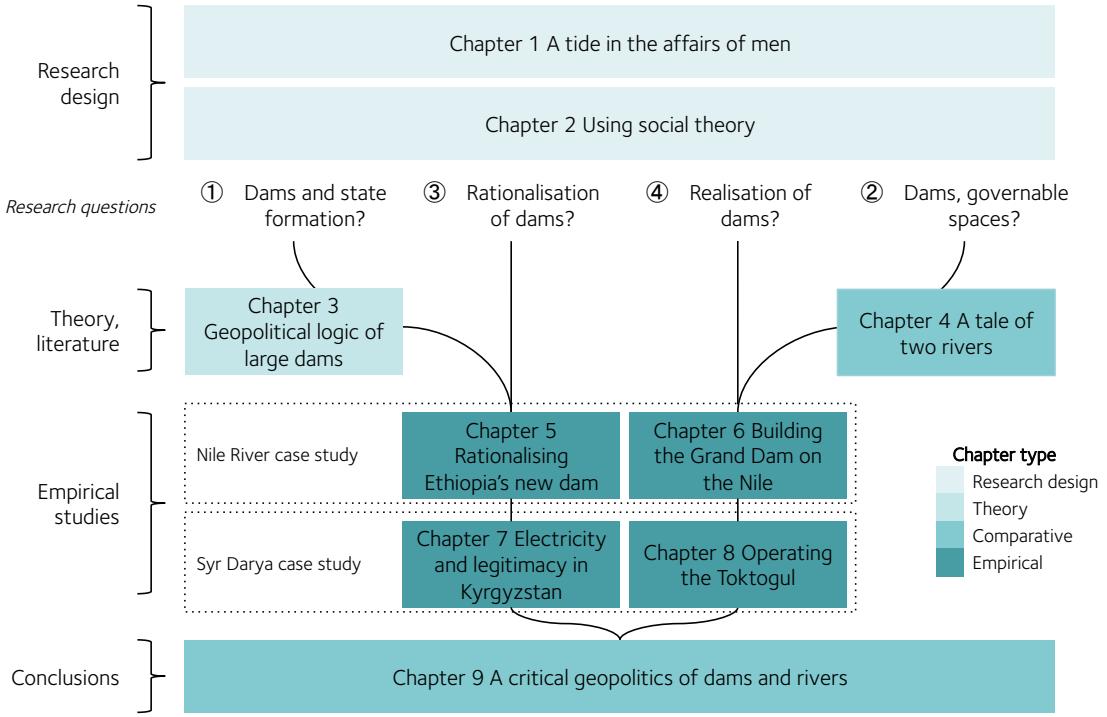

Figure 1.2 The relationship between chapter outline and research questions.

Sub-question three poses how are the logic of dam operation and construction rationalised in Kyrgyzstan and Ethiopia? Sub-question four asks how are controversial dams realised in adverse geopolitical transboundary settings? These four sub-questions should bring together a storyline that allows for the formulation of a response to the main question in the concluding chapter.

1.3.2 Scope of the thesis

The general topic of this research project is the geopolitics of international rivers, also understood as transboundary water politics.[10] The "population" of research subjects can be defined accordingly as all transboundary river basins, of which there are some 260 around the

[10] Other concepts describe the same phenomenon including hydro-politics, or politics of freshwater resources. The common denominator is a form of political contestation of the allocation or use of limited freshwater resources by transnational, national or sub-national groups or people.

world (Wolf 1999).[11] Most of these are shared by only two states, rather small in economic and political significance, or unproblematic in their management.

Among this population, there is a "problem group" of transboundary rivers that can be qualified as basins at risk of geopolitical conflict, following Yoffe's (2001) definition.[12] Some of these are well-known examples and have been meted out in academia and the media extensively, while others are relatively unknown.[13] The Nile and Syr Darya Rivers are also part of this problem group. What these rivers as analytical units have in common is political tension over the distribution of water resources, waterscapes shaped by the hydraulic mission, and large dam(s) whose use is contentious. Most are in the developing world and are characterised by weak institutional settings.

To narrow the scope down, I have decided to focus on two case studies in order to allow for sufficient empirical depth in the analysis. I delineate the units of analysis not as the rivers at large, or as dams in themselves, but rather as geopolitical processes. If we take space and scale as socially constructed and politically contested, then 'theoretical and political priority […] never resides in a particular geographical scale, but rather in the process through which particular scales become (re)constituted' (Swyngedouw 1997: 169).

In the first case, this geopolitical process can be defined as the construction of the Grand Ethiopian Renaissance Dam in Ethiopia. The second case study concerns the shift in operating regime of the Toktogul dam and reservoir in Kyrgyzstan. The results of the case studies, in turn, speak to the problem group, the population, and the research topic, as Figure 1.3 suggests.

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[11] There are many reasons to avoid quantitative social science methods terminology (see Law 2004 for a general critique on science methods and Brady & Collier 2004 on quantitative methods in particular), but terms like "population" and "problem group" help define the scope of the research.

[12] Yoffe differentiates between three categories of basins at risk of international conflict over water: basins negotiating current conflicts; basins where new development projects risk conflicts; and basins where the confluence of factors indicates potential for conflict, but where no history of tension exists.

[13] Well-known examples include, the Indus River shared by India and Pakistan, the Jordan shared by Israel, Jordan, Egypt, Lebanon, Syria, and the Palestinian territories, or the Euphrates-Tigris system shared by Turkey, Syria, and Iraq.

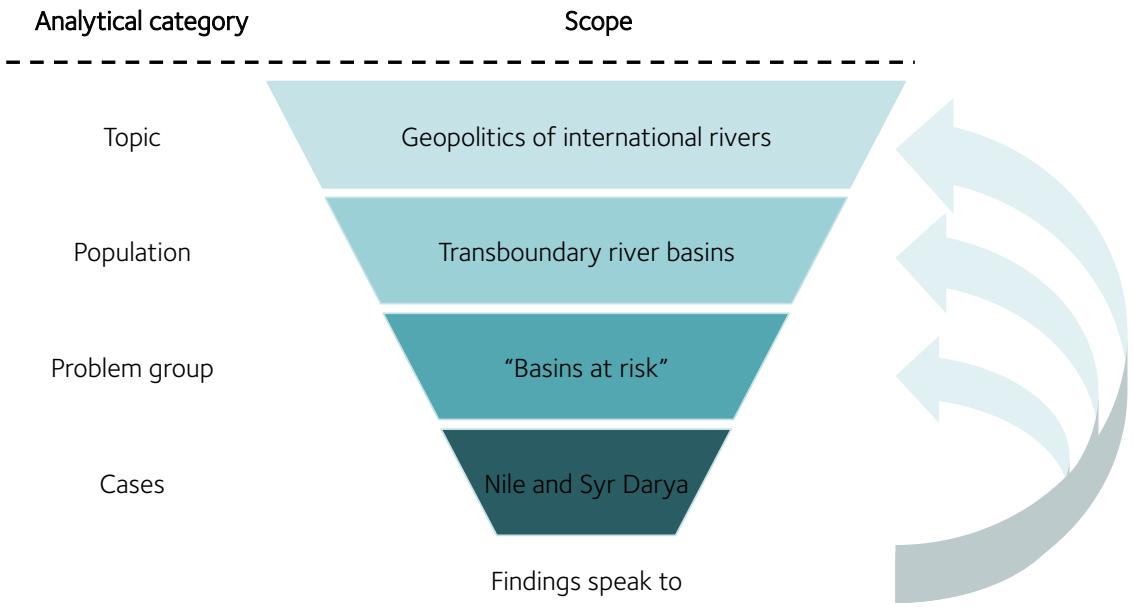

Figure 1.3 Scoping down from research topic to case studies.

Gerring (2001) contends that the difference between deduction-driven and induction-driven research projects tends to be overstated, as both are part of the scientific method of investigation. While the goal of this thesis is theory-building and topic exploration rather than theory-testing, no research project is void from theory from the start. Instead, I see deduction and induction as two coupled processes that both respond to the research questions. Evidently, there is a distinction between the sub-questions, as some rely more on induction (1, 2) whereas others are more deduction-driven (3, 4).

1.3.3 Purpose and relevance of the research project

King, Keohane and Verba (1994) argue that research should pose questions that are important to the real world and make a contribution to a discernable body of literature. There are two distinct bodies of literature that I want to address in particular: transboundary water politics and critical geopolitics. Although the academic literature on transboundary water resources is necessarily inter-disciplinary, the sub-field is also an organised epistemic community with a number of journals frequented for publications, specific conferences, and a list-server for online discussions.

Yet the inter-disciplinarity has resulted in diverse sets of approaches that do not always communicate with each other well. Regardless, each study of a transboundary river is both a work of regional geography, one of international relations, one of environmental studies, one of political sciences, and of many more disciplines. Although the inter-disciplinarity is mostly a merit, it does happen that scholars speak past, rather than to each other, as recent discussion on the list-server attest to.[14]

Critical geopolitics is an epistemologically more coherent body of literature, but its subject areas are more diverse. Critical geopolitics seeks to understand geography as the product of power and to deconstruct hegemonic spatial imaginations (Ó Tuathail 1996). Although the continued relevance of the project of this sub-field remains questioned (Kelly 2006; Cowen & Smith 2009), a relatively coherent set of ideas, values and methodological assumptions has developed in recent years.

The goal of critical geopolitics is to uncover how space has been constructed, produced, or altered by political agents as part of a larger project of obtaining, managing, and restructuring power (Ó Tuathail & Agnew 1992). It is a useful perspective to demystify hegemonic ideas and categories, and shows how these are the ideas of actors that are "on top" in social structures of power.

This study is *not* an account of the international relations (IR) of the river basins of my case studies, in the sense that none of the traditional IR literature and theory is directly engaged with. Neither is it a detailed regional geographical perspective of the two case studies. Nor do I wish to engage with questions of international water law, political or economic theory, or physical geography. While each approach has its advantages, I feel this one it best able to address the analytical gaps identified above.

Although I am sympathetic with the principle of constructing dams to address development concerns, this thesis will also provide a critique on the decision-making structures

[14] A heated argument arose in February and March 2011 between the "realist" and "social constructionist" schools, after the publication of *Hydropolitics is what societies make of it* by Julien (2012).

of hydraulic works. There is a serious, real-world, concern with how these are built, by whom, and why. The lack of transparency, absence of open procurement procedures, and the opaque relations between the public, private, and criminal sectors are all reasons to be worried. By critically evaluating the logic of the hydraulic mission as well as the geopolitics and geo-economics of dams I hope to add just a little bit more openness.[15]

Parts of the argument below have been published in academic journals (Kraak 2012a; Kraak 2012b; Kraak 2012c) or popular magazines (Kraak 2012d; Kraak 2012e; Kraak 2012f).

The issues addressed in this thesis are part of broader intellectual currents and two recent events underline the timeliness of this research project. The journal *Water Alternatives* published a special issue on "water governance and the politics of scale" in early 2012. Moreover, the International Consortium for Comparative Water and Development Studies (ICCWaDS) was established in the second half of 2011 as another indicator of the demand for rigorous comparative water studies.

1.4 Comparative water research

The challenges for transboundary water management are part of a broader concern with a "global water crisis". Mollinga and Gondhalekar (2012) suggest that the globalisation of water management has led to three forms of complexity: there are many different actors at different levels with different strategies; the global water discourse is full of contradictions; and the globalisation of water policy is associated with other aspects of globalisation.

In response to these challenges, they suggest that research should focus on comparative analysis, because the remarkable similarities between different geographical areas can help tackle the complexity of the broader issues. Wescoat published a powerful plea for such research in a paper that was to become one of the founding documents of the ICCWaDS, hosted

[15] The fieldwork reports I circulated after my time in the field have been deliberately designed to share knowledge with (international) policy-makers. Perhaps these speak more to this "real-world relevance" than this thesis (Kraak 2011a; Kraak 2011b). Other parts of this work have been published in academic journals (Kraak 2012a; Kraak 2012b; Kraak 2012c) or popular magazines (Kraak 2012d; Kraak 2012e; Kraak 2012f).

by the universities of Bonn, Wageningen, and the London School of Oriental and African Studies. He argues that:

> in light of the critical water problems faced in every region of the world, the next twenty years will require a major shift from largely implicit comparisons to rigorous comparative analyses that analyse and expand the range of water management adjustments that are designed to address these problems in different regions of the world. These comparative analyses will need to draw upon rich historical experience and geographical contexts that require new combinations of quantitative analyses, qualitative case study, and creative analogy (Wescoat 2009: 65).

His call for more rigour in comparative research echoes the concerns of other scholars, who complained that the politics of rivers is virtually "un-researchable".

Addressing these concerns, I have opted for a comparable case-oriented method, rather than a full-fledged comparative analysis. The *n=2* allows for sufficient depth and appreciation of the geographical diversity, different histories and socio-cultural systems, but operationalises theoretical concepts such as scale, power and discourse.

1.4.1 The case-oriented method

Although the last decades have seen a widening epistemological gap between quantitative, formal modelling, and qualitative approaches in social science research, I concur with several authors that, in fact, most methods are based on similar epistemological assumptions (Brady & Collier 2004; George & Bennet 2005; Ragin & Amoroso 2011). These include the aim of developing logically consistent models or theories, to derive inferences from these theories, to test these inferences against empirical data, and to use such results to modify the theories tested. The main differences between the various approaches are methodological, according to George and Bennet (2005), and the choice for a method depends on the type of questions asked, the sort of data that can be generated, and the results the researcher hopes to achieve.

The case-study method is defined as 'an intensive study of a single unit for the purpose of understanding a larger class of (similar) units' (Gerring 2004: 342). Baxter (2010) proposes that case studies are a formidable way of developing theory as well as providing in-depth analysis of the historical, cultural, and practical aspects of a phenomenon or place. These two

features of the case-oriented method speak to the aims of this thesis more than alternative methodologies.[16]

Ragin (2004), one of the main proponents of the case-oriented method, argues that cases should be seen as complex but meaningful configurations of reality that are deliberately selected, rather than observations drawn from wide population. The purposeful selection makes the method less suitable for theory-testing, but a fruitful approach for theory-building, concept formation, elaboration and refinement.

The case-oriented method is a common way of studying dams and transboundary rivers because the local characteristics as well as the geographical and cultural-historical circumstances make quantitative alternatives virtually impossible. An exception is the study of water conflicts by researchers from Oregon State University, who have developed a database with the occurrences of different types of conflict over water resources (Yoffe et al. 2004; Wolf 1999). While analytically robust, their work also demonstrates the limits of quantitative-oriented methods: the data is useful to debunk the myth of water wars, but it is less helpful in explaining why wars do not occur or in clarifying other types of conflict.

But a case-study alone is also not sufficient to warrant useful research. Castree (2005) writes in *Geoforum* that case-study research has become increasingly prominent in human geography. However, while the in-depth analysis provides many useful insights, the link with broader phenomena is often harder to make. To resolve this, Castree called for more cross-case comparisons. This would have a highly theoretical dimension too, because 'it involves issues of ontology, epistemology, concept formation, classification and so on' (Castree 2005: 544). I concur that if this study is to contribute to theory-formation and understanding of the wider topic of transboundary water politics, such a comparison is required.

[16] Moreover, while the research questions are defined in rather general terms, they can only be answered with help of empirical evidence that requires one or more real-world cases.

1.4.2 Two comparable case studies

Given a limited period of time, there is an inevitable trade-off between the number of cases and the depth of analysis of each case (Ragin & Amoroso 2011). Sticking to a small-n allows one to provide the broader insights into phenomena Castree called for, as well as to attend to a contextually sensitive analysis that accounts for the particulars of each case.[17]

The case-oriented method allows for specific selection of cases that have the same outcome. The goal is, then, to look for different explanations that may lead to the uniform outcomes. This does not mean that this method expects causal uniformity among cases. In contrast: 'the usual expectation is that different combinations of causes may produce the same outcome' (Ragin 2004: 134).

Although this stays true to the diversity of the real world, it does make the question of causality a difficult one. Scholars call this "multiple conjunctural causation", meaning that different causes can combine, contradict, or produce separately from each other similar outcomes. Flexible analytical frames, which can be modified if preliminary results demand so, are common for case-oriented research and allow addressing this complex causality more effectively (Brady & Collier 2004).

Another advantage of comparable case-oriented research is that it allows for analytic induction, which according to Ragin and Amoroso (2011) means that the systematic analysis of similarities between cases is used to develop new concepts and ideas. The comparison of similarities and differences between the two case studies of this thesis aids in responding to the main question as well as defining categories and concepts, such as the role of scale in transboundary water politics. Glaser and Strauss (1967) call this the "constant comparative method".

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[17] Such comparisons are possible because 'most case-oriented studies start with the seemingly simple idea that social phenomena in like settings (such as organisations, neighbourhoods, cities, countries, regions, cultures, and so on) may parallel each other sufficiently to permit comparing and contrasting them' (Ragin 2004: 125).

Comparable case-study analyses are common in water research in general and in the study of transboundary water politics in particular. Frequently these studies are published in edited volumes (Elhance 1999; Arsel & Spoor 2010; Molle & Wester 2009). However, different contributions to an edited volume tend to have different emphases and epistemologies. Certainly, useful themes can be deducted but the comparative nature is limited because of the difference in research design and assumptions.

Instead, Mollinga and Gondhalekar (2012) call for the inclusion of a number of cases in one single study.[18] Notable examples of the use of multiple case studies to develop theory further are Allan's (2002) work on virtual water or Zeitoun and Warner (2006) in the development of hydro-hegemony.[19]

Although the comparable method proposes explanations and examines different causal pathways, it is unlikely that a single model of explanation will emerge. Instead, I plan to keep close eye to the integrity of the empirical analyses which in themselves should generate much useful knowledge. But accounting for factors outside of the explanatory frameworks is permitted by this method and recommended to let the geographical diversity of the two cases come to the fore sufficiently.

1.5 Introducing the case studies

The selection of the cases has been a methodologically tricky business. Assessing the appropriateness of the selection of comparable cases can, paradoxically, only be done once the knowledge on the cases is produced and the research completed. However, Ragin and Amoroso (2011) use the term "theoretical sampling", as a way out of this dilemma. Instead of selecting all cases before the study commences, one case is researched first, and then a second one is chosen that best suits the observations and theory developed in the first case.

[18] Mollinga and Gondhalekar (2012) also provide an exhaustive literature overview of water research where the comparable case-oriented method is used.
[19] Both studies look at the Nile, Jordan, and Euphrates-Tigris basins.

The case study of the Toktogul Dam in the Syr Dayra river was examined during the MPhil phase of the research (2008 – 2010), whereas the Grand Ethiopian Renaissance Dam in the Nile river case was selected specifically to develop and further conceptualise some of these findings (Kraak 2010).[20] Although this method does not guarantee analytical robustness, it is a form of triangulation that mediates the risks of case selection. Following the advice of the Ragin (2004), I have selected on the basis of a set of constants and similar outcomes.

The "outcome" in both cases – at least for now – is that there is no violent conflict over the operation or construction of the respective dams, but that there are rather uneasy and fragile political relations between the different riparian states. There is an ineffective regional institutional setting and huge inefficiencies in the economic systems. In both cases there is a geopolitical *change* going on. Ethiopia attempts to challenge the *status quo* of the "Nile Game" by building a new dam, whereas Kyrgyzstan is questioning downstream hegemony by altering the operating regime of an existing dam. This state of affairs corresponds with the situation in many river-basins, but I have selected these two for a number of other "constants".

Both cases concern transboundary rivers with a volatile geopolitical history. Both have a colonial past where modernist aspirations attempted to transform the river, although this process was more advanced in the Syr Darya than in the Nile.[21] Most riparian states on both rivers have authoritarian or autocratic regimes, which calls for questions on the relationship between large dams and state formation. At the same time, there is a relative scarcity of water. Nevertheless, the political, cultural, and social diversity between the two cases is enormous, and that is where the analysis seeks to find multiple causal pathways.

[20] While fieldwork on the Syr Darya case was conducted earlier, I have chosen to present the findings of the Nile case first in this thesis, because the geopolitical process of dam construction precedes dam operation.

[21] Arguably there were different types of colonialism in both rivers. Central Asia was part of Russia's contiguous empire and its status as colony has been contested.

1.5.1 The Grand Ethiopian Renaissance Dam on the Nile

The Nile river is the longest river in the world, stretching over 6600 km from its two sources – the Great Lakes in Central Africa and Lake Tana in Ethiopia – to its terminus in the Mediterranean. In terms of annual discharge, however, the river does not make it into the global top 50 with only about 90 km^3 per year. This causes a unique situation where there is a very large number of riparian states (eleven) and some 300 million people depend on the river's water, but the water itself is relatively scarce (El-Fadel et al. 2003).

The White Nile has its origins in the Great Lakes and flows through Burundi, Rwanda, Tanzania, Kenya to Uganda, South Sudan, Sudan and Egypt is joined by the Blue Nile in Khartoum. The Blue Nile, flowing from Ethiopia through Sudan to Egypt is the shorter of the two, but accounts for 86 per cent of the annual flow.

Irrigation in the region goes back millennia to ancient Egyptian civilisation. However, the modern development of the water resources coincided with the colonial rule over much of Africa, including the entire Nile basin save for Ethiopia.[22] The first major hydraulic improvement was the 1904 Aswan Dam in Egypt, later followed by extensive irrigation schemes there and in Sudan. These interventions in the river were also the catalysers for political contestation of the water between different states, although it took years before the upstream states were empowered to challenge Egyptian rule (Waterbury 1979).

Much has been written about the politics of the Nile in recent decades (see for instance the contributions by Waterbury 1979; Collins 1996; Allan 2002). The *status quo* at the moment is defined by two legal frameworks, designed during the colonial period in 1929 and 1959, that allocate virtually all the water to Egypt and Sudan. These agreements essentially prevent Ethiopia, Uganda, and other upstream states from building any dams on the river. While the legal status is dubious, these agreements are still the implicit starting point for any regional

[22] Ethiopia was only briefly occupied by Mussolini's Italy before the Second World War during 1936 and 1941.

negotiations, such as those of the Nile Basin Initiative (NBI) that was founded in 1999 (Nicol & Cascão 2011a). So far, on-going negotiations have failed to produce a new framework.

Figure 1.4 Map of the Nile basin and the Grand Ethiopian Renaissance Dam. Source: (World Bank 2000).

Perhaps in response to the unsuccessful negotiations, Ethiopia chose a unilateral path forward in April 2011 when its Prime Minister formally announced the Grand Ethiopian Renaissance Dam on the Nile. Although designed for energy production, a non-exclusive water use, the dam can have adverse impacts on the water supply downstream. While the mega-project, projected to be completed in 2016, has not led to any form of violent conflict, it has deteriorated political relations and some popular forums prophesy a looming threat of a water war (Ethio Forum 2011).

1.5.2 The Toktogul Dam on the Syr Darya River

The Central Asian case concerns the Syr Darya River, which flows from Kyrgyzstan, through Uzbekistan, Tajikistan, Uzbekistan again, into Kazakhstan to terminate in what is left of the Aral Sea. With its length of 2337 km it is not nearly as long as the Nile but still the 23rd longest river in the world. The geography of the basin is very diverse, varying from the high mountain ranges of the Tien Shan and the Pamirs in the east through the vast Turanian plains and deserts in the west.

Between the Russian conquest in the second half of the 19th century and the fall of the Soviet Union in 1991, the Syr Darya has been a domestic river, rather than an international one. The Russians introduced rapid industrialisation of the area and the river has been modified to suit the irrigation needs of the large-scale cotton production. Dams, which have been built upstream in the Socialist Republic of Kyrgyzstan, were designed to optimise irrigation in the downstream Soviet Republics of Kazakhstan and Uzbekistan.

Although the river was managed on a basin scale – something that proponents of Integrated Water Resources Management (IWRM) would advocate today – the outcomes have been highly ambivalent and water management strategies in the Soviet Union led to one of the largest man-made environmental disasters in modern history: the decline of the Aral Sea.[23] The

[23]Although the decline of the lake is related to the politics of river system, it is not the emphasis of this thesis and I avoid discussions of its causes and consequences. For more information, I recommend (Arsel & Spoor, 2010; Micklin, 2000; Sievers, 2003).

case of the Aral Sea has arguably become the best known political and social issue of Central Asia, since the area opened to western researchers in 1991.

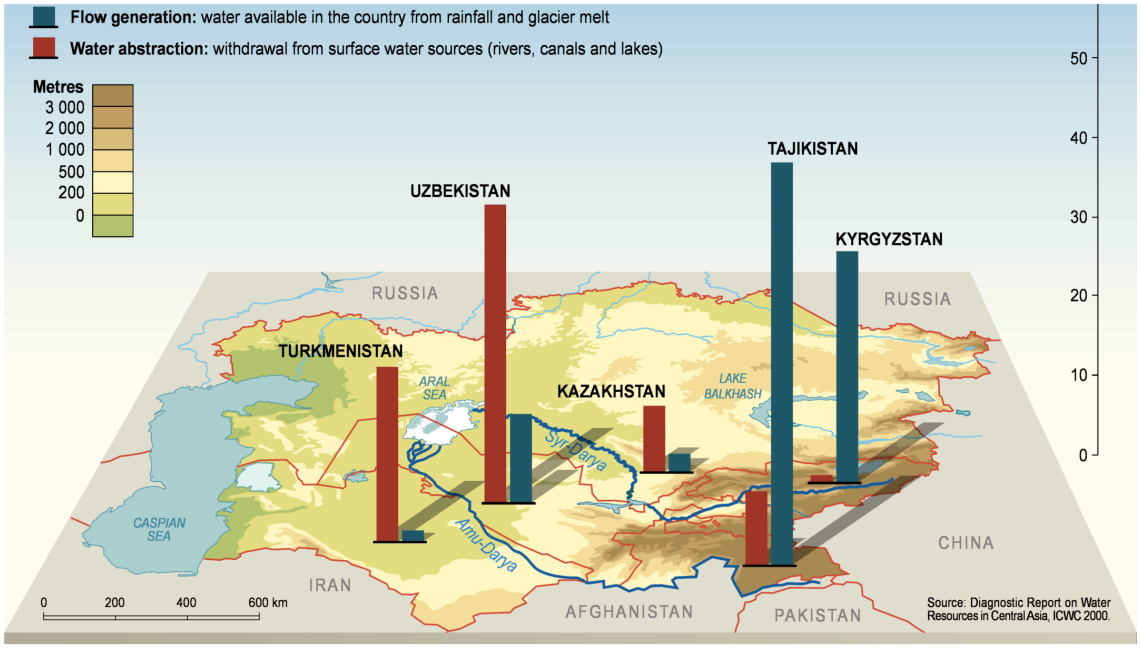

Figure 1.5 Map of water distribution in Central Asia. The distribution of water resources is indicated by the bar charts of flow generation (rainfall) and abstraction (irrigation and evapotranspiration). Source: (UNEP 2005).

Water management in the region had its challenges but these were only exacerbated when the unitary geopolitical and economic space broke down in 1991 by the dissolution of the Soviet Union. The water was distributed very unequally over the newly independent states (Figure 1.5). Indeed, Arsel and Spoor (2010: 5) propose that 'water politics cannot – and should not – be disentangled from the […] major geopolitical shifts taking place in the region'. The dictum that water is politics rings true for this region perhaps more so than for any other.

After independence the five Central Asian states realised that water was crucial for all, and in the post-1991 chaos they signed agreements upholding the Soviet *status quo* of water allocation. The Interstate Commission for Water Coordination (ICWC) was established to facilitate collective decision-making and implement these decisions. However, some years after independence it became clear that the regional organisation lacked sufficient political support to execute its mandate. Each state was, understandably, very reluctant to hand over power. And while the states had agreed to uphold Soviet water allocation schemes, other regional schemes

of food, energy, and agriculture disappeared leaving the upstream states in turmoil (Wegerich 2004).

Figure 1.6 Map of the Toktogul dam and reservoir on the Syr Darya river. Source: (Siegfried & Bernauer 2007).

During the last decade Kyrgyzstan has become more assertive while it started to operate the main dam and reservoir of the country, the Toktogul, according to its national interest rather than the Soviet-era *status quo* (Figure 1.6). Instead of discharging water in the summer period, when it is needed for irrigation in Uzbekistan, the Kyrgyz leaders chose to discharge it in winter when their energy demands were highest.[24] The Uzbek leadership of President Islam Karimov has not been very happy with this.

But although many have voiced concern over imminent water wars, real international conflicts have not occurred.[25] Instead, much like the situation in the Nile basin, the setting is characterised by uneasy relationships between the states, very inefficient economic systems, and a threat that with a little less rainfall, real problems will emerge.

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[24] The formal adjective for Kyrgyzstan is Kyrgyzstani, because Kyrgyz refers to the nation rather than the nation-state. However, for practical purposes I stick to Kyrgyz and Uzbek throughout the text, noting that I refer to the adjective of the nation-state or individuals from the nation-state rather than making any assumptions about ethnicity.

[25] In 2008, the UN established the Centre for Preventive Diplomacy in Central Asia in Turkmenistan's capital Ashgabat, taking into considerations the 'multiple threats that face Central Asia', including problems with "environmental degradation" (UN Security Council 2007).

1.6 Structure of the thesis

The logic of large dams, the politics of their operation and construction, and their impact on international relations are issues much more ambiguous, opaque and complex than theories on transboundary rivers have suggested so far. Chapter 1 presents a case-oriented research design to investigate the multiple relationships between the logic of dams and the geopolitics of rivers, which will address some of these analytical voids.

The research design explores the case studies in Central Asia and Ethiopia through elite-interview fieldwork, a form of critical discourse analysis and by challenging conventional understandings of spatial scale. Chapter 2 suggests ways of marrying the concerns of the post-structural social theory that informs the research design with the methodological choices made.

Large dams influence state formation through governmentalities that centralise political power. Chapter 3 proposes a framework that draws from Wittfogel, Foucault, and the literature of critical geopolitics to understand the rationality of large dams. The logic of dams is increasingly aligned with global flows of capital which may give rise to a new class of geopolitical entrepreneurs.

It is part of the logic of the hydraulic mission attempts to transform rivers into governable spaces. Weaving together the histories of the modern Nile and Syr Darya rivers, Chapter 4 argues that the contradictory relationships between the hydraulic mission and geopolitics produces ungovernable spaces instead.

The first empirical chapter (Chapter 5) unpacks the logic behind the decision to construct an immense dam on the Ethiopian Nile, which seems irrational given the costs, inefficiency of design, and risky geopolitics. The government discourse has created an "incontestable" image of dams and development, but legitimacy of the ruling class and the centralisation of political power seem great drivers too.

The global financial architecture of hydro-finance has changed significantly over the last decade, leading to novel ways of financing hydropower projects. Chapter 6 proposes that the Grand Ethiopian Renaissance Dam will be built not in spite of, but because of the adverse

geopolitics of the Nile, raising domestic finance and, in the process, enrolling the population in the project.

The second case study explores strategies of the Kyrgyz government to cope with severe winter energy shortages, which include a shift in the operating regime of the Toktogul dam and plans for a new large dam at the Kambarata-I site. However, Chapter 7 illustrates fundamental problems in the water-energy sector that follow on from a peculiar relationship between state formation and dam operation.

The operations of the Toktogul dam and reservoir are governed by the complex and opaque interaction of various actors and processes. The description of the network of decision-making that sets the Toktogul water discharges in Chapter 8 hints at the prominence of informal relations over policy structures and provides an alternative for understanding agency and power in water management.

The contribution of this thesis is the argument that water conflicts in the case studies can be explained by a *geo-economic* dam space being superimposed on, and contradicting a *geopolitical* river space. The significance of the alternative ideas on the space and scale of water politics, as well as on the nation-state, power, and agency contributes to some of the analytical gaps in the literature. Concluding Chapter 9 highlights three lessons for further research: the water-energy nexus, the geo-economics of water, and the role of discourses in the construction of space.

Chapter 2 Using social theory

The research design explores the case studies in Central Asia and Ethiopia through elite interview fieldwork, a form of critical discourse analysis, and by challenging conventional understandings of spatial scale. This chapter suggests ways of marrying the concerns of the post-structural social theory that informs the thesis with the methodological choices made.

2.1 The research process

The comparable case-study method of this thesis makes use of a number of different techniques, tools, and tactics to explore the geopolitics of water resources. In turn, the broader methodology is designed in such a way that it communicates directly with the gaps in the literature and the concerns of theory-building. It is the goal of this chapter to explain how the research design of this thesis is supported by philosophical assumptions, a rigorous way of data generation, and clear tools for analysis.

It is necessary to make connections between grand theories and empirical evidence. This poses a number of methodological challenges that need to be tackled by the research design. Many connections between actors and processes are opaque or invisible. There are vertical relations between the geopolitical games of transboundary water politics and the behaviour of, for instance, an official working for a power utility in Bishkek. But there are also horizontal connections between the dams in Ethiopia, Kyrgyzstan, and elsewhere. Critical social theory can highlight some of these linkages (Soja 1989).

Ultimately, methodology and design are profoundly influenced by the social theories that inform the research. Here I concur with Pryke, Rose and Whatmore who argue that

> the philosophical materials […] are not "add-on", but rather are […] sets of ideas, values and assumptions appropriate to the different stages of the research process. The result […] is a series of philosophically informed crafts and a range of craft-informed philosophies (Pryke et al. 2003: 2).

Most of these ideas, values and assumptions will become explicit throughout the thesis, but I will define some key epistemological and ontological assumptions in this chapter.

Making the assumptions explicit is important to keep the comparable research design robust, because the comparability of the cases depends on a coherent philosophy. At the same time, it is hard to maintain complete philosophical integrity out in the field, because the challenges on the ground do not always match the methodology of the books. The real world is messy and complex, but this often gets "written away" in the academic practice of producing

coherent but reconstructed logics (Silverman 1985). King, Keohane and Verba put this succinctly: 'investigators often take down the scaffolding after putting up their intellectual buildings, leaving little trace of the agony and uncertainty of construction' (King, Keohane, & Verba, 1994: 13).

Yet the agony and uncertainty of knowledge construction are, just like the unevenness and limitations of fieldwork, defining features of the final product. The produced knowledge is intricately linked with the methodology chosen. Law (2004) goes even further by stating that methods do not describe social realities but help creating them. Because many realities are vague and ephemeral, methods should not want to reduce this complexity but rather celebrate it. In line with this argument, demonstrating some of the "scaffolding" will, I argue, not compromise the conclusions but rather make them more robust.

One stage of the research process does not neatly follow the other, but they are overlapping, ambiguous parts of the same process of knowledge production and making sense of the world (Figure 2.1).

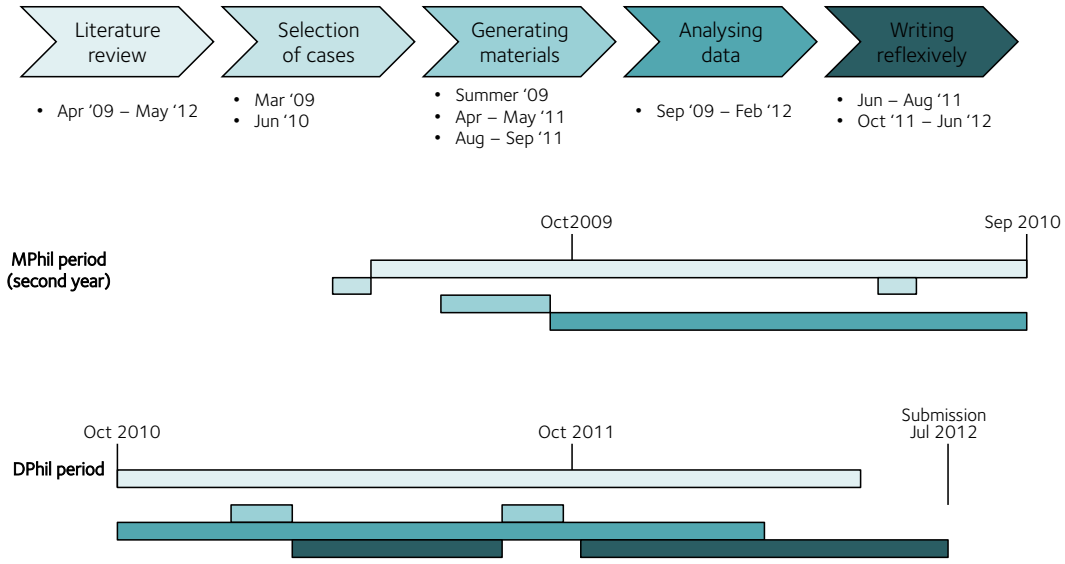

Figure 2.1 Timescale of the research project. The practice of research does not neatly coincide with the prescribed phases of research (Pryke et al. 2003). This is not unique to this thesis, but more frequently the "scaffolding" has been taken away in the final product. Constructed by author.

The research question of this chapter is: how can we marry the concerns of the social theory that informs this research with the methodological choices made? In turn, I will discuss some of the ontological and epistemological assumptions that challenge the concept of scale;

reflect on the role of fieldwork in generating the data; reflect on critical discourse analysis to interpret this data; and discuss my position as a researcher in the world and the ethics of this position vis-à-vis the research subjects.

2.2 Philosophical assumptions

The world is "out there", but our beliefs about it are not. This is one of the central insights of post-structuralism, the philosophical umbrella that informs the theory and methodology of this research project. The ontology of things is not taken for granted but questioned, because we cannot rely on a singular and uniform ontology (Pryke et al. 2003). Post-structuralism is decidedly anti-essentialist and post-positivist. But "finding the truth" is a complicated business if the truth as such does not exist.

Foucault said that truths are historically constituted by

> all that was said in all the statements that named it, divided it up, described it, explained it, traced its developments, indicated its various correlations, judged it, and possibly gave it speech by articulating, in its name, discourses that were to be taken as its own (Foucault 1972: 32).

Instead of looking for the truth, he proposed that researchers should identify and deconstruct the discourses that present themselves as true. In what Foucault calls the power-knowledge nexus, discourses are the product of power relations. Understanding a discourse, therefore, means paying due attention to the distribution of power throughout a society (Foucault 2001).

Some of these post-structural epistemological insights have driven a shift in the methodological frameworks used in geography since the late 1990s (Barnes 2002). The so-called qualitative turn places emphasis on methods such as interviews and discourse deconstruction (Sin 2003). As part of this turn it has been suggested that objectivity in research is impossible, because research is always grounded in the experiences, aims, and agency of the researcher (Rose 1997). This means that the researcher needs to be "inserted" in the writing, which is the reason for the first person perspective in much of this thesis.

Moreover, there is no dichotomy between a world that is real and one that is constructed. Rather, as Latour explains, the world is *both* real, imagined, social and material

(Latour 2005). This means that discourses are important, but the actual realisation of projects is part of the story too. To accommodate for this worldview, part of the empirical work of this thesis deals with the discourses that legitimise and rationalise the dams, and part with more concrete questions such as who pays for, and who builds the dams.

Latour and his colleagues of Science and Technology Studies (STS) propose that the relationship between different actors is the driver of certain outcomes. Agency is not "owned" by individuals, nor does structure determine social change. Instead, networks are the units that give rise to natural and social realities (Ruming 2009). Latour's approach to actor-network theory, as described in his work *Reassembling the Social* (Latour 2005), goes much further in epistemological terms than is necessary or desired for this thesis. Nonetheless, the notion of the agency of networks, or "network effects" and the emphasis on relationships over uniform actors are fruitful departures for inquiry.

Another contribution from these scholars is the imperative to question the assumptions of modernity. Nature and society, science and politics, and the body and the mind, have been constructed as dualisms since the early modern period. While this epistemological step has been very useful for scientific progress and promoting the production of knowledge, the problem, according to Latour, is that these epistemological assumptions have become ontological ones (2005). Researchers and practitioners assume that categories such as those mentioned above name actual different domains of a reality and are treated as such.

One such construction is the distinction between the global and local, or indeed our entire conceptualisation of scale. Although scale is a useful tool to frame research, it seems that it is often taken as an ontological category rather than an epistemological invention.

2.2.1 Challenging scale

The concept of scale has been central to the discipline of geography since its foundation (Herod 2003). It is used to frame research at various "analytical levels" such as the national or the local. Although much empirical and theoretical research has been conducted to unpack the concept,

there is little agreement on what scale actually is or how it should be operationalised (Marston et al. 2005).

Since the 1980s, however, scale has also been questioned as a concept rather than merely used to frame research. Taylor (1982) expanded world-systems theory to propose a three-level model of scale, with the "locality", "nation-state", and "world-economy" as the three scales where economic processes take place. In his book *Uneven Development* Smith builds on Taylor's model, but adds that the scales are not pre-existing but produced by the unequal processes of capitalism (Smith 1984). He calls the this production process the "politics of scale".

Swyngedouw summarises the politics of scale as the 'reshuffling and reorganisation of spatial scales that are an integral part of social strategies and struggles for control and empowerment' (Swyngedouw 1997: 141). Indeed, formulating the space of a river basin – or alternatively, the space of a national part of the river – as a territory that is to be subjected to control is a strategy of power that suits certain elites.

But establishing scale as a hierarchy and naming the categories "national" or "global", even if it is acknowledged that these categories are produced, has a reifying and stabilising effect.

> Once we accept that participants in political disputes deploy arguments about scale discursively, alternately representing their position as global or local to enhance their standing, we must also accept that scale itself is a representational trope, a way of framing political-spatiality that in turn has material effects (Jones 1998: 27).

The problem with these political strategies is that supposedly "higher" spatial scales are awarded more importance. Furthermore, by talking about scalar hierarchies, even if we realise they are socially constructed, we run the risk of making them "conceptual givens" (Marston et al. 2005).

During the last two decades post-structural assumptions have challenged the taken-for-granted essence of scale in response to this critique. Rather than stability, social scientists stress 'the fluidity, multiplicity and socially constructed nature of social categories' (Moore 2008: 206). Howitt (1993) rejects the idea that scale is ontological category and subsequently questions the (vertical) hierarchical conception of scale.

This questioning has accelerated through growing understanding of globalisation and related processes that "rescale" our daily activities and experiences. The focus has shifted from vertical hierarchies to horizontal networks. Leitner argues that:

> transnational networks represent new modes of coordination and governance, a new politics of horizontal relations that also has a distinctive spatiality. Whereas the spatiality of a politics of scale is associated with vertical relations among nested territorially defined political entities, by contrast, networks span space rather than covering it, transgressing the boundaries that separate and define these political entities (Leitner 2004: 237)

Such a critical view of scale is relevant for the study of transboundary water politics too. Framing inquiry in categories like the "nation-state", or "watershed" fails to acknowledge the power relations that established these spaces. Nevertheless, these analytical frames are still widely seen as ontological categories in policy and practice, causing contradictions in the government of water resources.[26]

The naturalness of a river basin as a singular hydrological unit seduces many to see it as natural political unit (Molle 2009). Moreover, scales are not only discursively constructed but constantly "performed" by actors, such as state agents, corporations, or diplomats that have a vested interest in these scales (Kaiser & Nikiforova 2008). However, the river basin is as socially constructed and politically contested as any other spatial scale.

Scholars note that a distinctive global water discourse has emerged that guides policy and sets rules for the management of transboundary waters (Arsel & Spoor 2010). This discourse has forged horizontal connections between river basins, which may have more influence on the political outcomes than the internal relations within a basin. Perhaps a horizontal conceptualisation of scale may be more appropriate instead.

Likewise, a global consensus on dam construction has emerged with the publication of the report of the World Commission on Dams (WCD 2000) and the emergence of sustainability guidelines produced by the International Hydropower Association (IHA). Perhaps the strongest transnational networks are those of investment in dam development and regional cooperation:

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[26] In particular, the IR theorists who inform many transboundary water studies take scale as ontological category.

both tend to be funded by development banks or international donors with political centres elsewhere. External actors are, thus, very relevant for the geopolitical processes of the river, but are situated far beyond the river basin.

This begs the question of how we can conceptualise alternatives. Certain critics have proposed to do away with the concept of scale all together (Marston et al. 2005). Thrift once stated that 'there is no such thing as a scale' (Thrift 1995: 33). Instead, some of these scholars propose a flat ontology. Although this is deliberately provocative, it extends the idea that scale is not an ontological structure that exists, but rather an epistemological one; it is only a way of knowing.

Latour described this flat alternative worldview. He proposes that the world cannot be understood as being composed of 'notions of levels, layers, territories [and] spheres', nor does it have any discreet levels or bounded spaces. Instead, we can think of the world as 'fibrous, thread-like, wiry, stringy, ropy, and capillary' (Latour 1996: 370). Rivers too, are networks that are simultaneously global and local, as the first paragraph of this thesis suggests. Within this logic the world is a series of such networks, where the global and local are viewpoints of these networks rather than categorical spaces (Latour 1993).

2.3 Fieldwork and generating materials

While fieldwork may be one of the defining features of the discipline of geography, the concept itself has raised many questions. What is the field, what kind of engagements with the subject matter are required or expected, and what does one do "out in the field"? Because these questions refer to philosophical matters, fieldwork is about much more than getting out, collecting the data, and getting back (Massey 2003).

In many ways the field extends far beyond the river valleys and dam sites that are the subject of this thesis. Massey theorises this as the "spatialities of knowledge-production" (2003). The spaces of geopolitics are diverse and multiple. The capital cities of riparian states tend to be the places where the decisions are made, but the actual changes to the river flow

through dam operation happen in the control rooms of the hydraulic structures next to the river. Negotiations of water allocation take place in conference centres, but are informed by ministries, utilities, private interests, or even the military. Such complications problematise the notion of the field, and in many ways the field has widened and extended its meaning.

An additional complication is that discourses, text, books, perhaps even gossip, are just as much part of the field as the rivers, dams, and cities under investigation. Such multiplicities of knowledge production have been highlighted by Latour in his book *Pandora's Hope* (1999). Moreover, he restates that the researchers themselves can never be excluded from the field, because their presence influences the generation of data. It is also the researcher who "translates" the findings into a form suitable for analysis.

Because the role of the researcher in the field cannot be ignored, Whatmore (2003) argues that research data is coproduced through creative encounters between the researcher and the research subject, rather than merely discovered in a world "out there". She conceptualises such encounters as "knowledge events" where new evidence is generated by the interaction between the researcher with his or her theoretical insights, ideas and hypotheses on the one hand, and the research subjects on the other hand. I concur with the view that fieldwork means actively looking for such encounters. Interviews are the main examples of knowledge events, but reading government documents, attending conferences, or conversations with local friends can be characterised as such too.

2.3.1 Overview of fieldwork

During the course of this research project I have made three field trips in total: two to Central Asia and one to Ethiopia. The first fieldwork was in the context of my MPhil research and took place during June, July, and August 2009. My time was equally distributed between Tashkent, Bishkek, and Almaty.

These cities are the main centres of power of the Syr Dayra River. Tashkent is the capital of Uzbekistan and the seat of the Scientific Information Centre of the Interstate Committee for Water Coordination (SIC-ICWC) and the River Basin Organisation of the Syr

Darya (BVO-Syr Darya, after the Russian acronym). Although nominally outside of the Syr Darya watershed, Bishkek is the capital of Kyrgyzstan and Almaty the former capital of Kazakhstan (until 1997). The latter also houses the International Fund for Saving the Aral Sea (IFAS), another regional organisation. Both places would have more useful "knowledge encounters" than places in Kyrgyzstan or Kazakhstan that are located inside of the boundaries of the watershed.

During my second trip I went to Addis Ababa, the capital of Ethiopia, where I stayed between the end of March 2011 and early May of the same year. In Addis Ababa I attended a conference on hydropower development in Africa during my first two days, organised by the International Hydropower Organisation (IHA) and hosted by the Ethiopian government. High-profile speakers included Ethiopian Prime Minister Meles Zenawi and the head of the African Union Commission (AUC) Jean Ping.

The final trip, for five weeks in September 2011, was back to Bishkek. Here I tried to build on the network of contacts that I had established during my earlier trip and proceeded with more rigorous inquiries.

The goals of all fieldtrips were threefold. Firstly, I set out to discover "what was going on" beyond the academic literature or online newspaper reports. Sources of information are inevitably limited and asking around, conducting interviews, and listening to the town's gossip are all instructive in providing more information. Secondly, I tried to identify the main actors involved in the respective water disputes. Latour (2005) suggested that research is about "tracing associations" or relations between different actors. The tools used to achieve this include the well-documented snowball technique and personal networking (Cloke et al. 2004). Thirdly, it was my goal to identify, and critically analyse the governments' "official" perspectives on their respective dams.

A number of different data sources have been generated during the fieldwork: conferences, interviews, official documents, newspapers, conversations, and even unfolding events. The diversity of data sources provided me with an opportunity to triangulate knowledge. Triangulation, or the use of diverse techniques to address different components of the research

question, is a critical part of social science research (Schutt 1996). The complementarity of different types of interviews (with government officials and with diplomats, for instance), newspapers, and documents allows to cross-check and to draw conclusions that would have been invisible to a single technique.

A central part of the first two fieldtrips were conferences. In Tashkent, I attended a presentation by a team from the UN Economic Committee for Europe on water security in Central Asia in June 2009. In Addis Ababa, I was in invited for a two-day conference on hydropower development in Africa in April 2011. These occasions were critical "knowledge encounters" where a range of previously inaccessible data became available. Moreover, many of the individuals with whom it was relevant to speak, were concentrated in the same location.

Arguably the most significant contribution to the knowledge produced during the fieldwork came from the interviews. All were relatively systematic semi-structured interviews which provided a combination of in-depth open-ended discussions and organised inquiry. Sometimes others joined in during the interview, which limited or increased the potential discussion topics, depending on who the individuals were.

In sum, I conducted 87 interviews: 28 during the first fieldtrip (Tashkent, Bishkek and Almaty), 31 during the second fieldtrip (Addis Ababa), 25 during the last fieldtrip (Bishkek), and three more in London between the trips. The majority of the interviews were conducted in English, although some were in Russian or Kyrgyz – in these cases I either I brought a translator or a colleague of the interviewee translated for me. There were a couple of interviews conducted in German or Dutch without translator.[27]

Official documents and manuscripts were obtained at certain points throughout the fieldwork. Most of these were government fact sheets on energy and water, but others included economic data or dam operation schemas. In many cases, interviewees would provide me with some documents but in other cases they could be found online in English or Russian. I took

[27] Appendix 1 contains a list of the interviews.

these official documents to be illustrative of the official discourse rather than a factual representation of reality.

Cloke et al. (2004) argue that governments are not neutral actors overlooking society and that, therefore, their data cannot be interpreted as objective or innocent. Instead, governments 'have particular objectives in obtaining, processing and presenting information and particular interests at stake in its content' (Cloke et al. 2004: 42).

Newspapers and conversations have been other sources of data. Certain (state-run) newspapers could be interpreted as being part of the sanctioned discourse, but in general terms they aided in finding out what was going on. Content analysis has been used to analyse the context of texts in order to make sense of the meaning (Holsti 1969). During the Ethiopian part of my fieldwork, the construction of the new dam that is the subject of this thesis was announced on the third day of my trip. Over the following weeks more and more details were made public, which increased the availability of data on the dam. More importantly, the way in which this event unfolded generated useful knowledge by itself: it provided information on *how* the sanctioned discourse is produced and disseminated, who is authorised to speak for the dam, and how the knowledge is contested.

There is one spatial paradox of my fieldwork that I feel obliged to declare here. Although my research concerns two dams, these dams remained out of bounds during the fieldwork. Both the Grand Ethiopian Renaissance Dam that was under construction and the Toktogul Dam and reservoir are classified as places of national security. Consequently, my repeated requests to visit the sites were to no avail.[28]

2.3.2 Research challenges

The areas of my fieldwork, Central Asia and Ethiopia, are not simple research environments. Relatively little has been written about doing social research in either place. Central Asia was

[28] Inaccessibility is a subjective category. Kienle argues that the 'inaccessibility [of the field] is the product not only of research hostile strategies pursued by repressive regimes, but also of inflexible doctoral programmes and research funding' (Kienle 2005: 35).

virtually closed to western researchers until independence in 1991 and the Soviet Union did not have a strong social science tradition. Africa, perhaps in contrast, has a much longer tradition of western geographic fieldwork, but his has not been unproblematic either given the imperialist legacy of the discipline of geography in Africa (Potter 2001).

Although the body of literature on research methods in challenging political context is rather thin, the edited volume *Fieldwork in Difficult Environments* (2008) by Wall and Mollinga provides a delightful exception. The editors collected experiences of PhD students working in Central Asia and West Africa, making this collection the closest approximation of a methodological work that concerns both my study areas.

The editors list a number of "boundaries" of fieldwork in these environments: cultural difference, methodological style, communication and interaction, and political and ethical legitimacy. These are not problems to overcome, but features that present themselves throughout the fieldwork period. The recommended way to negotiate these challenges is a methodological flexibility, rather than a static conception of methodological rigour (Wall & Mollinga 2008). Indeed, although this research project has been designed with most care and rigour, the practice of fieldwork and knowledge generation undermines some of these principles.

One example has been outlined by Veldwisch in the aforementioned volume. Research on politically sensitive topics in Central Asia has been difficult: 'in interviews, people often evaded questions, gave vague responses, produced plain lies or simply changed the topic' Veldwisch (2008: 169). I recognised similar challenges during my interviews in Central Asia as well in as Ethiopia. Questions were sometimes avoided and occasionally contradictory narratives were told. In one instance the interviewee terminated the interview after an apparently too sensitive question.

I addressed this challenge by posing open questions and avoiding challenging the statements made by the interviewees. The first set of questions was always neutral concerning the work that the subject did and the background of the organisation he or she worked for, even though I knew these answers already. This approach helped to build rapport with the

interviewee and to encourage trust (Legard et al. 2003). Moreover, I stuck to the assumption that my informants told me what they wanted me to believe even though this may have been different from what they actually believed.

Another example of the gap between methodological design and fieldwork realities is Kuzmits' (2008) contribution on negotiating access to information, places, and people. Central Asian states, as well as Ethiopia, have large bureaucratic organisations that impose obstacles to access. Kuzmits argues that

> even if I had had a special permit by the referring government to do research […] this would not have warranted the access to information. […] As a result, I tried to get access directly locally via unofficial channels while avoiding contacts with district authorities (Kuzmits 2008: 33).

Although as a rule I avoided unpermitted or illegal attempts to obtain access, the practice of avoiding formal channels of permits, checks, and bureaucratic wrangling may have been the only way to talk to certain informants. I often did this simultaneously with efforts to obtain access through gatekeepers – such as the public relations offices of the various ministries. However, these formal ways of getting permission tended to take months. Because my interviews were mainly with elites, the ethical risks of sidestepping official channels were rather modest.

The different languages offered another fieldwork challenge. Crang and Cook (2007: 25) note that translation leads to 'hybrid in-between forms of cultural understanding in which choices have been made about whether and how to hide and/or highlight the failures of fit between one language and another'. While most interviews in Ethiopia were conducted in English, the interviews in Central Asia were variably in English, Russian and even Kyrgyz. This yielded a number of methodological challenges. Some interviewees offered to speak in English even though their command of and confidence with the language was clearly not as complete as that of their native Russian or Amharic. Certainly, underlying meaning and cultural understanding got lost in these cases. But even when a translator assisted in the interviews similar challenges remained. Most translators I found were not professionals and translations were incomplete at times.

2.4 Critical discourse analysis and interviews

The Foucauldian concept of discourse has been central to critical geopolitics since the discipline's founding paper was published in 1992 (Ó Tuathail & Agnew 1992). Because its "critical" component rejected Enlightenment-era conceptions of truth in which there is a structural match between and external reality and an internal representation, discourses provide a dynamic alternative to knowledge. Foucault argues in his books *The Order of Things* (1970) and *The Archaeology of Knowledge* (1972) that each society has its own underlying conditions of truth; he calls these "regimes of truth".

In most societies, the state maintains a strong control over the regime of truth by regulating the "apparatuses of truth", by which Foucault refers to the political economy and the sciences (Foucault 1972). This rings particularly true for the countries of my case studies, which are generally not regarded as the primary examples of liberal democracies.

A discourse highlights some ideas and neglects others, emphasising meanings and significations that depend on their context, norms and values (Macdonell 1986). Peet and Watts argue that discourses 'vary among what are often competing, even conflicting, cultural, racial, gender, class, regional, and other differing interests, although they may uneasily coexist within relatively stable (hegemonic) discursive formations' (Peet & Watts 1996: 14). They theorise this principle as "regional discursive formations" that are based on the history, politics and cultures of particular regions.

Early work within the critical geopolitics literature defines discourses as 'sets of socio-cultural resources used by people in the construction of meaning about their world and their activities' (Ó Tuathail & Agnew 1992). They do not just consist of speech or statement, but rather of a set of capabilities or rules that allow the audience to interpret these. Discourse is therefore not an objective representation of an external world but rather, following a post-structural epistemology, the use of language to constitute the world in an attempt to produce or reproduce power.

Understanding dominant discourses as tools of power has become an academic discipline in itself. Fairclough (2001) posits that discourses are informed by specific ideologies and structures of power; "critical discourse analysis" can make these ideologies and power configurations visible. However, others warn that discourse analysis is not a method but rather a methodology: there is are no guidelines or how-to-guide. It is said that Foucault was deliberately vague in defining discourse analysis out of fear of reduction or simplification (Waitt 2010). Still, the purposes of analysis are clear:

> Simply put, a Foucauldian discourse analysis seeks to uncover the social mechanisms that maintain structures and rules of validity over statements about particular people, animals, plants, things, events, and places (Waitt 2010: 218).

Because critical geopolitics is concerned with power, the goal of discourse analysis in critical geopolitics is 'to deconstruct, unravel and expose discourses in order to lay bare the schemes of power operating beneath them' (Müller 2008). In geopolitics, discourses are strategies of power imposed on the public by elites and centres of authority to rewrite and reimagine certain spaces.

Much progress has been made in deconstructing discourses more robustly, there is still no uncontested technique for doing so (Müller 2008). Ó Tuathail (2002: 606) argues that 'discussion of how to formally undertake a discourse analysis of geopolitical reasoning and foreign policy practice is long overdue. Müller has responded to this call for more rigour with an attempt to systematise approaches to discourse analysis along three dimensions: context, analytic form, and political stance (Figure 2.2 Müller 2010).

Although I would position the analysis of this study in the area designated as the traditional domain of critical geopolitics analysis, Müller's model seems to fall into the same reductionist trap that Foucault saw as the reason to avoid prescribing a model for analysis. By systematising discourse analysis in three dichotomies, or scales, the model becomes an easy target for post-structural critique. Analysis is not as black and white as this synthesis in scales suggests. It can be both descriptive and critical, both proximate and distant. Nevertheless Ó

Tuathail's call for rigour in the discourse analysis is a genuine one, and there are several ways in which I address it in this study.

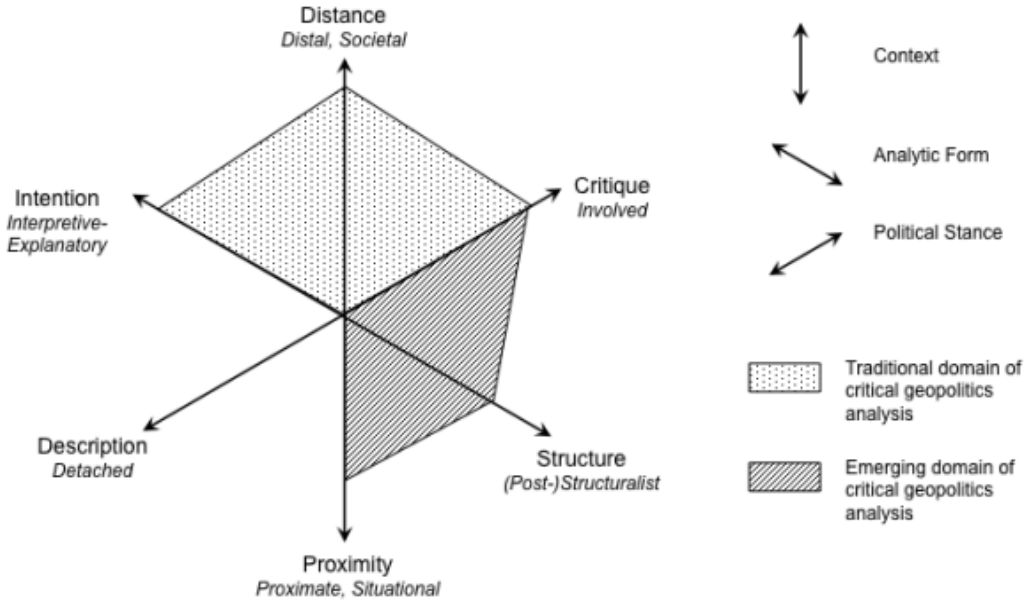

Figure 2.2 Three core dimensions of approaches to geopolitical discourse analysis. Source: (Müller 2010).

2.4.1 Interviews as part of sanctioned discourse

I will analyse two distinct parts of the discourse in the empirical chapters: written statements, texts and newspapers on the one hand, and elite interviews on the other hand.[29] Although rigour and thoroughness in identification, selection, and interpretation have been core principles throughout the fieldwork and the subsequent analysis, this has evidently been constrained by accessibility, time limits, and the sensitivity of the information.

Therefore, formal models of discourse analysis such as that proposed by Müller are not the most suitable tools to evaluate the effectiveness of the analysis. Indeed, the research challenges listed in the previous section prevented such formal methodological forms. Instead, I

[29] Elites are defined as high government officials or others close to the "centres of knowledge production". Radnitz defines elites as 'people who occupy influential positions in the governing institutions of the community'. He elaborates on this definition for the case of Kyrgyzstan: 'elites may be new businessmen, politicians, ex-nomenclature [...], or religious leaders'. (Radnitz 2005: 418). This working definition suits the case of Ethiopia as well.

will provide complete in-text openness and transparency in the analysis of my sources so that the reader is able to assess the rigour, systematicy and selection within the discourse, an approach advocated by Waitt (2010).

Part of the discourse analysis consists of official texts, such as promotional and information material of the ministries or the utilities, but also the state-owned newspapers. The latter especially tend to function as the mouthpiece of the government. For instance, the *Ethiopian Herald* reports daily on all activities of government officials, including rationalised or fabricated justifications. Cloke et al. (2004) warn that such material should not necessarily be believed as the "truth", but it is certainly the view that the officials want to spread and, therefore, a useful source for analysis.

Interviews are more complex to interpret as being part of the sanctioned discourse. Some in-depth interviewees, such as government officials or national academics, are clearly part of the production of the national discourse. Others, such as foreign diplomats or development workers are situated outside the constraints of government sanctioned knowledge. But the most difficult category is those who are in between these groups. In order to keep the selection of interviews in the analysis of the sanctioned discourse transparent, I refer to the occupation of the interviewees in-text. Making a classification between insiders and outsiders to the discourse is a political act in itself and foregrounds the researcher, something against which Whatmore (2003) cautions. In the list in Appendix 1 I have provided more information on the interviewees, including date, place, organisation, and type of organisation.

Another component of the analysis that I propose in this research project is the inclusion of gossip and rumours. Dams and water are politically very sensitive subjects in my study areas and much information is not directly revealed. Instead, after the interviews some individuals told me about rumours or gossip, specifically off-the-record. While this information was often hard to substantiate, it can be tested and checked through triangulation. Where appropriate, I have included the gossip in my analysis of the discourse, but have indicated its nature in text.

The goal of this methodology is to identify different narrative strands and dominant discourses, rather than to deconstruct texts. The identification tells us much about politics, elites, and power. In the empirical chapters I unpack the components, explain them, and discuss the drivers of the discourse. Karen Bakker puts it succinctly when she notes that discourse analysis operates from its own vantage point.

> The goal is not to find the truth behind a dissimulation but to problematise a 'geograph' by uncovering how it is multiply produced, and inspecting what it implies about social, and political-economic organisation [sic] (Bakker 1999: 212).

However, not only government water discourses are constructed versions of reality, the academic discourse describing them is too, highlighting the relevance of reflecting on the methodology.

2.5 Ethics, positionality, and limitations

Thrift (2003) notes that across academia an audit culture is emerging that tries to systematise the academic labour process to subject it to greater control of ethics and other aspects. Informed consent through formal ethics protocol sheets is the most common way of doing this. However, Macklin (1999) wonders whether such notions of ethics are actually universal. He suggests that informed consent is an understandable and obvious strategy in the western world, but can be irrelevant to norms and values in Africa and Asia. In those cases, verbal consent from traditional leaders can be more appropriate (Orentlicher 2002).

Wall and Overton (2006) published one of the few research papers on research ethics in Central Asia, in which they advocate an approach to ethics that takes the local situation into account and does not apply a blueprint of western ethics to any situation.

> The repression, the need for agrarian reform, and the Soviet legacy conspire to make Uzbekistan a difficult setting within which to conduct research. From an ethical perspective, each of these factors has the potential to distort results, and the atmosphere of insecurity and fear or reprisal for those who speak openly poses significant risks (Wall & Overton 2006: 63).

Although Kyrgyzstan is arguably freer than Uzbekistan, similar transformations are taking place. Likewise, Ethiopia is an authoritarian regime with strict controls on the production of knowledge that may prevent contacts from speaking openly.

Because of these principal disadvantages, and after discussion with my academic advisors, I choose to avoid working with formal ethics protocol sheets and opted for a more informal way of obtaining consent. I always clearly explained the purpose of the interview and of my thesis beforehand. An introduction letter from my academic advisor, translated into Russian and Kyrgyz for the Central Asia fieldtrip and in English for the fieldwork in Ethiopia, explained the purposes of my interview. This document stated that all the information I would receive was to be used for academic use and my examination only. It also stated that they would only be referred to anonymously in the final work.

There were two interviewees who preferred to stay off the record entirely and I did not take notes during these interviews, or use any of the information in this thesis. I had to remain conscious about the sensitivity of the topic, because of the authoritarian nature of the state in Uzbekistan and Ethiopia, and to a lesser degree in Kyrgyzstan. During some interviews it was clear that the interviewees were not willing to discuss all topics with me, so we limited the interview to a self-censored narrative. This was not the case in interviews with foreign diplomats, who were generally more accustomed to western social science interview methods and less afraid of the state. Nonetheless, I am aware that even in those interviews some things were not spoken of. The interviews conducted in other languages than Russian or English – namely Dutch and German – were generally less formal.

Some interviewees were not officially allowed to talk to me or were afraid that certain wordings would be directly attributed to them, which has been noted for elite interviews before (Richards 1996).[30] Recording the interviews would risk informants giving less information to me and compromising their position. Wall and Overton note that 'tape recorders are inappropriate in a society in which political repression and a gulag culture are pervasive' (Wall

[30] Richards notes that 'elites are less accessible and are more conscious of their own power' (Richards 1996: 200). Interviews with them depend, therefore, on their goodwill.

& Overton 2006: 64). In turn, I decided to make notes with pen and paper rather than using tape recorders.

Although the same is not necessarily true for the western interviewees, I maintained this strategy in an effort to build greater trust. A consequence of this approach is that I do not have full transcripts of the interviews, but have to rely on the notes I made during and after the interviews, as well as my memory. The few direct quotations from interviews in this thesis were written down *ad verbatim* during the interviews.

In sum, the ethical approach was one involving what Thrift (2003) calls "good judgement" rather than formal protocols. I believe that the sensitive nature of the subject as well as the challenges of the research area justify this approach. In this way, the results from the fieldwork could be optimised while maintaining ethical integrity at all times.

The materials generated through the interaction between researcher and research subject need to be "translated" by the researcher according to Latour. This means that:

> interviews and questionnaire findings are enrolled in a process of translation, where interactions are summarised and the outcomes combined into manageable and calculable forms such as graphs, tables, and quotations, which are then mobilised to illustrate our authority in the field and the value of our research activity (Ruming 2009: 454).

There is usually no agreement between researcher and the research subjects on how the knowledge is presented, which puts the researcher in a powerful position (Pile 1991).[31] In fact, there is a significant divergence between the deconstruction of government discourses and the way knowledge is presented by the governments – namely, within the discourse. It is therefore important to realize that this thesis is a narrative told by a particular individual at a particular time and to a particular audience (McDowell 1998).

Because I am the translator of the field it is important to acknowledge my own positionality too. One aspect of demonstrating positionality is that I write the narrative in the

[31] There is another ethical concern with discourse analysis: the researcher has disproportionate power over his or her research subjects in describing what is included and excluded from the discourse. I deal with this in the thesis by avoiding formal frameworks that directly include or exclude interviewees in the official discourse. Instead, I mention the interviewees in-text in the empirical chapters and describe their relation to the national elites.

first person, in order to place myself and the knowledge generated into context. Moser (2008) argues that acknowledging the personal background of the researcher is important for the reader to interpret the analytical work and conclusions of the thesis. As a white male growing up in the Netherlands after the Cold War, while receiving my education post 9/11, it is inevitable that I am the product of a certain socio-historical context.

This means that I am an insider to certain environments, but an outsider to others. The role of outsider varies according to place, but in Ethiopia I stuck out because of my Caucasian appearance. In Central Asia I could be taken for a member of the Russian or German minority, at first sight, although the language would inevitably give away my outsider status. Being a white male gives one a certain position in patriarchal societies that may provide certain kinds of access, but has also limits in the extent to which rapport can be build. This outsider status has its disadvantages, but it is also important to acknowledge the advantages.

Perhaps in contrast to my expectations, elites appeared to be more accessible to foreigners than locals. It was also easier to enter formal spaces, such as ministries, office buildings, or conference centres for outsiders than for local students and researchers. The status of the University of Oxford as an elite institutions helped me to become part of elite groups such as diplomats, officials of international organisations, or domestic elites. Moreover, my previous work for the Embassy of the Kingdom of the Netherlands in Moscow left me with useful contacts with foreign service personnel in Kyrgyzstan and Ethiopia, which assisted in gaining access elsewhere too.

However, an outside researcher getting access to elites needs to be aware that he or she may become enrolled in a certain elite discourse too. International organisations, like the World Bank and the UN, may provide more reliable information than the government institutions of Kyrgyzstan and Ethiopia, but the knowledge they produce is part of a discourse with specific goals too. One peculiar feature of foreign diplomats and international organisations operating in developing countries is an implicit and explicit critique on the host country's government. The outside researcher is a privileged person operating in privileged spaces, but it is, therefore, also crucial to interpret "international elite discourses" in a critical way.

However, because I was an outsider to the socio-cultural context, it has been harder to interpret events and statements too. Access to individuals may be possible, but getting the knowledge one is seeking is much harder due to the outsider-insider division. One additional challenge was being mistaken for a spy or foreign government agent. The sensitivity of the materials on dams, hydropower and geopolitics made interviewees and others wary of my intentions. This was especially the case in Ethiopia, where I had arrived in the country only three days before their new dam was officially announced and naturally started to ask questions about this dam.

My close relationship with a European foreign service did not help my case. At times there were people waiting for me in my hotel or elsewhere to ask me what I was doing, but they clearly knew more about me and my research than the average bystander. Moreover, my debriefing at the Embassy of the Kingdom of the Netherlands in Addis Ababa had to be cancelled at the last minute after pressure from the Ethiopian government.

While the timing of my fieldtrips to Kyrgyzstan and the rest of Central Asia was hardly this delicate, interviewees were occasionally suspicious nonetheless. Meeting interviewees in public places with much background noise was one way of dealing with this tension. Similar experiences have been noted by others too (Foxall 2011). While Glazer (1970) proposed the research motto "if you do not want to be defined as a spy, then do not act like one", research realities are more ambiguous, as Belousov and his colleagues (2007) have observed.

Every research project at large and every "research encounter" in particular is subject to a process of transformation. People, objects, and ideas are given a certain meaning that feeds into future stages of research: data in the field is therefore both a thing and a sign (Latour 1999). At each stage of the process 'something is lost (locality, particularity, materiality, multiplicity, continuity) and other things are gained (compatibility, standardisation, text, calculation, circulation, relative universality)'(Massey 2003: 82). Latour calls this aspect of the research process "reduction and amplification".

This poses a number of limitations to knowledge production. While I attempt to write about the sanctioned discourses of certain countries, much is reduced in the process of

transforming an unbounded, complex and diverse discourse in a thesis chapter. Editorial and analytical choices are made in what to include and what to ignore. Latour's amplification means, however, that other useful things are gained. This includes comparability between key aspects of the discourses, the construction of meaning, and the possibility of inferring conclusions and causality from the discourse.

How the researcher negotiates between reduction and amplification will have a fundamental influence on the final result. However, the fact that such choices need to be made further challenges the relationship between social sciences and "uncovering truths".

Moreover, there are the limitations of access and time pressure that prevent certain interviews from taking place, certain documents from being unearthed and specific connections being made. I am well aware of the inevitable limitations of this research project, but also believe that there is nothing unique about geography research being constrained by the research environment. Nonetheless, I believe that in the pages that follow a meaningful contribution to our understanding of dams, transboundary rivers, and geopolitics can be made.

Chapter 3 The geopolitical logic of large dams

Large dams influence state formation through governmentalities that centralise political power. This theoretical chapter proposes a framework that draws from Wittfogel, Foucault, and the literature of critical geopolitics to understand the rationality of large dams. The logic of dams is increasingly aligned with global flows of capital, which may give rise to a new class of geopolitical entrepreneurs.

3.1 Wittfogel, dams and the state

The relation between water management and the distribution of power within a society has intrigued thinkers, rulers, and social scientists for a long time. In particular, the question of how large-scale irrigation systems influence state formation has been a pertinent one. Does the existence of an extensive hydraulic infrastructure lead to a particular system of political organisation? Karl Wittfogel thought so. His *Oriental Despotism* (1957) became an influential study of authoritarian regimes when it was published in the mid-twentieth century. His thesis is that the demand for central control that characterises large irrigation networks and flood control systems concentrates power in the hands of a small, often bureaucratic, elite.

Although his argument of hydraulic despotism has received significant criticism then and over the ensuing decades, Wittfogel was on to something. Indeed, the relation between water, power, and state formation remains captivating, judging from the number of recent publications that engage with Wittfogel's work (among others Swyngedouw 2007; Wescoat 2009; Molle et al. 2009). In the framework below, I also consider at the relationships between water, power, and state formation, while questioning the ontology and epistemology of Wittfogel's work.[32] Rather than irrigation systems as a whole, dams are the subject of analysis for these are hydraulic structures *par excellence.*

Dams have a complex geography. Straddling nature, science and politics, dams do not adhere to the "Modern Constitution" of the contemporary period, as proposed by Latour (1993).[33] Rather, we can perceive of dams as hybrids: both local and global, both social and natural, and embodying a wide range of historical, cultural, and geographical processes (Swyngedouw 2008). This ontological step is in pace with a discipline of geography that

[32] His epistemology is based on positivist and Orientalist assumptions. Positivism suggests an absolutely knowable and measurable world. Orientalism is a perspective where the dominant West has a way of seeing the Near East and further abroad as distinctly different, as the *Other* of its Occident (Said 1979). Both positivism and Orientalism have, over the last decades, given way to more critical approaches that have questioned these assumptions.

[33] The argument of the "Modern Constitution", as proposed by Latour in *We have never been modern* (1993) is that the epistemology of modernity has divided the world in two Cartesian spheres: nature versus society, science versus politics, mind versus body.

increasingly sees the world in the watery metaphors of flows, fluxes and processes. At the same time, it is a departure from the structural thinking of Wittfogel and his contemporaries: 'dialectical thinking emphasises the understanding of processes, flows, fluxes, and relations over the analysis of elements, things, structures, and organised systems' (Harvey 1996: 49).

In this theoretical introduction to the thesis, I will formulate a response to the first sub-question of this research project how do dams shape or influence state formation? Rather than looking for a definite and stable relation, I want to focus here on the *how* question. Attending to this question will not only address the concerns of Wittfogel but will also provide a diagnostic of how power works. Secondly, to make a start in understanding the influence of the relationship between the dam and the state on the geopolitics of rivers I address the question how does the relationship between dam and state impact or transform the geopolitics of transboundary river basins? The goal is, then, to provide a framework to understand the logic and illogic of dam-building that can be used to test the role of dams in the geopolitics of two comparable case studies.

Borrowing from insights into the modern state by Weber and Foucault, I present a model of how a particular rationality for dams is constructed and reproduced by a small, technocratic elite through discourses. Discourses on dams are geopolitical strategies for the construction of space and power. These strategies interact with changing global flows of capital to lead to forms of geopolitical entrepreneurism that may adversely affect how transboundary rivers are governed. But let us start with the intellectual origins of the *Oriental Despotism* thesis, which, for its flaws, may also provide us with some answers.

3.1.1 The technocratic rationality of water

Wittfogel notes that a particular authoritarian form of state formation 'arises when waterworks must be undertaken on a larger scale for purposes of protection and irrigation' (Wittfogel 1968: 180). This conclusion was drawn after analysing the political organisation of the ancient civilisations of Egypt, Mesopotamia, China, India, as well as some pre-Columbian American societies, where the central state led the construction of dams, reservoirs, and irrigation works.

Because the operation of these hydraulic structures demands centralised managerial bureaucracies, state power increasingly concentrates among the small elites that run these hydraulic bureaucracies. Consequently, Wittfogel argues, a mode of production and exchange developed that is decidedly distinct from Western forms of capitalism. He calls this "bureaucratic capitalism" and its rulers wield absolute power exercised through their bureaucracy (Wittfogel 1957).

The analysis in *Oriental Despotism* and his other works shows intellectual traces of two other important German thinkers, Marx (1818 – 1883) and Weber (1864 – 1920). Like Marx, Wittfogel posits that there is a distinctive Asian mode of production that influences those societies up to the current date.[34] Moreover, both authors were geographical-historical determinists who developed a dialectic model of history. Weber, on the other hand, allegedly introduced Wittfogel to the hydraulic-bureaucratic official-state in China and India (Worster 1985). Moreover, Weber's ideas on bureaucratic rationalisation and authority seem to have had a profound influence on Wittfogel's thesis regarding the relation between water and power, although they are not explicitly cited.

Weber notes that modernity is characterised by increasing bureaucratic rationalisation.[35] Modern capitalism is, according to Weber, rationalised because the mode of production is largely predictable. Hydraulic management too, makes the flow of rivers, its extraction and the entire hydrology of basins seem calculable. This mode of production supports the emergence of a technocratic bureaucracy to manage water, because the means of calculation and rationalisation are only available to them.

Subsequently, the process of hydraulic management can be taken out of the political realm and into the portfolio of the technocrats, because the goal of rationalisation –inevitable progress – is unquestionable under modernity. While describing this process (although not specifically for water management), Weber warns against bureaucratic petrification, a process

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[34] Marx argues that Asian societies have been in held in thrall by a despotic ruling elite (Krader 1975).
[35] In *Science as a Vocation* (2004) Weber states that (Western) societies have increasingly been able to rationalise and control processes through calculation.

where the technocratic elite reproduces itself and no one is authorised to question the goals of the bureaucracy any longer.

Weber's notion of bureaucratic rationalisation formed the basis of the part of Wittfogel's argument that is most valuable for this thesis.[36] Larger and larger dams, reservoirs, and canal-networks have been built under the banners of progress and modernisation, but the infrastructure required increased centralised knowledge and control in turn. As a result, the power ends up in the hands of a small bureaucratic elite.

Although this is an interesting insight, *Oriental Despotism* fails on many other fronts. The geographical determinism is in line with the intellectual fashion of the mid-twentieth century, but his contemporaries have criticised Wittfogel for a misreading of the distribution of power in ancient Chinese and Indian political systems (Needham 1958).[37] Moreover, his writing echoes a highly politicised anti-Communist polemic that condemns ancient oriental systems, and between the lines the Soviet Union and Maoist China.[38] However, Worster warns that ignoring Wittfogel's argument because of these flaws and ideological excesses would conceal the valid points he makes on the relation between control over water and power.

In Worster's *Rivers of Empire* (1985) he takes up Wittfogel's discussion on the relation between hydraulic systems, the distribution of power, and the rationality of a bureaucratic elite and applies it to the American West. His analysis was as radical as shocking to some when the book was finally published in 1985. The American states west of the Mississippi, Worster argues, are not quite the ideal societies of individual freedom with a high degree of equality between individuals that thinkers like Thoreau (1962) and Turner (1893) envisioned. In

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[36] Although Weber spoke of a specific Western condition and Wittfogel used the same notion to describe a distinct Oriental society.

[37] Although critique of *Oriental Despotism* was directed at its geographical determinism, Wittfogel's argument applies the same principles to different environments. The determining issue is the mass mobilisation of manual labour that requires central control.

[38] During his career Wittfogel (1896 – 1988) changed politically from being an active member of the German Communist Party, to being a passionate anti-Communist and capitalist apologist in his later days. In between, he was affected by the rise of Nazi Germany where he was imprisoned by the Gestapo but subsequently released under international pressure. His thinking and writing has been influenced by the major political events of his time and his later work has consistently been anti-fascist and anti-Communist and should be perceived in this light.

contrast: ‘the hydraulic society of the [American] West is increasingly a coercive, monolithic, and hierarchical system, ruled by a power elite based on the ownership of capital and expertise’ (Worster 1985: 7).

Like Wittfogel, Worster identifies a relation between systems of control over water and systems of concentrated political power. Unlike Wittfogel, his case study does not concern an empire far away in a different historical period, but rather what some see as the epitome of water development in the contemporary period: California.

Extending Wittfogel, he examines capitalism and argues that there is no despot that holds absolute power, but that power has acquired a faceless, impersonal form in a way that many are unaware that it exists. However, the manifestation of power is the main distinction between the traditional autocratic regimes of Wittfogel and the capitalist US, because the conclusion that large-scale hydraulics lead to high concentrations of power is the same. As Worster puts it: ‘capitalism has created over the past hundred years a new, distinctive type of hydraulic civilisation, one that demonstrates once more how the domination of nature can lead to the domination of some people over others’ (Worster 1985: 50).

These insights provide a good starting point for further analysis, but the remaining question is whether the concentration of power a is by-product of hydraulic development, or whether the construction of dams, reservoirs, and irrigation canals form a deliberate strategy of elites to consolidate their power. In other words, how are we to understand the rationality for constructing large dams?

3.1.2 The hydraulic mission and state formation

The modern incarnation of the rationalisation of river development is called the hydraulic mission. Like in the ancient period described by Wittfogel, it has been driven by powerful states and the redirection of capital towards water management. A key example of state power driving the hydraulic mission stems from the United States, in the Tennessee Valley Authority (TVA). According to Mitchell ‘the TVA […] came to epitomise the new possibilities of development

and planning, especially in arid regions' (Mitchell 2002: 44).[39] It became one of the first examples of integrated development of water, energy, and industry.

Although pundits in the US had proposed more federal control over hydraulic structures since the turn of the century, it was not until the Great Depression that the socio-economic and political circumstances for government intervention were right. As part of the New Deal, Roosevelt initiated a programme of large-scale, top-down development, which included the construction of the Hoover Dam and a plan for the poverty-stricken Tennessee River Valley. The central feature of this plan was the foundation of a specialised agency, owned and directed by the federal government: the TVA. Its tasks included the development of the entire valley, but in the initial phase it mostly focused on the construction of dams and provision of electricity. The foundation of the authority created a modern-day hydraulic bureaucracy and laid the foundation for the modern hydraulic mission.

Molle, Mollinga, and Wester define the hydraulic mission as the top-down development of water resources at a large scale, driven by a modernist belief in the power of scientism, an ideology of the domination of nature and the technological improvements that made grander hydraulic works possible (Molle et al. 2009). The "mission" is a reference to the almost biblical zeal with which hydraulic improvements have been pursued. The involvement of the central government is almost a requirement, because no other actor can muster the capital, know-how, and legitimacy required for large-scale water development. The link with state formation is then easily made, given that large dams tend to be constructed under the leadership of the nation-state.

The TVA has been copied by state organisations in other countries, notably the colonial powers who directed state resources to the development of their colonies. What makes the TVA significant is how it stood as a model that has been exported all over the world, notably to developing and newly-independent countries. These states had much state-building to do and

[39] Although the TVA was not the first hydraulic bureaucracy in America – the Bureau of Reclamation and the Army Corps of Engineers were founded earlier – it was the first whose mandate coincided with the boundaries of a river basin.

the river-basin planning and the construction of large dams of the TVA turned out to be a blueprint for this process (Mitchell 2002). In the words of Molle

> most third-world elites were all too eager to accept the offer and the prospect of spreading modernism and development to their newly independent countries, while building up their legitimacy (Molle 2009: 489).

Of course it was not just about legitimacy but also about bringing the benefits of modernisation that many national movements promised. The belief in the hydraulic mission was genuine, but the outcomes more ambiguous.

Countries in the Middle East, sub-Saharan Africa, South East Asia, and Latin America saw the formation of state-led authorities and bureaucracies of irrigation experts, hydrologists, and energy engineers. Even the Soviet Union and the People's Republic of China embedded their own versions of hydraulic bureaucracies in their state apparatuses, regardless of their different ideological orientation. In fact, the Soviet GOELRO plan to provide the entire country with electricity in a sense pre-envisioned the hydraulic mission when it planned subject the Volga River to dams in the 1920s.[40] Supported by the technological development of concrete-filled dams, the hydraulic mission became virtually hegemonic in the post-war decades.

The foundation of river basin, irrigation, and energy authorities yielded obvious benefits to many countries. The direction of state resources towards the development of a region brought significant investments and increased output. Yet in many cases the burgeoning water bureaucracies also managed to concentrate more and more political and economic power in their organisations. Mollinga & Bolding (2004) note the resistance to reform and ability of the water bureaucracies to reproduce themselves in a comparative study of seven countries. This is in line with the bureaucratic petrification Weber expected.

Nevertheless, the importance of the hydraulic mission for state formation cannot be overstated. Mitchell's (2002) statement that large dams build nation-states as well as the irrigation systems has been frequently cited. The rationality for the construction of dams goes

[40] GOELRO is the Russian acronym for Soviet State Committee for the Electrification of Russia.

often beyond the economic and social benefits in the name of state formation. Mitchell's example of the Aswan dam in Egypt is a case in point here:[41]

> Ignoring the costs of salinization, waterlogging, declining soil fertility, the displacement of the people of Nubia, the loss of an archaeological heritage, increased disease, coastal erosion, the destruction of a large fishing industry, the loss of water due to evaporation and seepage, and other problems already evident from the first dam, and without even attempting studies of costs and benefits, the Aswan High Dam became the centrepiece of post-war nation making in Egypt (Mitchell 2002: 45)

The hydraulic mission fuelled a rationality for the construction of dams that was not necessarily economical, logical, or even beneficial for the population. Rather, rulers used hydraulic structures for other political purposes. Either way, the rationality for each dam is multiple, with different interests aligning in the demand for large-scale hydraulic intervention. The actors may be different, but the outcome – the concentration of power among an elite – was often not.

3.2 Making a river governable

While teaching at the *Collège de France* in Paris, French social theorist Foucault gave a lecture in February 1978 that, upon circulation among English-language academic circles in the 1990s, sparked a debate on a new way of thinking about government.[42] Foucault called his idea "governmentality" and introduced it as the study of the mentalities of government, or the "conduct of conduct". Intellectually, governmentality theory builds on the power-knowledge nexus developed by Foucault earlier in his career. Power and knowledge, he argued, are essentially the same, for control over the production of knowledge provides power and vice versa.

Power was seen by Foucault as having three forms: sovereign, or absolute power as exercised by a monarch; disciplinary power as exercised by institutions like prisons, schools,

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[41] Although I do not wish to pursue Wittfogel's argument directly here, then-president of Egypt Nasser, did not have the greatest democratic credentials.

[42] The name of the lecture series was *Security, territory, population.* The lecture on governmentality has been republished in English (Foucault 2007).

hospitals and factories; and also governmental power. This is the power to govern the conduct of others by working through their beliefs, desires, and aspirations. Central to this notion is the epistemological assumption that facts are not discovered, but "regimes of truth" are actively constructed. By constructing regimes of truth, or "discourse", the behaviour of others can be shaped by influencing their rationalisation. Governmentality is concerned with understanding how these three types of power work and interact (Foucault 1991).[43]

Dean argues that governmentality is concerned with 'what forms of thought, knowledge, expertise, strategies, means of calculation, or rationality are employed in practices of governing' (Dean 1999: 31). There are three components of governmentality that are relevant for this thesis: the construction of goals of government in a dominant, or hegemonic, discourse; "bio-politics"; and the enrolment of the population. The goals of government do not follow from "reason", but are actively constructed and reproduced by powerful groups, relations, and interactions in a society. Often, the goal of the dominant discourse is to reproduce or maintain the power of those who constructed the discourse in the first place.

The "regimes of truth" are supported by bio-politics. This has been defined by Foucault as the administrative imperative to measure, quantify, calculate and define all aspects of a population, so that power can be exercised (Foucault 1991). The idea of bio-politics is in line with what Weber called calculability, a key feature of modernity. Bio-politics cannot measure an objectively knowable and quantifiable world, but it constructs knowledge that is in line with the dominant discourse.[44] Importantly, power is based on a both coercive and a persuasive component. Enrolling the population in the governmental discourse is a feature of the persuasive component, which is more important in liberal or neoliberal regimes.

Dean synthesised these components in four dimensions. "Forms of visibility" are ways of picturing, imagining, or perceiving objects and phenomena. "Episteme of government"

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[43] These three forms are of a different analytical category than the three dimensions of power that Lukes (1974) presented.

[44] In his earlier work Foucault proposed that, as it is impossible to think outside of the hegemonic discourse, knowledge produced by bio-politics tends to be in line with the goals of government (Foucault 1972).

include particular ways of thinking, producing knowledge and questioning, based on reliance on certain procedures for producing truths. The "techne of government" is the ways and means with which the imagined objects are constructed or made. Finally, "forms of identification" are the formation of actors, subjects, and agency (Dean 1999).

Because governmentality theory posits alternative assumptions and raises different questions than competing theories of government, it has become increasingly influential as a complementary theoretical framework for the study of rule and has been applied to other fields, often in forms that have little to do with Foucault's original lecture (Rutherford 2007; Watts 2004; Goldman 2001).

According to Collier (2011) the concepts of bio-politics and governmentality are not theories that can be "applied" to the study of a geography or logics that can be "found" in certain governmental rationalities. Instead, government is 'a distinctive formation of bio-politics, the result of a specific and original response to the most basic problems of modern government: how should the state govern living beings' (Collier 2011: 19). Neoliberalism, which is arguably the form of government that has been studied in most detail by governmentality scholars (Dean 1999), should then be seen as a critical reflection on prior governmental practices.

Collier's study *Post-Soviet Social: Neoliberalism, Social Modernity, Biopolitics* (2011) demonstrates the value of governmentality for understanding some of the contradictions of modern rule. His critical interrogation of the connection between Soviet social modernity and the subsequent neoliberal reforms during the "structural adjustment" programmes of the 1990s, lays bare the relationships between these two competing governmental rationalities. In a sense, the neoliberal reforms have been a critical reflection on Soviet social modernity, rather than an alternative blueprint for organising a society. The totalising bio-political planning of Soviet society has been reformed by a political ontology that sees society and the economy as outside the reach of the state.

The example of Collier's book that has most resonance for this thesis is his discussion of the heating infrastructure in Russia. He sees infrastructure development during Soviet times

as a technology of government that organises the population into productive processes. Indeed, urban and social planning followed the industrial targets of the five-year plans. The post-1991 neoliberal discourse that led the call for reforms in the organisation of infrastructure had an alternative episteme, where the population consisted out of consumers rather than industrial inputs, and where the supply of gas, electricity and heating were to be organised accordingly. However, the reforms have been problematic because the infrastructure itself was designed according to the Soviet rationality, which posed a challenge to the transformation to a different mode of government (Collier 2011).

As such, the governmentality theory discussed in Collier's work has two implications for this thesis. Firstly, studying infrastructure as a technology of government can reveal more than the story of the structures and networks themselves, be they heating pipes as in Collier's work, or dams as in this thesis. It traces the connections between the materiality of the physical works, the discourses and bio-politics that authorised a certain employment of the structures, and the intellectual genealogy that predated the formation of the discourse. Secondly, governmental rationalities can be traced to a certain intellectual heritage, but are also driven by practical geopolitical considerations, and historical circumstances. Looking at rule through the lens of governmentality may, then, show some of unexpected aspects of modern rule.

Indeed, governing a river through a cascade of dams means employing material infrastructure to the end of governing a population. Discourses do not only exist to justify the rule over people, but also the rule over rivers, because the latter implies the rule of some people over others (Worster 1985). If we take bio-politics to include the defining, measurement, and caculability of hydraulic systems, such as the sciences of hydrology, agronomy, economics and spatial planning, governmentality provides us with a workable model for understanding how hydraulic developments relate to power.

3.2.1 The dimensions of governing a river

The modern governmentality of rivers coincided with the start of the contemporary hydraulic mission about a hundred years ago, when scientific progress had identified the hydrological

cycle and chose the watershed, or river basin, as the key unit of analysis. Planners and engineers have enthusiastically taken up the concept of the river basin in order to accelerate the conquest of nature (Molle 2009). However, taking the basin as a unit is also a political act, because it implies a reshuffling and reorganisation of the scale of government, which is a strategy for control and power (Swyngedouw 1997). Nevertheless the river basin was to guide the dominant discourses on the hydraulic mission, while deriving its legitimacy from its naturalness and quantifiable hydrological unit. At the same time, only centralised elites could attempt to govern the river at this scale, because farmers were too focused at their limited part of the stream.[45]

As a natural unit the basin provides a starting point to construct dominant discourses with the goals of government. These are in line with the imperatives of modernity: progress, increasing production, and the betterment of humankind through the conquest of nature. Although these elements have been common themes for many river basins, each river's governmentality has distinctive local characteristics too, like the aim of poverty reduction held by TVA, the nation-building project of the High Aswan Dam, or the blooming of the desert with modification of the Central Asian rivers.

The four dimensions of government distilled by Dean provide a good framework to understand the governmentality of rivers. The question of visibility asks how the space of a river is being imagined, pictured, and represented by dominant discourses. Visibility includes perceptions of (economic) potential and ideas on, or experience with, the gains that can be derived from harnessing the waters. The production of maps is a central feature of this visibility too. Because objective representation of the world is impossible, the state production of maps is an expression of power (Harley 1989). Certain things are illuminated or defined, such as water flow patterns, places suitable for economic activities, or recognised settlements, whereas others are obscured.

The episteme allows for the production of some truths and disallows for others. Decision-making procedures for dams and irrigation networks favour the views of engineers,

[45] In many cases, new elites were created because the river basin hardly coincided with the jurisdiction of the central state.

agronomists, and central planners over those of peasants, indigenous people, or other alternatives. The practice of feasibility studies for hydraulic works is a part of knowledge production that legitimises a certain view, usually produced by a handful of global consulting firms. An uncontested regime of truth needs to be produced and reinforced in order for elites to consolidate power, even though hydraulic interventions are almost always political questions.

The techne of government is the implementation of rule and control. The practice of government tends to depend on technologies of government, therefore the techne is concerned with the means and methods of power. Ultimately, rule is extended over rivers through the tangible activities of digging canals, dropping concrete, and the correct placement of turbines. The material aspects are, according to governmentality theory, central features of how power is exercised. Other technologies of government include institutional arrangements and the production of legal frameworks.

Identification concerns how particular subjects are made in the process of governing. In the hydraulic mission, an entire subclass of water engineers and planners has formed in many states. Hydraulic bureaucracies have a certain identity within a power structure and the formation of these identities is a key dimension of governmentality.

From this analytic of government, Rose identified the emergence of "governable spaces", which are spaces where the four dimensions come together. These are 'modalities in which a real and material governable world is composed, terraformed, and populated' (Rose 1999: 32). In other words, governable spaces become the translation of discourses, bio-politics, and goals of government into actual material realities. Accordingly, the scales of such spaces are diverse. They vary from the factory and the city, to a region or nation-state, and, of course, the river basin. Governable spaces require the territorialisation of governmental discourse and practice.

3.2.2 Discourse and bio-politics of river governmentality

Foucault argues that the goals of government are never stable, because while discourses emphasise definite ends, these ends are shifting (Dean 1999). Simplistically, we have seen that,

over time, the guiding drive for the domination of nature slowly gave way to the imperatives of increased agricultural production, which in turn made place for the generation of hydropower.

Moreover, discourses of governmentality are always mediated by specific cultures (Peet & Watts 1996). The goals and means of the modern hydraulic mission can be decidedly different depending on the type of state. Neoliberal states may make use of Foucault's persuasive governmental power, whereas authoritarian regimes employ a coercive force more like Wittfogel described.

Nonetheless, the discourses justify certain hydraulic interventions. Bio-politics constructs a regime of truth that provides the legal-rational authority to dams, but more frequently the discourse speaks to Weber's alternative modes of legitimacy: charisma and tradition. Charismatic authority depends on the likeable qualities of the leadership, whereas traditional authority is a form of legitimacy derived from custom and habit (Weber 2004).

Governmentality theory further posits that power is distributed unequally and circulates in a non-linear way through society, so the construction of dominant discourses is not a democratic or fair process. Through the power-knowledge nexus, the monopoly over the construction of regimes of truth concentrates power in the hands of the few; much like Wittfogel and Worster would have it. Rivers have two distinctive processes of knowledge production, or bio-politics, that support the dominant discourses. On the one hand we have the sciences that produce knowledge on rivers, and on the other hand we have processes that effectively globalise water policy.

Hydrologists, agro-scientists, economists and engineers dominate the first type of bio-politics by producing "truths" about a river. Much of their work consists of the mapping of data, modelling, and predicting flows, fluxes and rainfall; seemingly neutral activities that are perceived as objective science. Knowing the water flow, the irrigation and energy potential, and the variability is absolutely essential to the construction of hydraulic works. Yet by presenting this knowledge, other knowledge is necessarily obscured.

Scott (1998) observes that this type of knowledge production leads to the fabrication of "state maps of legibility" – models of the river that only show the part of interest to the

observer, who is, as we recall, the hydraulic bureaucrat. Rivers of enormous potential are revealed by national academies of sciences, development officials and feasibility studies from the hydropower industry, whereas the inconvenient parts such as the environment externalities, pollution, and people living from the river are of secondary importance. Problematically, this 'legible' knowledge informs the rationality of dams.

The second type of bio-politics of rivers is what some have called the globalisation of water policy (Conca 2006; Arsel & Spoor 2010). How rivers should be managed has become a global concern with a proliferation of organisations, guidelines, and databases. Both the hydropower industry (pro-dam) and the anti-dam movement have over the last 20 years or so become organised at a global scale.[46] Both camps produce radically different knowledge on rivers, supported by alternative bio-politics, and embedded in competing discourses. Different rationalities for governing a river emerge, with both laying claim to the truth through their experts.

A product of the competing rationalities of the hydropower industry and the anti-dam lobby has been the initiation of the World Commission for Dams (WCD), a World Bank-supported initiative that was to evaluate the impact of large dams. Although its findings, published in 2000 as *Dams and Development* (WCD 2000), offered a harsh critique of many existing dams, the hydropower industry and the bureaucratic elites were enrolled in the initiative too. Rather than overthrowing the principles of the hydraulic mission completely, the WCD report seemed to have registered the concerns of the anti-dam movement in the hydraulic discourse.[47]

Dam construction and operation is driven by different, competing, contradicting, or overlapping rationalities that influence state formation in a number of different ways. As Wittfogel predicted, one externality of large-scale hydraulic works is the concentration of power

[46] The industry has representative organisations such as the International Commission of Large Dams (ICOLD) or the International Hydropower Organisation (IHA), whereas the anti-dam movement speaks through NGOs like International Rivers (its landmark publication is *Silenced Rivers* (1996) by McCully.
[47] The outcome, especially giving the directly affected indigenous people a power of veto, was partially disowned by the World Bank subsequently.

amongst an hydraulic elite. This process provides an additional rationality for hydraulic expansion, which affects the distribution of power in the state. The concentration of power within the state does not necessarily lead to despotic regimes; Foucault has demonstrated that power takes various shapes, based on both coercion and persuasion. The outcomes are multiple and depend on how the governmentality is mediated by culture, history and geography. But it would be wrong to assume the logic is entirely derived from national processes, as cross-border geopolitical and geo-economic logics are likely to have an effect too.

3.3 Towards a critical geopolitics of dams

Critical geopolitics is the study of the employment of geographical reasoning in the service of (state) power. The discipline investigates how the production of knowledge and discourses on the relationship between states or spaces is a practice of exercising power over others (Dalby 2008). Its origin lies in the disillusion of a group of critical geographers in the early 1990s with the failure of classical geopolitics or conventional international relations theory to account for the dominance of western-dominated, Orientalist, and imperialist geopolitical imaginaries (Ó Tuathail 1996).

Critical geopolitics pays due attention to the role of discourses in the construction of space and power. In contrast to classical geopolitical reasoning which takes representations of space for granted, critical geopolitics employs Foucauldian notions of power and discourse to deconstruct these representations (Ó Tuathail & Agnew 1992). This is relevant because 'strategies of power always require the use of space and, thus, the use of discourses to create particular spatial images […] is inseparable from the formation and use of power' (Sharp 1993: 492).

Indeed, the discursive construction of river and dam guides particular geopolitical behaviour. During the apogee of the hydraulic mission in the West, language on the "conquest of nature" or the "taming of wild rivers" justified the construction of hydraulic works (Reisner 1986). However, discourses about hydraulic interventions favour some but disadvantage the

interests of others. The power to construct dominant discourse to mobilise resources, garner support, and gain legitimacy for a dam becomes, therefore, a central type of geopolitical power. It can be a deliberate geopolitical strategy to exercise power over rivers, the population, and other states, in line with Foucault's ideas on the goals of government.

If the construction of rivers as flows of economic potential, as the expression of flows in kilowatt hours, and as prospective irrigation area is a geopolitical practice to produce an image of rivers as spaces of power (Sneddon & Fox 2012), we need to look at the origins of this construction. Where is it produced, by whom, and in what interests are questions that speak directly to distribution of power in a society, among nation-states, and in the international setting of a transboundary river basin.

The challenge for the discursive justification of hydraulic works is that the rationalities of dams are multiple. The logic for a dam conceived by the elite of one riparian state may be opposed to the interests of another. Moreover, this logic can be contradicting the interests of sub-national or transnational actors.[48] Rather than seeing the interests of actors as set-in-stone, critical geopolitics turns to the politics behind the production of discourses to understand geopolitical behaviour.

In another line of argumentation, the literature of critical geopolitics proposes that the explanation for international affairs can often be found in the domestic political arena (Ostrom & Job 1986). This suggests that domestic and foreign policy are intimately connected, and not separate spheres as realist international relations theory prescribes. States may use foreign policy to divert attention from problems at home.[49] Indeed, building a dam helps to distract attention from other more pertinent issues, in particular when dams are used in projects of nationalism or state-building. On top of that, the symbolism can give the ruling elite a degree of legitimacy that may be lacking in many (semi-) authoritarian regimes.

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[48] An example is the construction of a dam upstream that may upset the water needs of a state downstream. Another is the problem of meeting competing demands from riparians that require a dam for irrigation, flood control, or hydropower. Moreover, the interests of the dam-building industry can align those of national elites but contradict the interests of parts of the local population.

[49] See for instance Megoran's (2004) case study on the Uzbekistan/Kyrgyzstan border conflict.

Here, we can connect the arguments of this chapter and formulate a hypothesis on how the relation between dams and state shapes the geopolitics of rivers. The logic for dams is constructed by discourses, bio-politics and the enrolment of the population, as Foucault's governmentality theory suggested. However, discourse production depends on power relations, which are centralised through the concentration of capital and labour required for large-scale hydraulic works. The link between dams and the state may, therefore, lead to a logic for dams that is decidedly illogical at the scale of a river basin because of the contradicting and competing rationalities.

So perhaps the concentration of power that is the product of hydraulic works, as predicted by Wittfogel and Worster has ramifications beyond domestic state formation.

3.3.1 Geo-economics and dam finance

In 1990, Luttwak published an article stating that geopolitics is increasingly becoming an out-dated perspective on global relations. Instead, he argues that the economic component of spatial relations has superseded the political component – in what he terms geo-economics (Luttwak 1990). This concept is defined as 'the intersection of economics and finance with global political and security considerations. Simply put, geo-economics links the big picture with the practical realm of markets' (Kaufman in Cowen & Smith 2009: 38).

Cowen and Smith state that the logic of geo-economics is the new disciplining architecture that is not unlike the old geopolitical mechanism of imperial administration (Cowen & Smith 2009). They believe that the governmentalities of powerful actors are no longer driven by desire for control over territory, but rather by economic imperatives. While geo-economics is a historical successor of geopolitics, geopolitical calculation is increasingly circumscribed and reworked by geo-economics. Where geopolitics is understood as a 'means of acquiring territory towards the goal of accumulating wealth, geo-economics reverses the procedure, aiming directly at the accumulation of wealth through market control' (Cowen & Smith 2009: 42).

In turn, geo-economic spaces are created to overlap, or compete with geopolitical spaces. While the river basin scale as a management unit is decidedly a political space, because

it aligns with the existing nation-states and the global geopolitical order, the spaces created by the dams are connected through economic and financial relations, such as the export of hydroelectricity or the investments for equity in hydraulic infrastructure.

This geo-economic logic for dams does not reproduce power unless the hydraulic structures are actually built. Capital is required to enable the construction of dams, reservoirs and irrigation canals. However, the global flows of capital have changed significantly over the last two decades in ways that affect construction of dams and their geopolitics by extension. Alternative sources of finance for dams and the increasing importance of the hydropower component have affected the financial viability of dams.[50]

The first explanation is the emergence of alternative sources of finance for dams. The World Bank and Western investment banks are no longer the main financiers of dams. Countries like China and Russia have developed hydraulic technology and benefit from exporting it to developing countries, supported by cheap government-backed credit. The president of the European Investment Bank (EIB), Philippe Maystadt, is cited in a publication of Bosshard (2010: 1) saying that 'the competition of the Chinese banks is clear. They don't bother about social or human rights conditions'. Bosshard further reports that Maystadt has stated that these banks have "stolen" projects from the EIB because they undercut its conditions on labour standards and the environment.

Lowering standards is one of the implications of the changing financial architecture of dams, but hydraulic bureaucracies in developing countries rejoice because alternative sources of finance do not prescribe the same transparency conditions or other requirements. The time consuming open procurement and consultation periods asked for by the World Bank and others

[50] There is a difference between the economic and financial viability of a dam. The economic viability of a dam is the sum of benefits minus the total costs and includes non-monetary components such as the provision of employment, improved access to markets and environmental costs. The economic viability of a project has little to do with the actual realisation, because the latter depends on the financial viability. The financial viability is whether there is an investor willing to put down the money for the dam.

are disliked in particular, because they provide a discursive space to contest publicly the dam rationality of the hydraulic bureaucracies.

Financing dams from government income is also increasingly a strategy and opportunity. Countries like Brazil, Turkey, China, but also Ethiopia, have the ability to finance dams from their own coffers (Moore & Dore 2010). Where multilateral finance for a dam in a transboundary river requires the consent of other riparian states, alternative sources of finance are more flexible.

The shift can have serious geopolitical consequences. Although the track-record of the World Bank in financing dams is contested, its relatively transparent procedures give an opportunity for competing logics to question the rationality of the dam.[51] The Chinese Exim Bank, a large hydropower financier, does not offer this space and does not offer transparency over its operations and investments. Consequently, projects that benefit from non-transparency become more viable in the new financial context.

The second change to the global financial architecture of dams is that the hydroelectricity component of dams is increasingly a draw for international investors (Middleton et al. 2009).[52] Technological developments have enabled the transport of hydroelectricity over very long distances, which means that less electricity is lost when transmitted. A dam on a river can power cities thousands of kilometres away. A landmark example is the discussion on the feasibility of the Inga dam near the mouth of the Congo River. This dam has the potential, it is said, to provide half the electricity the African continent needs. Although the Inga dam is still on the drawing board due to its prohibitive costs, the last decades have seen a shift in rationale for dams away from agriculture towards energy generation[53].

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[51] In the end, it is still the powerful elites that can drive their projects home, but the space for resistance and contestation has not been unimportant (McCully 1996).

[52] A branch organisation of the hydropower industry even wrote a *Hydro-finance handbook* which describes how private investors and firms can invest in hydropower plants (Trouille & Head 2008).

[53] The Soviet GOELRO plan of the 1920s was perhaps the exception to this trend, because electricity was already the emphasis from its initiation.

The ability to export electricity to raise foreign exchange earnings is a new way of rationalising the investments in dams in many developing countries. Perceiving the electricity derived from water as an exportable commodity greatly increases the financial viability of dams. Numerous mountainous states are reproducing their own image as hydropower Valhallas in an attempt to attract investors. Places as diverse as Brazil, Paraguay, Laos, Cambodia, Nepal, Uganda and the DRC have active promotion campaigns to rebrand their rivers in a discourse of hydroelectricity and exports. This is also a constant in the case studies of this thesis, Kyrgyzstan and Ethiopia, which have both promoted their lands as water towers that may provide electricity for the entire region.

But it also induces a different change. The hydraulic elites that used to be, as Worster argued, the agricultural capitalists, are increasingly the global energy firms. It is no longer the ministries of water, agriculture, and irrigation that lead the call for dams, but rather the energy apparatuses. Utilities, ministries of energy, and notably large energy multinationals are becoming the new centres of hydraulic power. It is no surprise that the high-profile conference on dams in Africa in March 2011 was sponsored by Sinohydro, Energie de France, and other large global energy firms (Hydropower for Sustainable Development Conference, Addis Ababa 31-3-2011). This shift in hydraulic elites leads to a shift in spatial scales too.

In certain circumstances the scale of the rationalisation of dams has shifted from the national to a regional or even global scale. The contemporary dam does not only provide the immediate surroundings with irrigation water, but exports energy to all the neighbouring countries and is financed or operated by global firms. In response, the space of rivers is reconstructed in different ways in order to support these constellations of power. Certain dams may or may not be built or are operated in particular regimes that may appear irrational for the local or for the river basin, but that support the power of the global energy capitalists.

I argue that the interaction of the hydraulic bureaucracies, the discursive rationalisation for dams and global flows of capital may give rise to a new type of geopolitical entrepreneurs. They are often powerful elites in developing countries that align their discourses through their control over the state apparatuses with global flows of capital in order to finance large dams

(and other public works). The rents that can be derived from large projects help to sustain and reproduce their power in a society.

This way dams and hydropower stations are used as vehicles for the accumulation of power as well as capital. By harnessing the inherent and renewable hydroelectricity of water, the river can be transformed in a flow of revenues that supports this accumulation. While certain dams do not make sense to external observers, there are always groups in a certain society that are set to benefit from the operation and the revenue flow of hydropower. Indeed, the hypothesis of the growing influence geopolitical entrepreneurs may help to explain why certain dams are constructed that seem entirely irrational from other scales or points of view.

3.4 Conclusions

We cannot begin to understand the geopolitics of transboundary rivers without appreciating the logic that drives the construction of large dams, because dams have the single largest impact on how a river is governed. In this chapter I have formulated two hypotheses on the relation between water and power. The first is that the construction and operation of dams is driven by multiple rationalities that may contradict, compete or align with each other. Unpacking these rationalities tells us much about the relation between dam construction and state formation. The construction of dominant discourses, bio-politics, and the enrolment of the population are all strategies of power to reshape the space of rivers and construct a logic for dams that supports the interests of the hydraulic elite.

The second hypothesis is that the logic of dams is increasingly aligned with the global flows of capital. This trend may give rise to a new class of geopolitical entrepreneurs, who confuse the economic, social, and political rationale for dams with personal financial and political gain. Cowen and Smith put this new logic succinctly ‘in the acid of economic calculation, the state becomes an entrepreneur in its own right, a player in the market first and foremost rather than a regulator of the market’s “excesses”’ (Cowen & Smith 2009: 41).

Power has been a central thread throughout the discussion in this chapter, but power is an elusive concept. Foucault talks about governmental power as the process of governing the conduct of others by working through their belief systems, desires, and aspirations. Worster described power as faceless, impersonal and immaterial, but embedded in societies. What both theorists have in common is the idea that power is not possessed by individuals, but circulates through society. A hydraulic elite is powerful because it controls the production of knowledge and is able to command the capital, but not because power is an inherent quality to that group of individuals.

Chapter 4 A tale of two rivers

It is part of the logic of the hydraulic mission to transform river basins into governable spaces. Weaving together the histories of the modern Nile and Syr Darya rivers, this chapter argues that the contradictory relationships between the hydraulic mission and geopolitics produces ungovernable spaces instead.

4.1 The hydraulic mission as governmentality

An increasing number of hydraulic interventions have been made in river systems in the decades since the Second World War. Enabled by scientific progress and increasing command over capital, countless dams were erected, canals dug, and reservoirs filled. One can expect that these efforts have made rivers more manageable, predictable, and legible (Scott 1998). Indeed, we can argue that the transformations have been driven by the desire to bring the water resources in line with production processes and capital generation.

In this chapter I make a theoretical contribution to the conceptualisation of the hydraulic mission, by arguing that is has been a central purpose of this mission to produce "governable spaces" out of river basins. Nevertheless, there are a number of inconsistencies and internal contradictions to this process of transforming wild and unpredictable rivers into territories that can be controlled by a bureaucratic hydraulic elite. In turn, I investigate what happens when the rivers are not made governable, but ungovernable instead.

In a literature overview of the global nature of water resources development and irrigation since the late nineteenth century, Molle, Mollinga, and Wester (2009) note the near universality of the hydraulic mission:

> Whether out of a need to increase food production, raise rural incomes, or strengthen state building and the legitimacy of the state, governments – North and South, East and West – embraced the "hydraulic mission" and entrusted it to powerful state water bureaucracies (Molle et al. 2009: 328).

Such similarities between basins may seduce observers to understand the hydraulic mission as a next stage in the "march of civilisation" of the modernisation paradigm. However, it has also been a highly political project, driven by powerful state interests. In any case, their remark suggests that a comparative analysis may help developing theoretical ideas on what effect the hydraulic mission in general, and the construction of large dams in particular, has on the nature of river spaces and the politics of scale.

The narrative below weaves together the stories of how imperial and national actors have attempted to transform the Nile and Syr Darya Rivers into governable spaces through

particular governmentalities. The histories discussed in this chapter provide a context to the empirical analysis to come. Moreover, this chapter provides an impressionistic account of the relationship between dams, state power, and geographical space. In the analysis below I will formulate a response to the second sub-question of the research project how do dams construct scale and produce governable spaces?

Perhaps the hydraulic mission is, as the literary reference in the chapter title suggests, both the best of times and the worst of times. But as in the original tale, it is the contradictions that are most informative and powerful.[54]

4.2 The making of two modern rivers

During the second wave of European colonial expansion throughout the late nineteenth century, both the Nile Valley and Central Asia have been subjected to imperial rule (Wright 1976). The British extended their power over the entire reach of the White Nile River. Egypt was taken in 1882 while Uganda and the area around Lake Victoria, believed to be the source of the Nile, were annexed in 1888. The middle stretch of the Nile, contemporary Sudan, was occupied in 1898. Tsarist Russia, on the other hand, expanded its contiguous empire into Central Asia from the north by conquering the territory of current-day Uzbekistan and Turkmenistan in 1873 and 1885 respectively.[55]

The reasons for the conquest are complex, manifold, and outside the reach of this thesis. Some see Great Power rivalry as the main driver of nineteenth century imperialism (Pakenham 1992; Hopkirk 2006). Alternative readings of history suggest that the lure of natural resources

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[54] This is a reference to Charles Dickens' *A Tale of Two Cities*, where the author gave a fictional account of the times in England and France after the French revolution.

[55] The essential difference between the two empires is that the British was an overseas empire while the Russian was contiguous. Although is still debated whether the Central Asian part of the Soviet Union should be defined as a colony, Russia clearly was an imperial power (D'Encausse 1979; Gretton 1964; Suny 2001). For the purposes of discussion I refer to the core-periphery relations of Moscow-Central Asia in terms of colonialism, following (Shahrani 1993), who argued that 'Soviet policy in Central Asia should be evaluated as a colonial project geared to the centre's aims of economic and ideological control' (Kandiyoti 2002: 288).

the regions could provide, notably cotton in the areas of my case studies, may have formed another pretext for colonisation.

Cotton was highly valued by the English textile industry, but also by the growing industry around Moscow.[56] When the American Civil War (1861 – 1865) broke out, the supply of cotton to both empires was severed and they had to look elsewhere (Earle 1926). Historians of Central Asia have written that securing cotton was one of the main drivers for the Russian conquest (Lubin 1997; Allworth 1995). Others make a similar case for the British in northeast Africa (Tvedt 2004). Both the Nile delta and the Central Asian rivers have a long history of irrigated cotton production and were known to produce high-grade cotton at the time.

If agricultural production has been the driver of conquest, then cotton-driven development became, subsequently, the goal of imperial government. However, agricultural potential is worthless without an adequate and stable supply of water. Imperial discourses, involving the construction and reproduction of certain perceptions of the river, a high-modernist attitude to nature, and linking conquest to development of water resources, have guided the geopolitical behaviour of Great Britain and Russia.

The transformation of the two river valleys that was initiated by the imperial authorities in London and Moscow is an example of rulers drawing water management structures on an imagined blank slate, thereby ignoring the pre-existing social and political relations of the river. The perception of river valleys as having virtually unlimited agricultural potential defined the subsequent modification of the rivers by engineers and water planners.

Naturally, irrigation had been known to both regions for a long time and the river basins were anything but a *tabula rasa*. It seems that there was a considerable contradiction between the attitudes, policies and plans of the colonial authorities and the realities on the ground. In essence the main difference between imperial and traditional approaches to water management has been one of scale.

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[56] Both areas had a flourishing textile industry that needed to be fed with raw materials as input. While flax and hemp were indigenous to European Russia, cotton was a higher-grade resource and more desired. Places like Liverpool in England were used to cotton as preferred material for longer.

4.2.1 British attempts to tame the Nile

Egypt had been under European influence for longer and the British had always had a keen interest in the commodities produced in the Nile Valley. However, the water supply required to produce these commodities was rather limited. While the soil is excellent, the limits to production are set by the scarcity of influx of Nile water.[57] But there was, as the colonial administrators knew, plenty of water available upstream. Control over this water would solve the water scarcity in British Egypt. Consequently, the conquest of the Nile Valley outside Egypt became a very rational imperial strategy (Tvedt 2004).

Only a controlled river can yield substantial benefits to humans, was the official view of the Colonial Office and Consulate General in Cairo. In turn, "conquering" and "taming" the Nile drove official imperial discourse. Lord Cromer, who was consul-general of British Egypt between 1883 and 1907, wrote in his 1908 history of Egypt that:

> When, eventually, the waters of the Nile, from the Lakes to the sea, are brought fully under control, it will be possible to boast that Man – in this case, the Englishman – has turned the gifts of Nature to the best possible advantage (Cromer, 1908: 461).

"River Imperialism" is the term Tvedt introduces to describe how geopolitical imagery like this has driven colonial conquest (2004).

It was around the turn of the century that the Nile basin was first conceptualised as a single hydrological and planning unit.[58] In order to secure water supply for Egypt, a number of strategic conquests and grandiose engineering schemes were thought out under the British

[57] Irrigation for agricultural production depended on the annual Nile flood, which was relatively regular, but did not come often enough for the imperialists.

[58] 'What had, in the past, been regarded by and large as a local river, or as many rivers, was now described as one basin or water system, hydrologically unified, and from source to mouth it was conceived of more as a potentially benevolent servant to the irrigation economies in the north and, at the same time, as a potent political weapon in the hands of London' (Tvedt 2004: 73).

hydraulic mission in Africa. Control over water supply was the only way to keep Egypt productive, it was thought a hundred years ago. [59]

The colonial administrators, but also the historians of the ancient Egyptian hydraulic civilisations, produced a plethora of reports on the potential for cotton irrigation that became the basis of the river's bio-politics and the focus of imperial discourse.[60] An irrigation department was founded in the Ministry of Agriculture, under British leadership. In turn, Egypt was seen as the largest cotton farm of the British Empire.[61]

The British rulers had another incentive to increase cotton production in Egypt. Cotton was the main source of income for the colony. Egypt had major outstanding debts to Great Britain and France at the time and the cost of annual interest alone was more than five million pounds in 1882 (Tvedt 2011).[62]

But expansion of cotton production required more water than the natural flow the Nile could offer. Concurrently, there was a need for hydraulic schemes to increase water supply, thereby stimulating cotton production and, ultimately, the generation of capital for debt servicing. At the time the White Nile was wrongfully seen as the major source of water for Egypt and it became the focus of further exploration and eventually colonisation.

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[59] Irrationally, this view has not changed much since. It derives from the myth that the Egyptian economy depends on agriculture and that the agriculture is limited by the water supply. In reality there are many other constraints. Nonetheless, this position was still kept by the Egyptian negotiators of the new Nile Treaty (interview anonymous, London 21-5-2011). See (Erlich & Gershoni 2000) for a discussion of this perception and other "Nile myths"

[60] Allan (1994) writes that precisely because the British controlled almost the entire basin, so many reports have been published.

[61] Although the land had always been productive, much of the potential was unused because of the erratic and highly variable Nile floods. A small intervention, such as the delta barrage completed before the British invaded, could easily increase the annual harvests (Ishida 1972). The first delta barrages were built between 1843 and 1861, during the rule of Mohammad Ali. These extended the area of irrigated land and were the largest hydraulic structures in the nineteenth century (Mikhailova 2001). While extension of the agricultural area increased production, only a reservoir upstream could increase the number of harvests.

[62] In order to finance infrastructure investment and the Suez Canal, Khedive Ismael took out many loans from Europe, mostly from Britain and France. By 1875, Egypt's debt amounted to £100 million. When payment of interests was suspended in 1875, Britain and France sent the Goschen-Joubert Mission to restructure the debt, but they largely failed with ultimately led to British military intervention (Metz 1990).

When Uganda was formally incorporated in the empire in 1888, a gauge was immediately installed at the outlet of the Nile at Lake Victoria. This would give the authorities in Cairo a better idea of the expected river flow, or so they thought. After control of Sudan was ensured about a decade later,[63] Lord Cromer is said to have sent his best geographers and servicemen to map the area and measure the river flow. One engineer played a particularly important role. William Garstin had studied the Nile cataracts already in 1897, but followed all the tributaries of the White Nile up to Lake Victoria during the next two years.[64]

These were costly fieldtrips, but Lord Cromer justified the spending by stating that 'the question of increasing the summer supply of the Nile is, however, of such a vital interest to Egypt that the present expenditure is fully justified' (Cromer in Tvedt 2011: 184). Only with complete maps and scientific data the true potential of the Nile would become clear and the subject of government could be defined and rationalised.

Most of the early data on the Nile comes from British scientists, colonial officials and army officers. Reports such as those of Garstin formed an "episteme of government" that allowed the authorities and elites to produce a discourse on the river and to intervene accordingly. The largest hydraulic intervention was the dam at Aswan, completed in 1902.[65] William Willocks, the director of reservoirs of the British Egyptian government, and his colleagues led the construction. The Aswan Dam was the single largest hydraulic project at the time and the reservoir the largest in the world. It created a reservoir at the border of Egypt and Sudan that could provide the cotton farms with water year-round.

But the construction of the dam cannot be seen outside of the "episteme of government" created earlier. As Mitchell argues, building the dam required:

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[63] There are many political reasons that explain why Uganda was captured before Sudan, even though the latter lies immediately upstream of Egypt. The Mahdists in Sudan actually defeated the British army in their first attempt at conquest. Uganda was invaded from the East African colony Kenya.

[64] Surveying the cataracts was significant because they had been a major obstacle to further exploration of the Nile Valley.

[65] The low Aswan dam, as it was later called, had a height of 35 meters but was raised in two later stages (1907-1912 and 1929-1934). In order to support further population growth and agricultural expansion, the goal of the dam was to reign in the annual floods (Mitchell 2002).

> a series of proposals, plans, financial statements, political memoranda, annual reports, and newspaper accounts, all of which in different ways described, enumerated, calculated, and argued about the building of the dam. […] Thus a significant reorganisation and concentration of accounting, calculation, description, and knowledge accompanied the concentration of hydraulic power in the dam (Mitchell 2002: 36).

Crucially, this episteme is specifically a British episteme, rather than an Egyptian, African, or Arab one. These documents have all been produced in the decade before the construction was completed, and largely ignored the history of the valley, with the land represented as a blank spot on the map.

Other technologies that were used to maximise the benefits of the Nile include the Gezira scheme in Sudan, where 24 km^2 of land was brought under irrigation when the first phase was completed in 1914, and the Jonglei Canal that was proposed in the 1930s to bypass the Sudd swamps where a large proportion of White Nile water evaporates.[66] Government institutions dedicated to agriculture, engineering and energy were established and new hydraulic bureaucracies were trained during the years of British rule, fundamentally altering the way people thought about their relation to water (Collins 1996).[67]

However, control of the Nile from Aswan would not be sufficient to secure Egypt's water supply indefinitely. In 1920 one of the most ambitious schemes in the history of water management was published. This British plan, together with some modifications introduced in the following decades, is now called the *Century Storage Scheme*. Its success depended on British control over the entire watershed.[68] Among other things, it envisioned water storage facilities in the Great Lakes as well as Lake Tana in Ethiopia. The water discharge into the Nile was to be regulated by an authority in Cairo. Rudimentary studies were conducted in the 1920s

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[66] The Jonglei canal has never been completed. While constructed started in the 1970s, it was disrupted by the Sudanese Civil War. Some say that it will increase Egypt's water supply with five to seven per cent, whereas others predict environmental and social disaster in South Sudan (Furniss 2010).

[67] The most notably change is that water scarcity was no longer regarded as a local agricultural issue but rather as a central planning problem. The scale of addressing water scarcity changed (Tvedt 2004).

[68] The racial imperialist views did not see cooperation over water resources with Africans as a viable alternative at the time.

and 1930s and this was the first hydraulic plan that saw the entire Nile basin as a singular space of government (Wolf 1996).

The *Century Storage Scheme* (Figure 4.1) reduced a complex and natural ecosystem spanning half a continent to a set of valves and regulators, and can be seen as the apex of modernist thinking in water management. According to this scheme, the entire Nile basin would be mapped, standardised and made manageable to support production downstream. It proved too utopian, when control over the territory was lost.

But Great Britain realised that even after decolonisation it would depend on Egyptian cotton and made a move that was to become their longest-lasting legacy in the Nile valley. In 1929 an agreement was signed between Egypt and the Anglo-Sudanese Condominium.[69] Although nominally independent, Egypt was still under British military control and the hand of London's planners and their cotton interests is clearly reflected in the document. The controversial agreement allocated the lion's share of the Nile waters to Egypt and prohibited upstream states from constructing dams in the rivers (Waterbury 1979). Sudan, as well as Uganda, Kenya and Tanzania were still under British control and consented correspondingly. Ethiopia was simply ignored.

Britain's influence in Egypt waned in 1952 after the Revolution led by Nasser, and the rest of its African empire was dissolved between 1956 and 1963. Yet the legal agreement, the plans for the Century Storage Scheme, and the dam at Aswan have had lasting influences on how the river is governed today. They were the first attempts to see the Nile valley as a unitary governable space.[70] The plans, ideas and agreements have contributed to a particular way of thinking about "governing the Nile" and define the way policy-makers deal with managing the

[69] The *Nile Waters Agreement* recognised Sudan's right to utilise a small proportion of the Nile but forbade the other upstream riparians to do the same. Sudan was promised an increase in a 'quantity as does not infringe Egypt's natural and historical rights in the waters of the Nile and its requirements of agricultural extension '(Mekonnen 2010).

[70] Improved knowledge of the cartography of the area, as well as continuing technological development allowed for the design of projects at an unprecedented spatial scale.

water to this day. Certain assumptions, such as that the entire river is to be managed to support Egyptian agriculture, are still present in contemporary discourse.

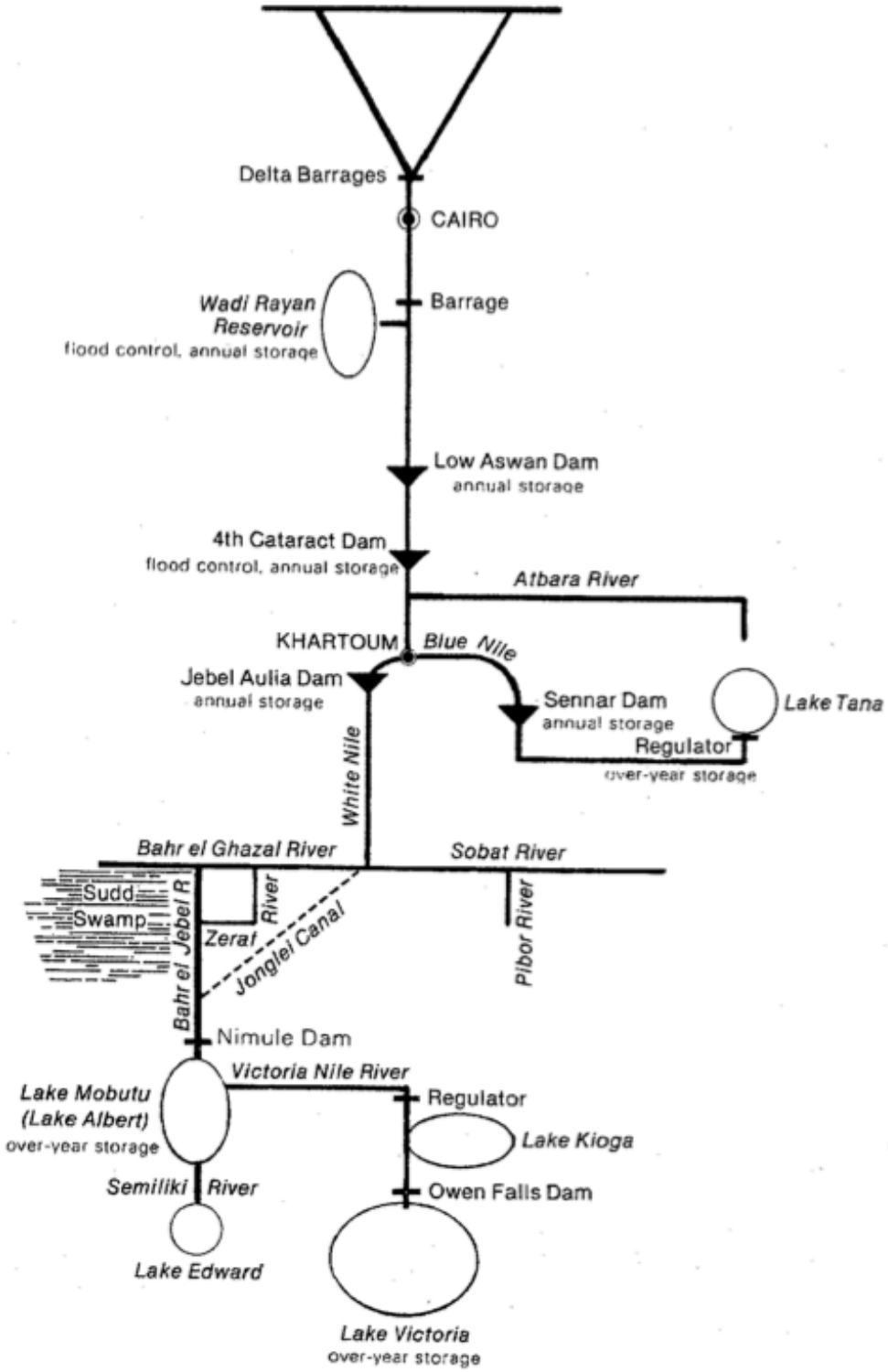

Figure 4.1 Map of the *Century Storage Scheme*. The map looks more like the outline of a factory than a natural river system. Source: Guariso & Whittington (1987)

Ultimately, the *Century Storage Scheme* has not been implemented and these ambitious plans to tame the Nile were overtaken by historical events. Egypt, Sudan, Ethiopia and Uganda each developed their own ways of thinking about governing the water, their own "regimes of truth", and have their own ideas for hydraulic works in the Nile.

The other case study provides insights on how the region may have fared, if the project of central hydraulic control would have been completed. Russia managed to incorporate Central Asia into its empire, and later in the Soviet Union, for a much longer period and their hydraulic project in Central Asia has progressed much further. While its plans to make the river governable reached a more mature state, not all consequences have been positive.

4.2.2 Making the Central Asian deserts bloom

The hydraulic mission in Central Asia had its own historical and cultural peculiarities, but the discourses of control over nature and the reclamation of land, the episteme produced by hydrologists, engineers, and water planners, as well as the interventions of the authorities were remarkably similar in nature. It was, then, also water that brought the Russians to Central Asia in the first place.[71] When the Russians conquered Turkestan in the 1880s, about 2.5 million hectares were under irrigation. The Tsarists colonisers realised that this could be increased easily and rapidly (Petrov 1894 in O'Hara 2000).

It is now widely acknowledged by historians that the Russians saw the region as 'a reservoir of raw material […] and a haven for land-hungry peasants' (MacKenzie 1974: 168). Rulers saw the massive cotton farm that was Central Asia as the periphery of an empire that had to supply resources to the centres in St. Petersburg and Moscow. By 1913, the irrigated area had increased to 3.2 million hectares, a 40 per cent increase vis-à-vis the pre-Russian situation.

Water was perceived as the limiting factor for cotton production and, in turn, further expansion of cotton relied on a better control over the water supply. After the October

[71] Lewis (1966) suggests in his historical account of Central Asia that there is evidence that 2000 years ago, some 3.6 million hectares of land were being irrigated. To put this figure into perspective, the area of irrigated agriculture in the entire Aral Sea basin was only 7.6 million hectares in the late 1990s (Micklin 2000).

Revolution and the Russian Civil War, financing water infrastructure was no longer a problem because the government could use central state funds for the development of large-scale water diversion and irrigation schemes (Micklin 1991).[72] With the right interventions in the river system, another 4.9 million hectares of land were brought under irrigation in the decades to come, mostly for cotton production (Micklin & Williams 1996).

Soviet ideas on Central Asia were not essentially different from Tsarist Russian ones, but the energy and state power that was devoted to these ideas led to more radical outcomes. The transformation of the Syr Darya into a heavily managed river has its origins in these perceptions of water, cotton, and development.

The modernist hydraulic discourse was mediated by Marxist-Leninist ideology and local circumstances. Still, rivers were perceived to be part of a nature that needs to be controlled by humankind. But rather than complete domination, there was a (discursive) dialectic of society and nature, where the former "reworks" the latter to make more optimal use of its resources. This is because, as Oushakine (2004) argues, an uncontrollable nature was equated with uncontrollable social norms, which was a real fear to the Soviet authorities. The Promethean view of nature is explicit in some of the slogans that were used to promote hydraulic interventions in Central Asia: 'we cannot wait for favours from nature, our goal is to take them from it' (Zonn 1999: 161). Striving for modernity implied that Soviet authorities needed to obtain full control over the rivers.

A key component of the Soviet visions of nature was the element of "development". Just as the population needed to be developed and disciplined by schools, labour and the police, nature needed to be tamed in order to achieve socialism. This is exemplified by the slogan of the labourers of the Baltic-White Sea Canal: 'we will instruct nature, and we will receive freedom' (Josephson 1995: 536). The role of the rivers was to support the population, nothing else. 'Communism, it was stated in the programme of the [Communist Party of the Soviet Union],

[72] All water, land and management structures were declared to be "common resources" after the Civil War, which gave the central state the authority to intervene and drastically expand irrigation facilities (Black et al. 1991).

elevates man to a tremendous level of supremacy over nature and makes possible a great and fuller use of its inherent forces' (Armand & Gerasimov 1971). According to some, the Soviets constructions of nature were tools in the Cold War to prove that socialism was better than capitalism (Sievers 2003).

Figure 4.2 Soviet propaganda painting celebrating the construction of the Great Fergana Canal in 1939. Recently collectivised ethnic Uzbeks and Tajiks seem to "enjoy" working on the canal, which was mostly dug with manual labour rather than machinery. Painting by Pavel Ben'kov. Source: (Kuptsov 1987).

In contrast to the British in Africa, the Soviets had consolidated their control of Central Asia (Roy 2000). Moreover, there was a greater ability to dedicate large state resources to hydraulic projects which makes the Central Asian case distinct from other hydraulic missions. Nevertheless, managing the water for irrigation proved quite a challenge for the Soviet engineers, hydrologists, and bureaucrats.

On average there is sufficient water in the Syr Darya basin for the population to feed itself and to grow cash crops for exports, even with the projected increase in population (Wegerich 2002). However, there are three types of variability in temporal and spatial distribution that make irrigation complex: seasonal variability, inter-annual variability, and spatial variability (Nezlin et al. 2004). Water variability causes uncertainty in agricultural yields, which made it hard for Soviet planners to compose their five-year plans.

But river variability can be managed by building water storage facilities in the river and this was the critical step in making the Syr Darya and Amu Darya Rivers governable. It would give the bureaucrats control over the river flow, but it also offered the Soviets a chance to demonstrate their dominance over nature. Hydraulic interventions had been made before the Russian conquest, but the size and pace at which modifications to the river's natural flow were introduced were unprecedented (O'Hara 2000).

Under Soviet rule hundreds of dams were constructed, canals were dug and artificial lakes were created (Figure 4.3). Yet the period is best characterised by a number of enormous state-led projects. The Karak Kum Canal – constructed between 1954 and 1988 – transfers 12.9 km^3, or almost fifteen per cent of the Amu Darya River, into the irrigated lands of the Kara Kum Desert (Hannan & O'Hara 1998). Earlier, the Great Fergana Canal which was completed in 1939 (Figure 4.2), extended the Syr Darya River into the Fergana Valley. Water supply in the Central Asian river systems was no longer variable but carefully managed and monitored in order to optimise cotton production for the rest of the Soviet Union.[73]

There are now five large water storage facilities in the Syr Darya Rivers and a total of 59 reservoirs of which only four have been constructed since independence, according to official information from the basin management organisation (cawater-info.net n.d.). The main

[73] It is not surprising that the absolute control and monitoring of the water levels turned out to be an illusion. Although Soviet agricultural sciences were well advanced in the 1980s, the understanding of ecosystems and watersheds as unitary structures was still rudimentary (Morgounov & Zuidema 2001). The data were often faulty or tampered with by corrupt local officials and many complex externalities of the river system were conveniently ignored. The decline and eventual disappearance of the Aral Sea is the star witness here.

task of this massive river system is the regulation of the river flow and delivery of water for irrigation. Figure 4.3 shows the increase in storage capacity on the river over time. The majority of the 59 reservoirs are rather small and can only be used for daily regulation although there are some for seasonal regulation. However, by 1960 the authorities realised that the inter-annual variability was at least as much of a problem as the seasonal variability.

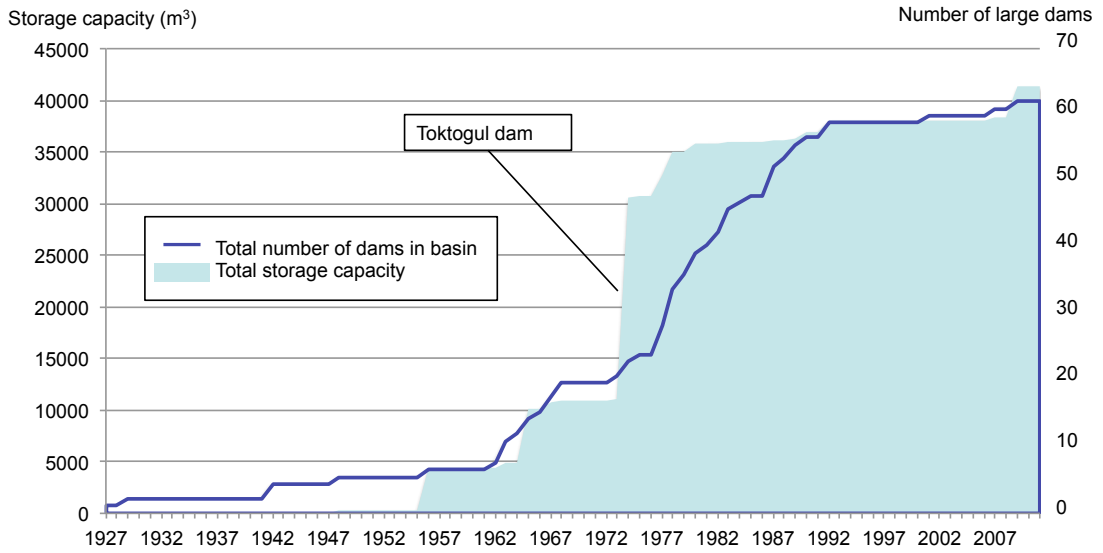

Figure 4.3 Increase in number of dams and storage capacity on the Syr Darya. The largest increase in storage capacity is the inauguration of the Toktogul reservoir. Graph constructed by author based on data from cawater-info.net, n.d.

At that time there were only two large reservoirs, the Kairakum (2.6 km^3 storage) and the Chardarya (4.7 km^3 storage) that were close to the irrigated lands in the Fergana Valley and southern Kazakhstan, but their limited volume could not guarantee a stable water supply in years of low rainfall. It was in this decade that the Toktogul reservoir was conceived of. It was designed as the only multi-annual storage facility in the river.

Its maximum capacity of 19 km^3 was of a different order of magnitude than the others. When the reservoir was commissioned in 1973, the firm supply of water resources downstream increased with more than 30 per cent (Antipova et al. 2002). With the Toktogul completed, the natural cycles of the Syr Darya seemed “tamed” at last and nothing would stand in the way of cotton production (Figure 4.4). Or so the authorities thought.

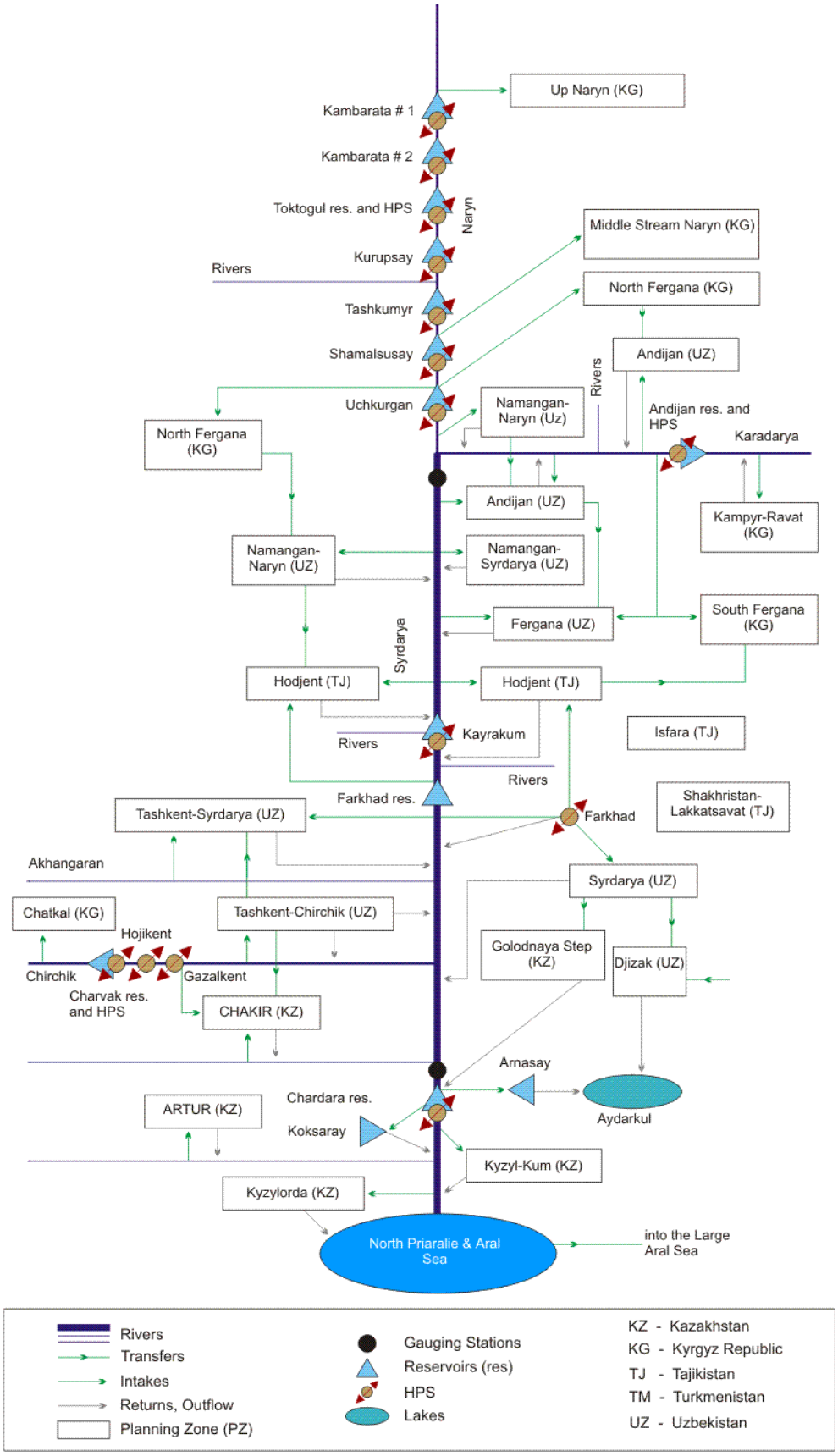

Figure 4.4 Linear scheme of the Syr Darya river. The straight lines, flow rates, and symbols provide the perfect illusion of a "tamed river". Source: cawater-info.net, n.d.

The governmentality of the river gave the rulers the illusion of a river that was perfectly manageable through dams, irrigation canals, and central authority, but it proved a mirage of high-modernity. In fact, the Central Asian rivers were over-utilised, undermanaged, and misappropriated causing, what even the Soviet authorities admitted to, an ecological catastrophe (Weinthal 2002). The Aral Sea declined from one of the world's largest lakes to only a fraction of its former self with an unhealthy salt content and heavy pollution. The irony is that its decline had been predicted when the land reclamation plans for Central Asia were drawn up in the 1960s. The value of the lake proved not enough in the rudimentary cost-benefit analyses conducted by the planners (Glantz 1999).

Still, we can understand the ambitions, ideas, plans and realisations as part of a particular governmentality of the river that was informed by specific economic goals and targets. In some sense, the Soviets have been successful in transforming the Central Asian rivers from water systems that were haunted by their erratic behaviour and variability into a space that is moderately governable. An important lesson that follows from this case study is, however, that what are perceived to be governable spaces are often not as governable as we may think.

The unitary space broke down in 1991 and there was no longer a single dominant logic of cotton production. The costs and benefits of this governmentality were always going to be distributed unequally, but the geopolitical shifts led to more dramatic consequences.

4.2.3 The creation of new governable spaces

The efforts by the British and the Russians to make their rivers governable have many things in common. The discourses of human prowess over nature have been similar, albeit coated in different ideological flavours. The means by which hydraulic interventions became possible were similar too, with experts called in to measure and map the basins, to identify the inconvenient variability of the water flow, and to build the structures to combat this unpredictability. Interestingly, both imperial powers saw the river basin as a unitary

hydrological, administrative, and planning space.[74] These processes made the rivers readable, predictable, and manageable in order to support the goals of maximising agricultural production.

Even when the hydraulic works were never completed, such as in the Nile, the efforts to make it governable resulted in the creation of new spaces, as a result of the foundation of institutions and new international legal settings. These were added to, superimposed on, or aligned with existing administrative spaces. The top-down colonial rule could enforce unity within the space, although often through violence and oppression.

In many ways, the construction of new spaces of government is not unique to these two case studies: it happened in many places where the hydraulic mission had successfully become the dominant mode of thought, such as Germany, the United States, and Southeast Asia.[75] The extent to which the new "river space" became dominant over the traditional boundaries of nation-states or local administrations, depends to a large extent on the cultural and socio-political mediation of the processes of governmentality.

Governable spaces are created with sets of specific and definite ends in mind, including cotton production in the cases above. But these ends are not stable. Two contradictions of the hydraulic mission have become apparent in both cases after 1991. Firstly, the illusion of a *tabula rasa* ignored existing water management structures and the imperial systems have been superimposed on these. Secondly, the world was changing rapidly after the fall of the Soviet Union and this had ramifications elsewhere too. Governable spaces became contested, multiple, and were transformed; one is excused for wondering whether the rivers had actually been governable at all.

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[74] This is not to say that the previous societies did not know about the interconnectedness of the river system. In fact, the high priests in ancient Egypt knew full well that the source of their water was Abyssinia (Erlich 2002). The main difference is that the modern societies had a greater ambition to manage the water accordingly.

[75] The Rhine River in Germany was rethought, modified, and reproduced as an economic space by the famous engineer Tulla (Blackbourn 2007). The Tennessee River in the United States was reconceptualised as a singular space following the Great Depression, in an attempt to encourage investment (Reisner 1986). More recently the Mekong Rivers in Southeast Asia has been promoted as an integrated space for hydropower development (Bakker 1999).

4.3 When things fall apart

Foucault himself had already warned us that *things* are governed for definite, but shifting ends (Foucault 1991). In turn, regimes of government will never produce stable spaces, but rather multiple competing and, at times, contradicting spaces. Wider geopolitical affairs have been one driver of shifting ends.

Although spaces are produced by techniques, practices and discourses that are rather abstract, Watt's study of the Niger Delta shows that violence and oppression are practical examples of such means of producing spaces (Watts 2004). Indeed, the colonial administration of Africa, as well as the Russian rule of Central Asia made extensive use of formal or informal corvée labour for their early hydraulic works (Lipovsky 1995; Brown 1994).

Following Watts, we can argue that there are forms of power that emerge from the logic of the hydraulic mission, centralised rule, and the imperative of increasing cotton productions. Yet the spaces that emerge are multiple: the empire, the colony, the river basin and, later, the nation-state. Each governable space is the product of similar processes of rule, the logic of production and the development of water resources, but 'these spaces curiously work against, and often stand in direct contradiction to, one another' (Watts 2004: 54).

Indeed, the rescaling of power and authority from the local water management institutions and the nation-state to the river basin scale has been inconsistent and contradictory. Swyngedouw remarks that rescaling impacts state formation and tends to lead to more autocratic forms of governance (Swyngedouw 2000). Watts argued that, ultimately, the creation of new governable spaces has led to ungovernable spaces because of these contradictions (Watts 2004).

The colonial and modernist visions of the river basin as a unitary space were shattered after independence, in the 1950s and 1960s in Africa, and in 1991 in Central Asia. The idea of a governable river still existed, but it became overlaid with the space of the nation-state. River-wide international organisations were founded or maintained in most international river basins

regardless and incorporated the logic of the river basin, but the means and technologies of government available were often at odds with the original goals.

4.3.1 Post-colonial governmentalities on the Nile

Indeed, the rationales for water development on the Nile started to diverge, with British influence throughout the basin waning during the 1950s and 1960s. Ultimately, the governmentality of the British did not come further than plans, measurements, and certain modes of thought and had left the river itself untouched, save for the Aswan Dam. Nonetheless, their hydraulic mission has been informative to the water works that would later develop throughout the river.[76]

The first example of this is the Egyptian construction of the High Aswan Dam. Realising that, as an independent state, it could no longer depend on storage facilities in Uganda or Ethiopia, the revolutionary government of Nasser embarked on one of the most ambitious projects in Africa to date.[77] In fact, the decision to construct a reservoir on Egyptian territory aligned well with his discourse of Egyptian nationalism (Waterbury 1979).[78] The rationality driving the High Aswan Dam has been questioned frequently since construction. It is inefficient, overly expensive, and probably unnecessary, although some Egyptians argue that agricultural benefits outweigh all the costs (Abu-Zeid & El-Shibini 1997).

Some contend that the construction had more to do with nation-building than with economic gains (Mitchell 2002). The reservoir, irrational it may be, gives the Egyptians control over their stretch of the Nile: it made the river governable downstream from Cairo. But although

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[76] Moreover, the remaining influence of imperial powers in international organisations post-Second World War was effectively an "upscaling" of power and the logic of the river basin. Although the British could not enforce their water management strategies from the ground, they could put pressure on the post-colonial governments through World Bank conditions, UN programmes, and discourses developed in international water organisations.

[77] Save, perhaps, for the Grand Dam in Ethiopia.

[78] There were a number of inconsistencies in the official discourse of Nasser. He claimed to be a pan-Africanist, but did not trust the regimes in Ethiopia, Uganda, or Sudan enough to store the water in their more suitable territory. The nationalism of water self-sufficiency through dam construction and the pan-Africanist discourse of cooperation were at odds at other places too, such as Nkrumah's Ghana, where he built the Akosombo Dam in 1961.

a reservoir on their territory provides them with some room for control, the water level in the reservoir still depends on the influx of water. Dams in Ethiopia could threaten this influx.

And the Ethiopians did have their own plans. During the 1950s, Emperor Haile Selassie of Ethiopia visited the US to see the Grand Coulee Dam, at the time the largest hydropower plant in the world (Vestal 2003). He is said to have been very impressed with the hydraulic works and this led him to consider similarly-sized dams on the Blue Nile (Whittington 2004).

In 1964 a study was published by the Ethiopian Ministry of Public Works and Communications and the US Bureau of Reclamation that had assessed the suitability of the Blue Nile River for large dams.[79] The report identifies four sites where large dams can be constructed in order to fully harness the river's water. It further recommended the irrigation of half a million hectares and to use the dams to generate electricity. The four dams right downstream of Lake Tana, the Karadobi, Mabil, Mendaia, and Border, would have a huge effect on the hydrology, effectively eliminating the annual Nile flood (Figure 4.5). Moreover, the report argues that these dams would have excellent cost-benefit ratios and are, therefore, suitable for foreign direct investment (Guariso & Whittington 1987).[80]

While the regulated water flow would have aided Egyptian agriculture, if operated correctly, the Sudanese and Egyptians were vehemently opposed to this attempt to control the Nile by the Ethiopians.[81] The dams would change the place of river government from Cairo to Addis Ababa. But we cannot see these water developments outside the geopolitics of the Cold War. The Soviets supported Nasser and the Egyptians, funding the High Aswan Dam. In turn, the Americans cozied up to Haile Selassie and supported – and funded – the studies on the Blue Nile (Swain 1997).

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[79] The study was published as (US Bureau of Reclamation 1964). Its goals were to map out the Blue Nile and to evaluate its hydropower and irrigation potential.

[80] However, this was in the 1960s. The cost-benefit analysis has changed quite a bit, because of monetary policy, changing economic circumstances in Ethiopia, and rising costs of labour, capital, and materials.

[81] Kendie notes that Egyptians fear that 'Ethiopia's ambitious development plans, if implemented, will pose a grave threat to Egypt before the end of the century'. Moreover, Sudan's irrigation minister remarked that 'Sudan and Egypt have built their civilizations on the Nile for 7 000 years. So both countries have priority over others' (Kendie 1999: 150).

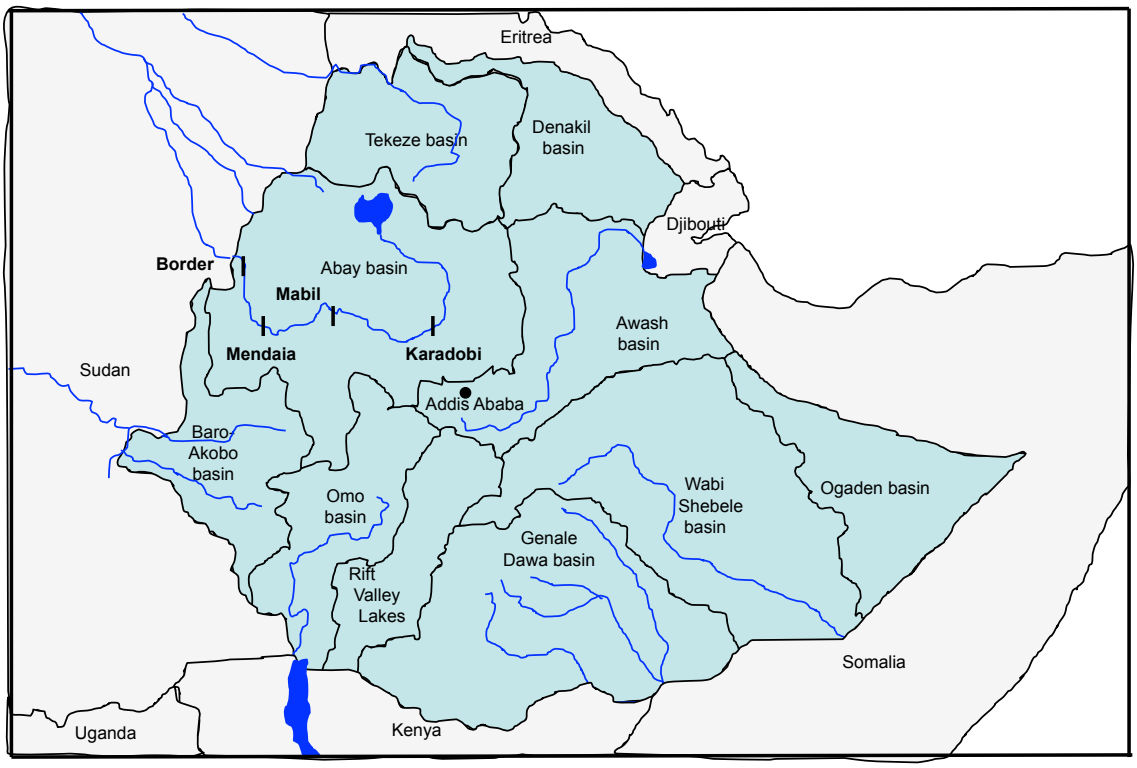

Figure 4.5 Map of the four dams proposed by the 1964 study. Lines in Ethiopia indicate watershed boundaries. Map constructed by author, based on (US Bureau of Reclamation 1964).

So rather than developing as a unitary river system, there have been a number of competing governmentalities on the same river. Each state has its own goals, own forms of visibility and episteme, and ultimately different technologies of government. The rationales that drove hydraulic works often contradicted each other in the construction of different spaces.[82]

Ultimately, the four dams on the Blue Nile have not been built (yet). There had been insufficient funds in the last decade of Selassie's rule, and the 1973 revolution that overthrew him was led by the Derg and the Marxist junta, who did not get the same American support (Henze 2000). At around the same time, Egypt changed its ideological direction away from Moscow, gaining backing of US hegemony in turn (Erlich 2002).

So although the project of making the river visible and governable has been similar in the Nile and Central Asia, the outcomes have varied greatly because of local circumstances, types of rule, and a broader geopolitics. Nonetheless, the diverging governmentalities of the

[82] For instance, a reservoir at Aswan is unnecessary if there is sufficient storage upstream.

Nile basin after the British left should have held valuable lessons for the Central Asian states that became independent in 1991. Instead, history seemed to repeat itself.

4.3.2 1991 and after

The fall of the Soviet Union in 1991 changed history, but for the five newly independent Central Asian states it came as an unpleasant surprise (Olcott 2005). They relied heavily on subsidies from Moscow and had few internal capabilities for economic organisation, independent political rule or mitigating the disastrous environmental legacy of the Soviet Union (Roy 2000). They did have plenty of water professionals. But against expectations it was in the field of water management where the transition has arguably been most disappointing (Arsel & Spoor 2010).

It took decades to tame the Syr Darya and Amu Darya, make the variability manageable, and crop yields more or less predictable. It took only a couple of years for the system to disintegrate. Only three months after the dissolution of the Soviet Union, the five water ministers of Kazakhstan, Uzbekistan, Turkmenistan, Kyrgyzstan, and Tajikistan came together for a summit in Almaty.[83] Here, they declared that the region's water resources would be governed based on the principles of equality and mutual benefit (Wegerich 2004).

Two organisations, the International Fund for Saving the Aral Sea (IFAS) and the Interstate Committee for Water Coordination (ICWC) were established in 1993 to manage the two main rivers.[84] The Central Asian states pledged to maintain the Soviet-era *status quo* in terms of water allocations, even though the distribution was rather unfair. Uzbekistan was allocated 52 per cent of all the water of the Syr Darya and Amu Darya, whereas Kyrgyzstan could only utilise four per cent (McKinney 2003).

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[83] The Almaty summit of February 1992 was highly significant, as it was among the first international agreements the five states signed. While the early date of the meeting (three months after independence) stemmed international observers positive, the real content was lacking.

[84] In contrast to what the name suggests, the IFAS activities have ultimately little to do with the Aral Sea. Instead, they focus on environmental problems more generally. Officials there have argued that 'it is too late to save the Aral sea' (interview IFAS official, Tashkent 15-6-2009).

Moreover, subordinate to the ICWC two river basin management organisations were etablished (the BVO-Syr Darya and the BVO-Amu Darya, after their Russian acronyms).[85] It was up to these organisations to maintain the integrity of the unitary water government space. Their mandate includes arranging the timing and volume of water discharges from the various reservoirs in the rivers (Dukhovny & Sokolov 2003).

However, there was actually little room for negotiations, because the ICWC and the BVOs did not have the authority to deviate from the Soviet-era water limits with more than ten per cent (interview BVO official, Tashkent 20-7-2009). Moreover, although the initial 1992 agreement had a provision for water services, it failed to integrate the energy sector in the regime, which has led to considerable controversy over the operating regime of the large dams since (Sievers 2001).[86] Most crucially, during the first decade of independence it became apparent that there were huge contradictions between the interests of the upstream and downstream states.[87] National sovereignty trumped the mandate of the BVOs, which left the basin organisations powerless.

There have been some attempts at building a legal framework that acknowledges the post-1991 geopolitical setting. However, these efforts have largely failed. According to a Kyrgyz official 'more than twenty regional agreements have been signed over the last decades, but none of them are effective' (interview government official, Bishkek 26-9-2011). The 1998 Syr Dayra Framework Agreement is the most advanced and comprehensive of the lot. It proposed sharing the costs of maintenance of the main reservoirs and a barter system of water

[85] Even though similar organisations were already established in 1986 as part of the Soviet ministry of water resources, the Almaty agreements changed the structure of these organisations.
[86] This is ironic, because the energy and water sectors were integrated in the Soviet economic space.
[87] Essentially, the downstream states Uzbekistan, Kazakhstan, and Turkmenistan (Amu Darya) depend on the water for their irrigation systems. They want to store the water during the winter in the upstream reservoirs in order to have enough for summer-time irrigation. The upstream states, in contrast, wanted to use the water to generate hydro-electricity in the winter, when demands were highest.

and electricity from Kyrgyzstan with coal and gas from Kazakhstan and Uzbekistan.[88] No transfers of funds or commodities have been made, leaving both sides to point their fingers at each other in blame (Dinar 2005).

Although the leaders tried to uphold the Soviet *status quo* of water government in principle, there have been immense changes in the political and economic spheres. All states experienced massive economic decline in the 1990s. Kazakhstan, Turkmenistan and Uzbekistan, all of which happen to be downstream states, managed to base their recovery on the abundant availability of coal, oil and gas within their territory (Spechler 2008). This is in contrast to upstream Kyrgyzstan and Tajikistan, which remain poor and whose economies have largely stagnated in recent years.[89]

A combination of economic decline, authoritarian regimes, and strong nationalist tendencies has prevented adequate economic or political cooperation in the last two decades (Torjesen 2007). Cooperation in many other fields ceased *de facto*, although the leaders tended to uphold an image of regional friendship at the numerous high-level summits.[90]

What became evident from the case of Central Asia is a contrast between the goals, means and technologies of governing the river at a regional scale, through ineffective institutions and failing commitment, and the national scale where other interest groups, institutions, and considerations demand different actions. The contradictions between separate governable spaces – the national ones, the regional one, but also the local spaces – produces a space that has been largely ungovernable in recent years.

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[88] The 1998 agreement has been negotiated under auspices of the United States. Because Uzbekistan did not want to recognise the monetary value of water storage upstream, an economic system looking much like the Soviet interconnectedness was designed. While some argue that the system has been moderately successful (Siegfried & Bernauer 2007), officials on both sides of the border have complained that it has too many deficiencies (interview government official, Bishkek 14-9-2011; interview ICWC official, Tashkent 22-7-2011).

[89] For instance, Tajikistan and Kyrgyzstan depend on remittances from Russia for respectively 21 and 17 per cent of their GDP, ranking number 1 and 3 on a global ranking for remittances as proportion of GDP (Economist, 2012).

[90] Adams provides a striking analysis of Uzbekistan as a "spectacular state", where the government has maintained monopoly over ideology and national identity, which is expressed through controlled spectacles, such as national holidays but also international summits (Adams 2010).

4.3.3 Re-envisioning the emperor's Nile

The year 1991 was also a landmark year for the Nile river, driven by the same global transformations. The Derg junta, which had been ruling Ethiopia since the revolution in 1973 was finally ousted by a range of rebel forces, including the Tigrayan People's Liberation Front under leadership of future Prime Minister Meles Zenawi.[91] Ethiopia under Derg rule was a close ally of the Soviet Union and East Germany, because of their nominal communism. The waning support from these allies since the fall of the Berlin Wall is said to have been one of the causes of its collapse (Henze 2000).

Although Emperor Haile Selassie had studies conducted for development of the Ethiopian stretch of the Blue Nile, these had ended up in a library in the attic of the Ministry for Water and Energy. During the last decade of Selassie's rule, he had other priorities including domestic unrest and economic decline. The Derg was unable to mobilise the resources for the construction of major hydraulic works either, mostly because of dramatic economic mismanagement (Milas & Latif 2000). So although these studies were significant in questioning the Egyptian governmentality of the Nile, they had no material impact for decades and the *imperial status quo* of the river was largely reinforced by the international community.

The fall of the Soviet Union seems, therefore, to have unwittingly called for a change in the Nile basin too. It took the Zenawi government a decade to restore a certain degree of economic confidence and political order, but by the 2000s the economy seemed to have taken off (Henze 1998). In many ways this motivated water officials to dust off the Blue Nile dam studies, as well as to start renegotiating the 1929 and 1959 agreements.[92] Since then, a number of hydropower projects have been completed, including the Tekeze, the Gilgel Gibe cascade, and the Tana-Beles project, but none of these was envisioned by the 1964 study.

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[91] The capture of Addis Ababa in May 1991 was an end to the Civil War which lasted, in varying degrees of intensity, for fifteen years and left about a million people dead (Miller et al. 2010).

[92] In fact, foreign donors sponsored new studies on the Nile. The Norwegian Development Corporation has so far funded and completed four pre-feasibility studies for the same dams that were proposed by the 1964 report, as well as complete feasibility studies for two of them (interview diplomat, Addis Ababa 21-4-2011).

There has been a divergence in goals, means and technologies of water government between Egypt, Sudan, Ethiopia and Uganda, but only Egypt managed to enforce its governmentality so far – which was incidentally rather similar to the British goals for the Nile.

However, the last two decades seem to have emancipated Ethiopia and Uganda, and to a lesser extent Sudan, to create their own "Nile spaces". This does mean that multiple, overlapping but contradicting spaces of river government have come into existence. The Nile Basin Initiative and its subsidiary organs look at a basin level, but the cautious steps taken by its water planners and diplomats are often different from the national discourses at other levels. Uganda and Ethiopia are challenging this *status quo* by reinterpreting the Nile according to their own interests.[93] This contradiction can lead to serious geopolitical challenges.

4.4 The universal logic of the river basin

There are some striking similarities between the strategies of the imperial powers to make the rivers manageable and the efforts in the last two decades to recreate the basin as a governable unit under the umbrella of Integrated Water Resources Management (IWRM).[94] The forms of power are different – because no single actor has political control over the entire river basin – but the use of scientific evidence for policy-knowledge production, the desire to maximise economic output, and the interpretation of the river basin as a natural unit are the same.

In a sense, the concept of IWRM derives its legal legitimacy from the *UN Convention on the Law of non-Navigational Uses of International Watercourses* negotiated during the 1990s. While the Convention has not entered into force yet, many of its principles have influenced the logic of governing transboundary rivers in different forms, for instance through influencing donor and development finance policy. Another product of IWRM is the rapid

[93] Because of the emphasis on the Blue Nile, I have ignored the case of Uganda here. Moreover, only sixteen per cent of all the water that reaches Egypt comes from Uganda so the dams under construction there (such as the Bujagali) will have a smaller impact on Egypt than the Ethiopian plans.

[94] One of the most frequently used definitions states that 'IWRM is a process which promotes the coordinated development and management of water, land, and related resources, in order to maximise the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems' (Global Water Partnership 2000).

emergence of increasing numbers of River Basin Organisations (RBO) for domestic and international rivers since the 1990s (Molle 2006).[95]

However, there has also been considerable critique on IWRM, for instance on its difficult practical application (Biswas 2004). More importantly, the seemingly consensual nature – it seems *natural* to manage a river on the basin scale – obscures the political nature of governing water resources and the concept can easily be appropriated by groups with their own agenda (Molle 2008).

Part of the popularity and influence of the IWRM paradigm can be explained by the fact that its mission has been carried by very powerful international actors. Organisations like the World Bank, the UN, and many development agencies see it as the solution to water scarcity and conflicts.[96] In turn, there are remarkable similarities between the logics of the government of international rivers worldwide.

However, the promotion of RBOs as 'scientific/rational means of administration for water' (Molle 2008: 133) does change the distribution of power in a river basin. In many cases, it scales decision-making power up from the nation-state to regional organisations. Under the name of rationality, power is redistributed and spatial scales are "reshuffled", because regional scales tend to be seen as more "rational" than local scales by this paradigm.

In turn, the application of IWRM and the foundation of RBOs can be interpreted as attempts to produce governable spaces that roughly align the boundaries of the river basin. I argue that there are three strategies this "universal" logic of governing international rivers employs to produce such spaces: the production of new legal regimes through international conventions; the foundation of RBOs; and the integration of the economic space of the river basin, for instance, through the multilateral construction of new hydraulic works. The alignment

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[95] Molle identifies this process as another example of the globalisation of water policy (2006), as most RBOs in the developing world are either designed or sponsored by the same international organisations. Examples in my case studies include the Nile Basin Commission (NBC), the ICWC, IFAS, and BVO-Syr Darya.

[96] A World Bank report notes 'IWRM is regarded as critical for sustainable outcomes, and increasingly viewed as offering the best available framework for building the resilience needed to adapt to climate change' (World Bank 2010: 16).

of these strategies is supposed to support a universal rationality of river basin management. Alas, the results have been very mixed.

The World Bank has been funding some of the efforts to govern the Nile and Syr Darya rivers following this logic. In Central Asia, part of IFAS, ICWC, and BVO-Syr Darya have been funded by the international community. While the ICWC and its subordinate RBO for the Syr Darya (BVO-Syr Darya, after its Russian acronym) have their origins in the Soviet era, the international donor community has tried to reconceptualise their meaning and goals.

Similarly, the World Bank has been collecting funds from donors to finance the Nile Basin Initiative, which is set to do the same for the Nile River. While the Nile Basin Commission (NBC) is not an active organisation yet, its sub-basin committees – one for the Blue Nile (Eastern Nile Technical Regional Office - ENTRO) and one of the Great Lakes Region (Nile Equatorial Lakes Subsidiary Action Programme - NELSAP) – have been active for almost a decade.[97]

In a different context, Sneddon and Fox (2006) write about the construction of the river basin scale of the Mekong River and its impact on the politics of transboundary water resources too. They argue that multiple actors have constructed spatial scales to serve certain geopolitical ends. For instance, the international community "cooperates" at the basin-wide scale to develop the hydropower resources. Conflicts over these production processes, in turn, take place at "local" scales in order not compromise the cooperation discourse.

The naturalness of the river basin as a governable unit is seductive, but it is very similar to imperial efforts to subject the rivers to control. I argue that, effectively, IWRM is a continuation of the hydraulic mission under a new name, incorporating social and environmental concerns rather than outright rejecting its principles. While it offers the illusion of governable rivers, it is more likely that the rivers are ungovernable, because there are still

[97] The six states that have signed the document that warrants the foundation of this committee – Ethiopia, Uganda, Kenya, Tanzania, Rwanda, and Burundi – still need to ratify the document in their respective parliaments. Prime Minister Zenawi has promised the Egyptian leadership to wait with this until well after the presidential elections there, to give Egypt a chance to join in after all.

plenty of contradictions to the hydraulic mission and IWRM alike. The main contradiction seems to be a politics of scale.

4.5 Conclusions

The argument of this chapter extends beyond the two case studies. The making of modern rivers through the hydraulic mission is a very political project, expressing power, rule and domination over river systems and people, and increasing the productivity of this system for certain ends (Molle et al. 2009). But it is also a decidedly geographic project through which it is attempted to produce new spaces. Yet governing these governable spaces, which roughly align with the river basin, has proved challenging.

In order to produce these spaces, the authority relies on the view of experts and the power of technology (Mitchell (2002). But the uncontested and incontestable view such experts provide is often at odds with the political and highly contested realities of the river space. Moreover, the goals and rationale with which a river space is transformed are not stable and immutable ends, but rather shifting, multiple, or contradictory. Divergence of the rationalities within a single river space, as we have seen in the case studies presented above, may make the river ungovernable instead (Watts 2004).

Perhaps regional cooperation has failed because it is uncomfortable for elites to discard the myth that the river is fully governable as a technical object. River systems can become ungovernable because of geopolitical changes. However, there are also other changes that could transform a governable space into an ungovernable one. The 'shifting ends of government' Foucault discussed in his governmentality lecture explore this process (Foucault 1991).

During the early decades of the hydraulic mission about a century ago, the desire for agricultural expansion was the main driver. With the construction of barrages, reservoirs, and irrigation canals the temperament of many rivers could be tamed, it was thought. Regardless, cotton mills require a stable supply of cotton which in turns requires an even water flow. The population, too, needs a constant and predictable amount of rice, vegetables and cereals to be

productive. Having a river that is manageable has been instrumental to optimising such processes of production.

More recently, hydropower demand has increasingly taken over the role as main driver of new hydraulic projects from irrigated agriculture.[98] This changes the ends, but not the means or nature of the hydraulic mission. If hydro-electricity is a valuable export commodity, then a reliable water flow is imperative for a country's macro-economic stability and foreign exchange earnings. The energy space of electricity exports is different from the agricultural space of irrigation

There are different competing and contradicting rationalities for the operation and construction of hydraulic works. This means that there are also overlapping "governable spaces" that are ruled by different discourses and with alternative technologies of government. We can theorise the growing imperative of hydropower production as the "rescaling" of power and decision-making. However, the rescaling does not move either upwards or downwards, but elsewhere (Marston et al. 2005). The practices of dam construction and operation operationalise new, socially constructed spaces in such a way that they become essentialised realities of the logic of dams.

[98] Arguably, this shift is not as black and white. Nonetheless, observers have noted a new direction in the rationalisation of new dams following publications of *Dams and Development* by the World Commission for Dams (Moore & Dore 2010).

Chapter 5 Rationalising Ethiopia's new dam

This first empirical chapter deconstructs the logic behind the decision to build an immense dam on the Ethiopian Nile, which seems irrational given the costs, inefficiency of design, and risky geopolitics. The government discourse has created an "incontestable" image of dams and development, but legitimacy of the ruling class and the centralisation of political power seem great drivers of the project too.

5.1 The Grand Ethiopian Renaissance Dam

Saturday the second of April 2011, Prime Minister Meles Zenawi of Ethiopia made a remarkable announcement. At a press conference that was convened not in the capital Addis Ababa, but in the otherwise unexceptional town of Guba, some 700 kilometres away, he presented the government's plan for a new dam (Figure 5.1).[99] On the Nile River not far from this place, Zenawi informed the audience, the Grand Ethiopian Renaissance Dam will be erected. With a dam of 145 metres high and submerging an area twice that of the country's largest lake, the hydropower station below the dam will quadruple Ethiopia's energy production (Zenawi 2011b).[100] The design suggests that the Grand Ethiopian Renaissance Dam, (hereafter, Grand Dam) will become the largest dam in Africa upon completion (EEPCo & Salini Costruttori 2011).[101]

The extortionate costs are controversial. Estimated at almost five billion US dollar, which equals almost the entire government budget in 2011, the dam will not only be the largest in Africa but also the most expensive.[102] In contrast, GDP per capita is only $350 in 2011, while the majority of the country lives on less than two dollars per day. Its sudden and unexpected announcement, lack of open procurement procedures, and contentious location disqualify the

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[99] The plans for the dam were discussed as "Project X" earlier in parliament in February 2011, but this was only picked up by the Ethiopian media (Addis Fortune 2011). The press conference on the 2nd of April 2011 was the first formal announcement. Because there was a UN and AU-endorsed conference on hydropower during the two days preceding the conference, many representatives of the hydropower industry, as well as diplomats and the international press, were present in Addis Ababa or Guba itself.

[100] The total installed capacity is projected to be 5250 MW, divided over fifteen 350 MW Francis turbines. The reservoir minimum operating water volume is twelve km^3 while the normal operating volume is 63 km^3 (EEPCo & Salini Costruttori 2011: 4). This data has been provided by a brochure of the construction firm Salini Costruttori but is unlikely to be final, as many studies still need to be completed.

[101] While the initial name of the project was "Project X", during the commencement speech the Prime Minister referred to the Millennium Project, or Grand Millennium Dam. Only a couple of weeks later it was officially rebranded as the Grand Ethiopian Renaissance Dam.

[102] While the total costs of large dams are often unclear, estimates suggest that Sudan's Merowe Dam cost $1.8 billion in 2009, the High Aswan $1 billion in 1970, the Kariba Dam $480M in 1959, and the Akosombo $250 million in 1965. The most expensive dam in Ethiopia to date is the Gibe III that is under construction at $1.7 billion in 2012.

dam from multilateral funding.[103] Zenawi pledged to finance the dam mostly from domestic sources, but it is questionable that the country can achieve this at current income levels.

Critics have further pointed to the low efficiency of the dam of only 33 per cent (Beyene 2011).[104] This effectively means that the hydropower plant right below the dam can only generate its maximum of 5250 MW a third of the time. It seems that the Grand Dam is too large for the Nile River.[105] Globally, large dams have an average plant factor of more than 50 per cent and even the other dams in Ethiopia perform better than the new project on this metric (McCully 1996; Beyene 2011).

However, the dam is not just a domestic affair. The location upstream on the Blue Nile River makes the project a divisive venture.[106] Downstream Egypt and Sudan fear that their water supply will be compromised in the future.[107] In fact, former President of Egypt Anwar Sadat once famously stated that his country was prepared to go to war with Ethiopia if it were to intervene with the source of its water.[108] Although this statement should not be taken at face-value, it is certain that the dam will have a considerable impact on the geopolitics of the region.

Yet concerns of the extreme costs, the doubtful design, and the adverse geopolitical consequences stand in shrill contrast to the dedication of the Ethiopian leadership. 'We are so convinced of the justice of our cause' the Prime Minister claimed during the announcement

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[103] Many international financial institutions, such as the World Bank, have extensive sets of rules and requirements to qualify projects for their funding. This notably includes open and transparent procurement procedures to avoid clientelistic practices, as well as notification of downstream riparians. These rules and requirements are seen as "best practices" in the industry (interview World Bank official, Addis Ababa 19-4-2011).

[104] The efficiency of a dam – when hydropower production is the main function – is usually measured in terms of "plant load factor", which is defined as the percentage of time during which the power station can operate at maximum capacity. This depends on the water influx (Trouille & Head 2008).

[105] While this may appear to be a paradox, the Blue Nile River at the site of the Grand Dam is highly variable. Most of the water will flow in the summer months – when the dam can operate at full capacity. In other months, the size of the dam does not really correspond with the water inflow, unless the reservoir would be even larger.

[106] While any large dam would have proponents and opponents, the difference is that on transboundary rivers the main political actors are nation-states. The scale at which the project is divisive is, thus, different.

[107] Newspapers in both countries reported on the dam in terms of a threat (Viney 2012).

[108] Sadat stated in 1980 that 'if Ethiopia takes any action to block our right to the Nile waters, there will be no alternative for us but to use force' quoted in Myers (1989).

speech, 'so convinced of the role of our hydropower projects in eliminating poverty in our country that we will use every ounce of our strength, every dime of money that we can save to complete our programme' (Zenawi 2011b: 6).

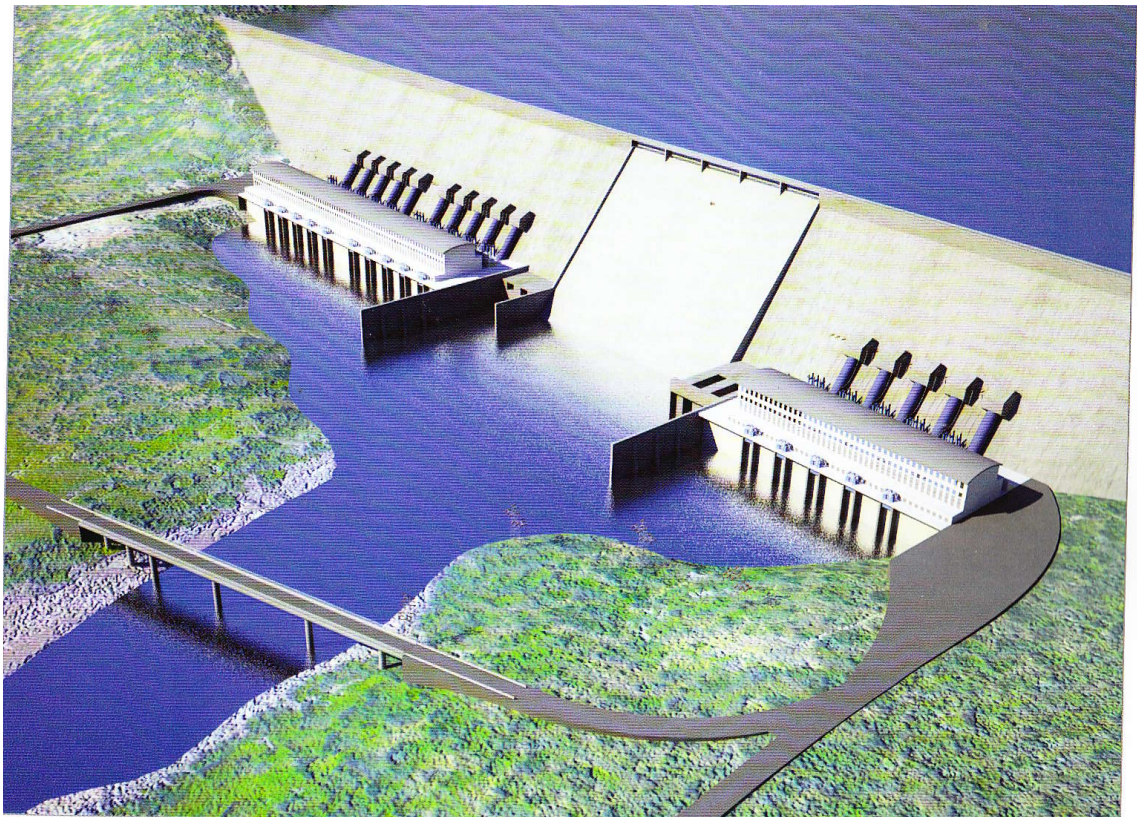

Figure 5.1 Designer's impression of the new dam. Copied from a manuscript obtained in Addis Ababa in April 2011. Source: (EEPCo & Salini Costruttori 2011).

The dam has raised many questions among diplomats and academics alike. Given the contradiction between the concerns of external experts on the one hand, and the government's devotion on the other, many wonder how one should interpret the logic of this dam. Written approximately a year after the momentous speech of Zenawi, this chapter attempts to understand the contradicting logics of Ethiopia's new dam. The research question of this chapter respond directly to the third sub-question of this project. How is the controversial logic of this dam rationalised? In other words, how does the government justify its construction while it is condemned by outsiders, and what other drivers may be present that explain the project. By identifying the official discourse and its drivers, this chapter will also address the relationship between hydraulic developments and state formation.

Figure 5.2 Map of Ethiopia and the hydraulic works on the Blue Nile. The Grand Dam is located near the Sudanese border and indicated on this map as the Grand Millennium Dam. Source: (Verhoeven 2011).[109]

5.1.1 The rationality of rising energy demands

The construction of the Grand Dam cannot be seen outside of the broader water development strategy of the Ethiopian government that was initiated little over a decade ago. This strategy

[109] The map has been designed to give and indication of the locations of the hydraulic works and may not be entirely geographically precise. The map distinguishes between dams, which compound water, and hydro-electric stations, which use the natural flow of the water. The map has been produced before South Sudan officially seceded, and the new border is indicated as a hashed line (Verhoeven 2011).

has been a response to the long-standing Ethiopian wish to utilise the immense water resources that flow through the territory. Domestic strife, civil unrest, and dire financial straits have long prevented the country from building the dams that were perceived to bring wealth and progress, but the political (and to a lesser extent economic) stability of the last decades seems to have turned the tide.

Since the Gibe-I dam and hydroelectric power station were completed in 2004 – the first major project since the 1970s – and started to transmit electricity to the Addis Ababa, four more hydropower stations have been inaugurated. Although significant, the Gilgel Gibe-I, Gilgel Gibe-II, Tekeze, and Tana-Beles hydropower plants are of a different order of magnitude than the Grand Dam in terms of size, generating capacity, and impact (Figure 5.3).[110] Correspondingly, the costs were significantly lower and could be covered by a combination of World Bank loan packages, western development aid, Chinese investment and soft loans, as well as part of the national budget.

Ethiopia's dam boom was envisioned by the dominant discourse of water potential that informs the country's modern governmentality. Central to this discourse is the idea that, although Ethiopia has huge water resources, external forces have prevented it from utilising them up until this decade.[111] The construction of so many dams is rationalised as fulfilling this potential which is seen as the country's destiny.

According to government estimates, the country's hydropower potential is over 45 000 MW (Hydropower for Sustainable Development Conference, Addis Ababa 31-3-2011). This figure, which was first coined by the 1964 US Bureau of Reclamation studies, is nothing more than an estimate and does not tell us anything about viability but has been reproduced so often

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[110] The Gilgel Gibe III, which is still under construction on the Omo River and expected to be inaugurated in 2013, is the only project that approaches the Grand Dam in significance. With costs exceeding $1.8 billion its scheduled installed capacity is 1870 MW. However, its construction has been marred by problems, with contestation on environmental and social grounds and financiers withdrawing during the construction process (Abbink 2012).

[111] The Ethiopian scholar Debay Tadesse puts the national dilemma eloquently: 'the land that feeds the Nile is unable to feed itself' (Tadesse 2008). This paradox has been exploited by the rulers to legitimise the hydraulic interventions of the last decade.

that the media has come to perceive of it as a scientific fact.[112] The social construction of potential further fuels the government discourse of dam-building and reinforces the government's "regime of truth".

Regardless, growing demand for energy is very real. Ethiopia faces a huge gap between supply and demand and this genuinely worries the government. According to sources in the Ministry of Water and Energy, the actual electricity demand is growing with 25 per cent per year, which is much more than the growth in supply.[113] In result, there are long waiting lists for new connections to the national grid and the Ethiopian Electric Power Company (EEPCo), the national power utility has logistical problems in keeping up with growing needs (interview government official, Addis Ababa 19-4-2011).

Year inaugurated	Name dam	River Basin	Installed capacity (MW)	Type	Costs (millions)	Reservoir volume (km^3)
1973	Fincha'a	Nile	134	Hydropower, irrigation dam		0,46
2004	Gilgel Gibe I	Omo	184	Hydropower dam	$300	0.92
2009	Tekeze	Nile	300	Hydropower, irrigation dam	$365	3.10
2010	Tana-Beles	Nile	460	Basin transfer tunnel	$500	n/a
2010	Giglel Gibe II	Omo	420	Tunnel	$480	n/a
2013	Gilgel Gibe III	Omo	1870	Hydropower dam	$1700	11.75
2017	Renaissance	Nile	5250	Hydropower dam	$4700	65.00

Figure 5.3 Table of major existing hydropower projects in Ethiopia. The Grand Dam is also shown for comparison. All hydraulic works in the Nile basin are shaded in the table. Source (Ministry of Water and Energy 2011).

The fact that applications for connections to the power grid cannot be fulfilled directly and that the waiting list is growing fast should worry the government. The regular power

[112] Hydro-electric potential is the product of the difference in altitude between the source of het river and its terminus and the average flow of the river. While it can be useful it estimating the relative contribution of different rivers for hydropower generation, it does not mean much *ipso facto*.

[113] The figures of this section were hard to verify. Triangulation was virtually impossible because the Ministry of Water and Energy controls all means of knowledge production. While the problem is surely acute, certain figures may have been overestimations.

outages in areas that are nominally connected to the grid is one consequence of the gap between supply and demand. This is exacerbated by poor electricity management systems, so that even the capital Addis Ababa has a number of power cuts per day (Mesfin 2011). Although some institutions and hotels have back-up energy provision, often provided by diesel-powered generators, the outages have huge implications for small businesses and consumers. The consequences of the limits to power supply are distributed very unequally throughout society.

In response, the government has set appropriately ambitious goals in its five-year Growth and Transformation Plan (GTP). Its aim is to increase electricity coverage from 41 to 75 per cent of the population before 2016. To achieve this, the government intends to quadruple the installed production capacity from 2000 MW to 8000 MW (Ministry of Finance and Economic Development 2010a). The strategic direction is that:

> In the next five years the energy sector development policy directions will be geared towards minimizing the gap between the demand and supply of electricity, efforts will be made to increase the current lower per capita consumption and supply of power will be increased even to the level of export (Ministry of Finance and Economic Development 2010b: 36).

The GTP has been criticised for its resemblance to Soviet or Chinese style top-down planning and for being overambitious (interview World Bank official, Addis Ababa 19-4-2011). Yet one senior diplomat stated that the goals are not completely unachievable, if the impressive GDP growth of almost ten per cent per year during the last five years continues. Success, however, will depend on global economic fortunes, as well as on continuing foreign direct investment and well-targeted development assistance (interview diplomat, Addis Ababa 4-4-2011).

The performance of the state-directed energy sector has not been too bad over the last five years, if the official data of the ministry is more or less correct. Electricity sales have increased from 2095 GWh in 2005 to 3131 GWh in 2009, an increase of 10.7 per cent per annum (Figure 5.4). In 2006, only 900 towns in Ethiopia were powered by the national grid, but by 2010 this had increased to over 5000 towns, according to official figures from the power utility. Moreover, 780 kilometres of domestic transmission lines have been constructed, with more being planned (Ministry of Water and Energy 2011). Independent reports have noticed

similar trends, but the official figures could not be checked (Global Energy Network Institute 2012).

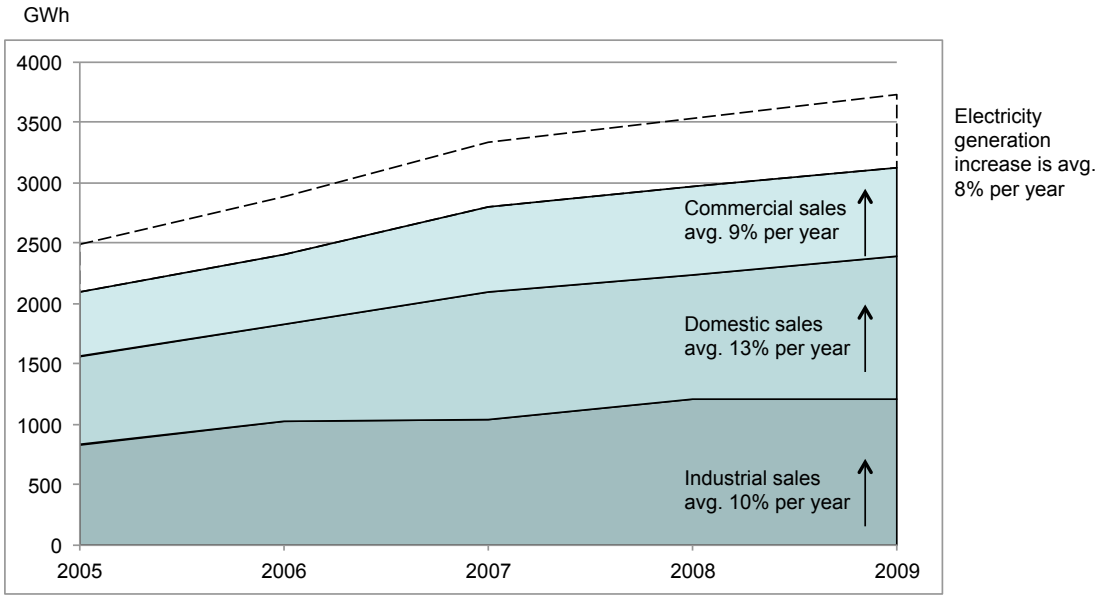

Figure 5.4 Electricity sales in Ethiopia have increased rapidly in recent years. Source: (Ministry of Water and Energy 2011).

Although this looks impressive, the Ethiopian Electric Power Company (EEPCo) had much catching up to do after almost two decades of stagnation. To put it into context, electricity consumption per capita is only 3.8 W per year. Neighbouring Kenya and Sudan are at 14.9 W and 10.4 W respectively, whereas Egyptian consumers use on average 130 W per year (CIA World Factbook 2008).[114] There are, thus, obvious reasons for Ethiopia wanting to increase energy production and to meet the goals of the GTP. Although the 6000 MW cited in the GTP may be an appropriate estimate to meet the additional energy demands of the coming five years, few would have expected that the government plans to achieve this with just a single hydropower plant behind the new dam.[115]

Ethiopia's suitability for large dams has been well documented (Abate 1994). With a high average altitude, a number of large rivers, and narrow gorges, the geography of the country

[114] For reference, the consumption per capita in the UK is 631 W, according to the same source.
[115] The dams whose feasibility reports were published in 1964 were more likely candidates.

is well-suited for hydropower production.[116] The state discourse, of course, never fails to mention the "untapped" potential of its rivers. Problematically, the precipitation that feeds the rivers is highly irregular with large seasonal and decadal variations (Osman & Sauerborn 2002). Virtually all the water comes down the rivers during the summer rains of August and September.[117] Small dams do not help because they cannot provide sufficient water storage in a reservoir. *Ergo*, the logical response to Ethiopia's energy problem is the construction of a large dam.

Although this logic justifies the construction of a large dam, there are two complications. Firstly, there seems to be a discrepancy between the current problems and the government's ambitions. There is a huge gap between demand and supply domestically, yet Ethiopia aims to become a power exporter before 2016. Transmission lines to Djibouti and Sudan have recently been completed and one to Kenya is under construction. While the national energy crisis could have been addressed by a smaller dam, the export ambitions call for an indefinite number of large dams.

In effect, the national strategy is unlikely to provide everyone in the country with access to cheap electricity. Instead, it seems that the regime will focus on the export of energy, which raises valuable foreign currency, as well as potential kickbacks for those involved in the export. Clearly, energy demand alone is not the only rationality for this dam.

The second complication is the inconvenient fact that most of Ethiopia's rivers are on transboundary rivers where Ethiopia is the upstream riparian, meaning that water development is bound to have cross-border impacts. Figure 5.5 demonstrates that the main rivers all flow into the Nile watershed, and therefore also through Egypt and Sudan. Given the vocal opposition of these states in the past, the energy rationality driving the Grand Dam is likely to be contested at

[116] On top of that, Ethiopia does not have (many) fossil fuels that could provide an alternative. All resources have to be imported through Djibouti or Somaliland which adds to the costs.
[117] While there is considerable geographical variation, the summer rains contribute between 64 and 85 per cent of the total annual rainfall and by extension river flow (Bewket 2009).

a regional level. But the government seems to have embedded a response to these complications in its sanctioned discourse.

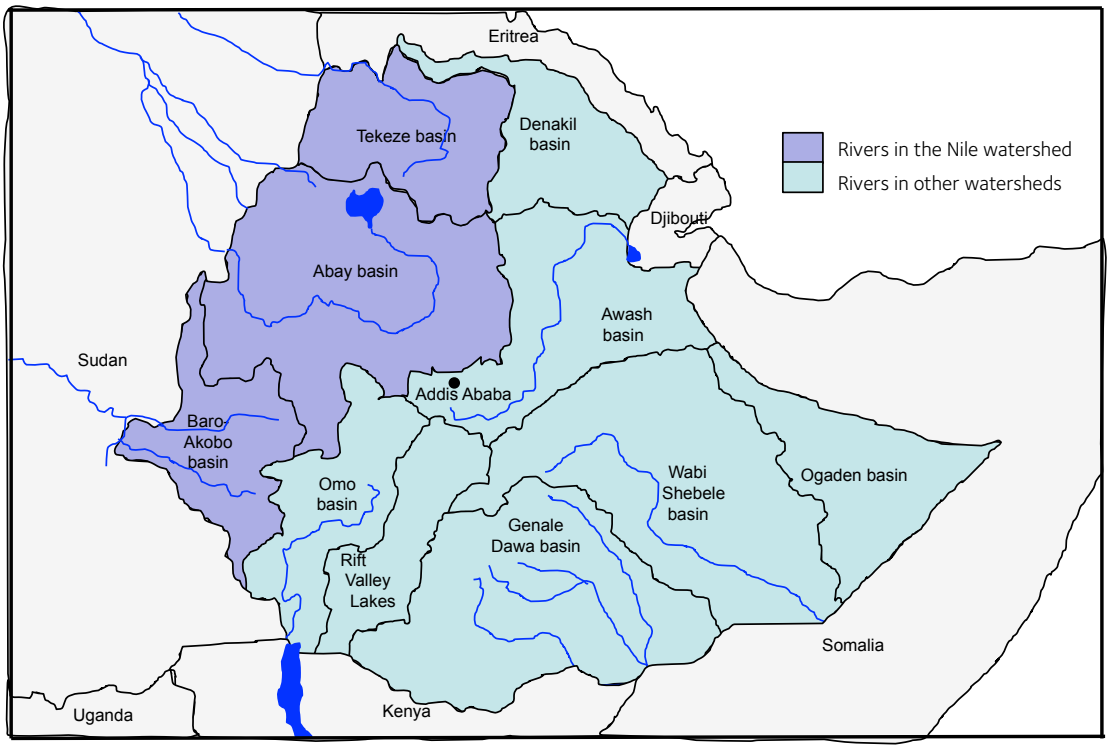

Figure 5.5 Map of main watersheds in Ethiopia. The watersheds in purple (darker shade) are in the Nile basin. Although the Tekeze, Abay, and Baro-Akobo basins cover less than half the surface area of Ethiopia, these watersheds account for two-thirds of total water run-off. Map constructed by author based on Abate (1994).

5.2 Justifying a controversial project

In an interview with the state news agency published in the state-owned newspaper the *Ethiopian Herald* on 21 April 2011, Miheret Debebe, the CEO of EEPCo and one of the most powerful men in the country was quoted saying: 'the [Grand Ethiopian Renaissance] Dam is not a political issue. Rather, it is a developmental project which determines the bright future of Ethiopia' (Ethiopian Herald 2011b: p.1; 21 April).[118] This statement symbolises Ethiopia's water discourse and is noteworthy for three reasons.

[118] EEPCo's mandate is much larger than that of a normal utility. Apart from its core tasks of electricity transmission and distribution, EEPCo is also responsible for electricity generation and the planning and construction of new (hydro-) power plants.

Firstly, Debebe tries to construct a dichotomy between development and politics. The dam is clearly development, while politics or contestation is something for other issues. Secondly, the dam determines the "bright future" of Ethiopia, which suggests that a positive future "depends" on the successful completion of the dam. Finally, the fact that the CEO of the power utility is giving this important interview, rather than an elected official, tells us something about the power relations in the state apparatus and how the sanctioned discourse is constructed and disseminated. EEPCo is the state-owned utility that is in charge of building the hydropower stations as well as distributing the energy.

It may be wrong to accord too much value to a single statement printed in the mouthpiece of the government. But to dismiss this one and other statements because of this, would be equally unsatisfactory, because of the broader story they tell of the rationalisation of the new dam. In this section I discuss a number of speeches and interviews given by key discourse producers in Ethiopia in the months after Zenawi's announcement of the dam, because of the insights these components of the sanctioned state discourse may give into the logic of the dam. The goal of this methodology is to identify the core components of the government discourse and find out what they tell us about power, politics, and elites.

I have looked at all newspaper articles on water development in the state-owned daily the *Ethiopian Herald* during April and May 2011, as well as the privately owned *Reporter* and *Capital* and online articles of the state press agency. A central source of information has been two speeches by the Prime Minister around the time of the announcement of the dam, because of the official justification for the dam these provide. Finally, interviews conducted with government officials in Addis Ababa during April 2011 have been used to substantiate certain parts of the discourse. By triangulation through interviews with outsiders, previous experiences of Ethiopia, and secondary literature, I attempt to place these findings in a perspective

In Ethiopia, there is a strong state control on the production of knowledge and the discourse that is disseminated; in effect, the discourse is relatively uncontested by the population or the opposition (Aalen & Tronvoll 2009). The current system of government has been in place since Zenawi's group took power in 1991 after a decade-long civil war against the

Derg.[119] Although there is still some popularity left from this struggle, the monolithic discourse is mostly based on the repression of opposition against the regime (Harbeson 1998). Rather than opening up, the political space has in fact narrowed during 2011, because of the unrest in North Africa and the Arab World (Brigaldino 2011). There is plenty of evidence that those who speak out against the regime have been harassed, detained, or even banned from the country (Teshome 2009).

But the water discourse is also hegemonic for other reasons. The interests of the elites in Addis Ababa who are responsible for the production of the discourse, tend to coincide with the interests of the growing urban middle class: both groups would benefit from the construction of dams and the increased production of electricity. More importantly, the issue of the Nile has historically united the country against the common "enemies" downstream, who in the urban legend have prevented Ethiopia from exploiting its rivers. These two aspects are exploited by the elites in order to increase the general legitimacy of the discourse by persuasion rather than by coercion alone.

There are three groups of people that produce a relatively coherent body of knowledge on the dam and manage to disseminate this through the state outlets: the Prime Minister's Office, the Ministry of Water and Energy, and EEPCo. Consequently, there is a rather small elite that talks to the media and defines and delineates the logic of the dam. It seems that only this elite is authorised to speak for the Nile, because the limited number of unique statements are constantly reproduced in different forms.

5.2.1 The development of Africa's water tower

As the citation of the CEO of EEPCo earlier in this section suggests, there is a discursively constructed dichotomy between "technical" water development and "political" regional discussions of the allocation of Nile waters. The Grand Dam is characterised as "development":

[119] Arguably, the Derg and the preceding imperial government were more autocratic than the current regime (Sarbo 2009). The main difference is that Zenawi tries to uphold the pretence of democracy by organising elections and allowing a – minimal – opposition.

the domain of the engineers, bureaucratic planners, and state utilities. On the other hand the cooperation over Nile water resources such as in the Nile Basin Initiative is a separate political issue, domain of the diplomats, politicians, and lawyers. Academics may know that these domains are in fact highly interrelated, but the dichotomy serves a purpose in the internal rationalisation of the new dam.[120] The construction of a dichotomy between politics and management is required for the state to reproduce its own power (Ferguson 1994).

Zenawi equates the new dam with the eradication of poverty, rather than posing the political questions the project raises. The Grand Dam does not only symbolise the fight with, but also addresses poverty directly, by virtue of the services it provides.[121] The logical outcome of this argument, as the Ethiopian rulers would have it, is that anyone who is against the dam is by extension against the eradication of poverty. In a speech at a hydropower conference two days before the announcement of the Grand Dam, Zenawi argued:

> Before we mobilised our efforts to eradicate poverty, centuries of impoverishment curtailed our development and restricted us from exercising our right to use the resources of our own rivers. Now, thanks to the dedication of our peoples, we have safely put those times behind us. We are close to opening a new chapter through the realisation of our Millennium project (Zenawi 2011a).

He continues stating that the project will play a decisive role in realising the goals of the GTP and the consequent advance towards the eradication of poverty. One is excused for wondering, Zenawi rhetorically asks his audience, who could possibly be against such a project.

Traditionally, opposition against large dams is voiced by the environmentalist lobby. NGOs like *International Rivers* or specific to Ethiopia *Friends of Lake Turkana* tend to oppose

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[120] A landmark academic interpretation of this phenomenon is James Ferguson's *The Anti-Politics Machine* published in 1994. Ferguson's argument is that development apparatuses, both domestic and international, transform political realities of poverty and powerlessness into problems that are technical by nature and that can be solved only by designated development agencies

[121] This includes, notably, the provision of electricity, but also flood control, and supply of water for domestic and industrial purposes, and ultimately irrigation.

large dams and emphasise the always-present large environmental costs.[122] *International Rivers* has in fact dedicated an entire website to the Grand Dam, stating that it is out of scale for a country as poor as Ethiopia, may lead to geopolitical conflict, and do irrevocable harm to the environment (International Rivers 2012).

Zenawi, however, addressed the (western) environmental pressure groups directly in his speech and accused them of the wrong priorities and a neo-colonial lack of empathy with African people.[123] He used a powerful metaphor in his speech that I will recite in its entirety to convey the tone as well as content.

> On the one hand, we have what I would call hydropower extremists who would oppose hydropower development in poor countries because according to them such projects inevitably impact the environment negatively. In the words of President Museveni [of Uganda] these people are concerned that butterflies will be disturbed by such projects and they will not allow the disturbance of butterflies even if this means millions of people have to be subjected to the deadliest killer disease of all, poverty, in order not to disturb the butterflies […]. But these extremists who are based and financed from Europe and North America are not amenable to rational arguments […]. I am not a believer in conspiracy theories but if I were I would conclude that these people want Africa to remain as it currently is with all its misery and poverty so that they can come and visit nature in its pristine state in the winter every so often (Zenawi 2011b :5)

This statement, which has been reprinted by the national media in the following days (Ethiopian Herald 2011c: p.3; 5 April), discursively disqualifies contestation of big dams in Africa on environmental grounds. The reference to the fact that the NGOs are based in the West but critique dams in Africa is also a powerful statement and questions the legitimacy of the environmentalist lobby.

The tenor that was set by the Prime Minister during the announcement speech was reproduced in other places over the ensuing weeks. An interview published on the 21st of April

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[122] Friends of Lake Turkana is a Kenyan NGO that aims to represent the minorities of northwest Kenya. They have been petitioning the Ethiopian government to stop construction on the Gilgel Gibe cascade on the Omo River. They fear that the series of dams and hydropower stations will threaten the water levels of Lake Turkana, on which many of these indigenous groups depend for their livelihoods. While they are based in Kenya, the organisation has strong links with western NGOs such as *Survival* and *International Rivers.*

[123] Most of these NGOs are based in the west. International Rivers, for instance, has its head office in California. According to Zenawi and others, they are hypocritical for allowing many dams to be constructed in the US, while they direct their critique at African governments. There is also a body of literature discussing how African NGOs align their interest with western development policies because of the flows of capital (Hearn 2007).

with the CEO of EEPCo was the first to provide more information on the Grand Dam.[124] Debebe listed the benefits of the project while stating that the dam was not political. Therefore, 'no right-minded Ethiopian would oppose the funding and contribution to the project' (Ethiopian Herald 2011b: p.1; 21 April).

Not only Ethiopians, but also other states and international organisations should support the dam, according to Debebe. Unless, that is, they are against development in Ethiopia. 'Except some who do not wish to see a prosperous Ethiopia' Debebe is cited, 'riparian countries are well aware of the regional and environmental advantages of the dam and happy with the project' (Ethiopian Herald 2011b: p.1; 21 April). This comment was aimed directly at the Egyptian and Sudanese leadership and popular press, where a strong anti-Grand Dam sentiment had been developing.[125]

Elsewhere, a newspaper cited a spokesperson of the Ministry of Water and Energy who commented on the opposition to the dam: 'these people may not know the benefits of the dam or are ill-informed. The dam is not a political issue; but a developmental one [sic]' (Ethiopian Herald 2011b: p.1; 21 April). The tone was set within three weeks after the dam was announced and veteran Ethiopian journalists would realise that opposition against the dam, or even a critical review, as in the introduction to this chapter, had become impossible from within Ethiopia.[126]

In London, I asked the Ethiopian ambassador to the UK, to explain the logic behind the dam again, hoping that a freer political environment would provide a stronger explanation.

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[124] In the preceding weeks the newspapers were mainly filled with either reiterations of the statements of the Prime Minister made during the announcement of the dam, or with editorials that provided little new information on the project.

[125] Earlier, Zenawi spoke in similar terms: 'equally irrational is the position taken by some politicians in Egypt to oppose virtually every project in the Nile in upper riparian countries including hydropower projects that have no consumptive use of water and have beneficial impacts on all [sic]' (Zenawi 2011a: 5).

[126] As recently as June 2012, 23 Ethiopian journalists have been convicted on trumped up charges of terrorism and sentenced to long prison sentences. All of them had criticised the regime and some focused on the dam (Goodman 2012).

However, the response recalled the main components of the discourse, focusing on development, but also answered to critique on the impact on indigenous people:

> Arguments that no [environmental and social] impact assessments have been done are misleading. The impact of the dam will improve the lives of the people living there; it will bring them closer to the development plan. The dam will bring schools, infrastructure, social facilities and employment. The project will empower people to protect their culture and enter the twenty-first century. Nomadic life, not going to school is not an advisable way of life and marginalises these people […], to leave people as they are is to completely marginalise them, which is unacceptable in the 21st century because they will suffer (interview diplomat, London 28-3-2011). [127]

"Development" is a recurring theme in the justification of the dam. The reasons behind this are both obvious and obscure. On the one hand, economic development is the goal of most western development assistance. Branding the dam as a development project is an attempt to align it with the goals of Ethiopia's development partners and has been successful in the past.[128] It is an important strategy to gain outside legitimacy. On the other hand, making the dam anti-political disqualifies difficult discussions on the reasons behind the dam, alternative projects, or different designs.

The political strategies in the construction of the discourse of the Grand Dam are similar to those described in other case studies (Ferguson 1994). Politics is taken out of the equation and development is presented as a manageable problem that can be solved by a single intervention: the dam. This dichotomy is designed to legitimise and authorise the construction of the dam by a bureaucratic and hydraulic elite.[129] At the same time, these processes imply increasing power for the elites and experts that are authorised to act and this can directly affect the nature of state formation.

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[127] This critique was mainly voiced by organisations such as *Friend of Lake Turkana, Survival,* and *International Rivers*. They contend that the dams threaten the livelihoods of indigenous people (Abbink 2012).

[128] Development partner is the new term for "donor" to give the perception of an equal relationship between donating state and host country. Main donors are the US, the UK, and other European states (notably the Scandinavian countries). Their branding has been successful to get almost ten feasibility studies for hydropower projects financed by development partners.

[129] Often, these are new elites too. Directors at EEPCo, the electricity utility, were not part of the inner circle of power until energy and dams became important for broader politics. Likewise for the large agricultural parastatals.

Of course, the dam is very political, but to the government "politics" risks contestation. This raises important questions concerning the logic of the dam, such as what are the reasons for the Ethiopian elites wanting to avoid contestation. The sticky geopolitical situation of the Nile is certainly part of the answer. It comes as little surprise that Zenawi *cum suis* have invented a component in the discourse that projects the dam as a feature of cooperation rather than conflict.

5.2.2 A dam of regional cooperation

To any observer, the logic of the dam contradicts the logic of regional cooperation.[130] At any rate, the unilateral pursuit of a change in the flow patterns of the river does not square well with building a multilateral legal framework for eleven countries. In fact, some in the development industry fear that the announcement of the dam signals the end of cooperation in the basin in the form of the Nile Basin Initiative (interview World Bank official, Addis Ababa 20-4-2011).[131] The Ethiopian leadership must have struggled with these contradicting logics because it always maintains to be in favour of cooperation.

The dam is likely to have a significant impact on the hydrology of the river. The normal operating volume of the reservoir is 63 km^3 and it will take years of decreased water flow of the Nile to fill it (EEPCo & Salini Costruttori 2011).[132] Although hydropower generation is not an exclusive use of water, the timing of water discharge will alter the seasonal distribution of river flow. A water-energy nexus will be created where water supply for irrigation will be directly connected to water discharge for energy production. Theoretically, this could seriously harm the

[130] Simply because the dam will compound the water in its reservoir and discharge it based on the energy demands in Ethiopia, rather than on the irrigation needs downstream. There are no effective legal agreements for the government of the river.

[131] This probably means the end of external funding, not of the cooperation process *per se*.

[132] How long it will take in practice will largely depend on the policy chosen by the Ethiopian leaders. For the downstream states, a more gradual filling process would be beneficial but this will postpone the date when electricity generation can start – and by extension the date that the dam starts generating capital.

irrigation systems downstream as water supply to Egypt and Sudan would depend on energy demands in Ethiopia.

In practice, it is unlikely to be as bad, but this geopolitical imagery is inconvenient to Zenawi and his colleagues, because the dam would still welcome international support.[133] In turn, the sanctioned discourse has cleverly constructed the dam in terms of cooperation rather than conflict. Cooperation on Ethiopia's terms that is, rather than what is perceived as the colonial-era *status quo*. Central to this construction is the creation of an image of the "other", that is the opposite of Ethiopia itself, as well as the use of geographical language to legitimise the dam.

The starting point is that the Nile basin relations have been characterised by uncooperative behaviour on behalf of the downstream states in the past. Egypt in particular, is blamed for obstructing any water development in Ethiopia. The often-invoked grievance on behalf of the Ethiopians is the pervasive idea that Egypt has blocked all its attempts to get multilateral funding for water projects.[134]

This is how Zenawi explained the failure of the Nile Basin Initiative to come to an agreement that involves all basin states: 'Indeed, the current disposition is to make attempts to undercut Ethiopia's efforts to secure funding to cover the cost of the project' (Zenawi 2011b). This attack was elaborated during a speech of the Minister of Water and Energy, Alemayehu Tegenu, who stated that: 'using its standing in multilateral financial institutions and the donor community, Egyptian leadership constantly campaigns to block any provision of loans and grants to Ethiopia intended to development project on the Nile [sic]' (Ethiopian Herald 2011: p.3; 8 April). In reality this accusation is hard to substantiate.

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[133] Ethiopia still has much to gain from staying on good footing with Egypt and Sudan, as these are major markets for the electricity that the hydro-electric station will generate. Ultimately, it is likely that the state will strike a formal or informal deal.

[134] A number of Egyptians have had high positions in organisations like the World Bank (Ismael Serageldin was vice-president 1993 to 1998) and the UN (Boutros Boutros-Ghali was secretary general 1992 to 1996).The perception in Ethiopia was that they could control lending policies.

It seems unlikely that development banks such as the World Bank are intimidated by Egyptian opposition to Ethiopian dams, but of course they are sensitive to geopolitical realities.[135] However, there are a number of more obvious reasons that explain why Ethiopia has been mostly unsuccessful in securing the funding for its dams in the past, including the lack of economic logic or failure to meet social and environmental standards (interview World Bank official, Addis Ababa 19-4-2011). Yet for Zenawi and other discourse producers it is politically more attractive to blame Egyptian campaigns and international financial institutions, than its own state apparatus and procurement procedures.

An editorial in the state newspaper is more explicit in its polemic and wrote that 'Ethiopia's lifelong desire of dam construction along its rivers including the Nile had been hampered until recently for Egyptian leaderships were successful in persuading international financiers, depriving Ethiopia of its right to get loans' (Ethiopian Herald 2011c: p.3; 5 April). This argument combines the obstruction of access to finance, with the unfulfilled destiny of Ethiopia to develop its water resources, and the loans being a right rather than an reward. But the choice of verb also indicates something else: the Grand Dam is going to be a major change to this *status quo*.

Although the contribution of the dam to regional cooperation is questionable, the dam is presented as a transformation that will catalyse such basin-wide cooperation. Significantly, the first headline of the state newspaper on the day after Zenawi's announcement noted: 'Grand Millennium Dam: turning a new page of cooperation' (Ethiopian Herald 2011c: 1; 5 April). Articles throughout this issue list the virtually unlimited benefits of this dam. The focal point is well-known to international experts: that Ethiopia is the most efficient place to store water in the entire Nile basin, because evapotranspiration rates are much lower than in, for instance, Lake Nasser behind Egypt's Aswan Dam.

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[135] Other investors are sensitive to this too. A representative of Sinohydro, the Chinese state-owned dam builder comments that the Chinese state banks were unlikely to finance the Grand Dam because of their interest downstream in Sudan (interview Sinohydro official, Addis Ababa 5-4-2011).

In the inaugural speech of the dam, Zenawi emphasised cooperation as a function of the dam:

> equally, the benefits that will accrue from the dam will by no means be restricted to Ethiopia. They will clearly extend to all neighbouring states, and particularly to the downstream Nile basin countries, to Sudan and Egypt. I would dare to say that nothing can provide a better testimony of our deepest commitment to forge a lasting partnership between all the Nile Basin riparian countries than the building of the Millennium Dam (Zenawi 2011b: 3).

In fact, there is an obvious way of how the dam can lead to more cooperation: if the prospect of such an intervention their water supply bullies Egypt and Sudan back to the negotiating table.[136]

Finally, the dam is not only presented as a positive force for the Nile, but also as a positive force globally. The threat of global warming is employed to legitimise hydropower production over alternative forms of energy. Zenawi argues that Ethiopia is not just helping itself, but doing the entire world a favour (Zenawi 2011a). He became known as a global leader during the climate negotiations in Copenhagen in 2010 and Durban in 2012, but statements like this help to further rebrand Ethiopia's image as a "green" country. The ultimate climate impact of the dam is doubtful, mostly because no studies have been conducted. Whether the reservoir will be a carbon sink or source will depend on *how* the reservoir is filled and the de- and afforestation policies chosen.[137]

The question this discussion raises is what the ultimate goal of this projection of cooperation in the discourse is. It is probably not to convince Egypt and Sudan of the merits of the dam, because these states have competing "regimes of truth" on the Nile. However, the success of the dam will also depend on global opinion: how do dam-builders, financiers,

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[136] The leadership of both countries realise full well that they are better off at the table than being excluded. However, to the public eye returning to the negotiations now would seen as a defeat that would be politically inconvenient (interview diplomat, Addis Ababa 7-4-2011).

[137] While hydropower production emits will hardly emit any carbon dioxide, decay of the plant material when the land is submerged by the reservoir can be a large source of methane, which is a more powerful greenhouse gas. Deforesting the area of the reservoir before submerging can almost completely address this problem (Fearnside 1997).

development agencies and NGOs think about the project. Support, or at least the absence of contestation of the logic of the dam, will be important to complete the project.[138]

For the first time in decades it seems that Ethiopia has a dominant discourse that competes with the Egyptian version of the river. The discourse is a technology of government to challenge the downstream hegemony that was earlier observed by Nicol and Cascão (2011). Perhaps the geopolitics of the river is no longer about the power of the sword but rather about the hegemony of discourse.

Either way, the sanctioned discourse and the energy problems explain only part of the rationality behind the Grand Dam. The "regime of truth" constructed by the government may justify why a dam needs to be built, but not why this large, expensive, and inefficient dam is chosen, or why contestation is so limited. Understanding the origins of power and authority in Ethiopia may provide us with additional insights into this logic of the dam.

5.3 Legitimacy and the Grand Dam

Mitchell reminds us that the rationales for dams and other large-scale public works do not always make sense. In his *Rule of Experts* (2002) he argues that dams may be economically irrational, but can be important nation-building exercises. His example of the High Aswan Dam in Egypt, also on the Nile River, is a case in point. Mitchell argued that although the dam had perhaps little merit in itself, it did a great job in promoting the Egyptian revolution.

This argument of the symbolism of large dams has been extended by Maria Kaika (2006), who proposes that the rationale of dams as symbols of modernity may be stronger than

[138] The Ethiopian leaders learned this from their experience with the Gilgel Gibe III dam. While various international financial institutions, as well as bilateral donors, pledged their support, many withdrew after social and environmental campaigns from different NGOs. Even the constructor had second thoughts because of the negative PR the project gave them (Campagna per la Riforma della Banca Mondiale 2008).

the rationale of economic or social gains.[139] According to her, what was happening in Europe and North American in the twentieth century, is now a trend in the developing world. The drive for modernity has become a rationality for dams *ipso facto,* regardless of the costs. Dams are, of course, ideal structures to achieve a certain visible modernity, in particular for regimes whose authority is fragile. The high visibility helps distract from more serious issues of development too.

What Mitchell and Kaika have in common in their analysis is that dams can provide a certain legitimacy to the governments that commissioned them that is more than the sum of the services the dam provides.[140] In addition, the foreign policy component of control over transboundary resources may further contribute to legitimacy. As Marianne Kneuer argued:

> National identity or national pride, the feeling of "grandeur" or international weight, constitute an effective strategy for the establishment of internal cohesion. Such claims can easily be applied in foreign policy and thus transported to the domestic public (Kneuer 2011: 13).

In effect, the economic or social benefits are not necessarily the most important evaluation criteria, but there are sets of reasons for dams that supersede the measurable benefits.

I argue that we can recognise this logic in the conception of the Grand Dam. Although the economic and social benefits are either negative or unclear, the *grandeur* of the project is obvious: it will become the *largest* dam in Africa.[141] Moreover, the dam is a tool for the government to conduct foreign policy.[142] Using international affairs to take attention away from the lack of political or economic emancipation at home is a well-recognised strategy of regimes that struggle with their authority. Perhaps the divisive geopolitics of the Nile basin is not an

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[139] In her case study of the Marathon Dam near Athens, Kaika shows that under the veil of the supply of water for industrial and domestic purposes was an intricate network of different interests, where 'iconography and discourse play the role of the ideological negotiator between the competing interests' (Kaika 2006: 297).

[140] This works partly through nationalism, partly through the symbolism of modernity, and partly through the pride usually associated with large state constructions.

[141] There are competing claims for the largest dam in Africa, but it all depends on what you measure. The Grand Dam is the largest in terms of potential energy generation, while the Kariba Dam on the Zambezi has created the largest reservoir and the Katse Dam in Lesotho is the highest (until the Gilgel Gibe III is completed.

[142] Precisely by controlling the water flow of the Nile towards Egypt and Sudan.

obstacle but rather a tool in the rationalisation of the dam. But to understand this process we will need to look at the origins of legitimacy in Ethiopia first.

5.3.1 The origins of authority in Ethiopia

Ethiopia is an authoritarian state by many standards, although it pretends to have democratic institutions.[143] It has a long political tradition of strong and autocratic leaders, as well as a heavily centralised and bureaucratic state apparatus, originating from the centuries-old empires that have ruled Ethiopian territory. This model of rule means that authority is not derived from democratically-held elections, but rather from the traditional systems of power and the charisma of the country's leaders. Either way, the current regime is not entirely unpopular: a relative political stability and significant economic growth have contributed to the legitimacy of Zenawi and his consorts (Sarbo 2009).

The current leadership gained power by defeating the Derg command in 1991, after they had ruled Ethiopia for nearly two decades. Zenawi's Tigrayan People's Liberation Front managed to present itself subsequently as the "liberator" of Ethiopia (Tadesse & Young 2003). Zenawi's role in the resistance and liberation struggle gave him enough credit to rule the country. Arguably, winning the civil war provided him with the legitimacy to govern and he has clung to power since, through both persuasion and coercion.

However, apart from this type of authority derived from the resistance struggle, the new leaders have proved to be generally quite competent managers and the successful implementation of the previous five-year plan has been celebrated widely (Ministry of Finance and Economic Development 2010b). The emphasis on economic performance was necessary, since the undemocratic rule of the current leadership has increasingly been questioned.

[143] Many of the contemporary authoritarian regimes in Africa and Asia have democratic features such as elections and a parliament. Although I want to avoid a debate on the nature of authoritarianism, we can delineate this form of rule as one lacking Weberian rational-legal authority. Some use the term semi-authoritarianism to describe the inclusion of certain democratic features in authoritarian models of rule (Ottaway 2003). While this applies well to Ethiopia, I prefer to stick to the more common authoritarian, acknowledging that the form of authoritarian rule is not absolute.

Although the political *status quo* looks like a Chinese model of rule, where economic prosperity is granted in exchange for limitations of political freedom, opposition has been growing.[144]

In 2005, the opposition took to the streets after elections rigged by the government, but the protests were struck down hard by the internal security police, leading to further oppression of political freedoms in its wake (Abbink 2006).[145] Since then, the government appeared to be losing legitimacy rapidly, although it would still maintain power through clientelism (Sarbo 2009) and political violence (Ayele 2011). In 2008 the leadership invented a novel way to re-win its legitimacy.

A public campaign announced the arrival of an "Ethiopian Renaissance", starting at the turn of the Ethiopian Millennium – 2008 on the western calendar. This discourse was introduced amid much pomp and circumstance and emphasised two elements: the historical continuity of the Ethiopian state that had its origins in an ancient and powerful civilisation, as well as the rebirth of Ethiopia's greatness.[146] Indeed, Zenawi noted in a speech, there were only great things to come for Ethiopia in the new millennium, the country would never have to beg again because it was to see an unprecedented period of prosperity (Zenawi 2008).[147] Through a series of large projects and an assertive foreign policy the authoritarian government employed the Ethiopian Renaissance in an attempt to counter the downward spiral of its legitimacy.

As the name suggests, the Grand Ethiopian Renaissance Dam is the centre piece of this strategy. If successfully completed, the dam speaks to the origins of Zenawi's authority:

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[144] Of course the situation is rather different in Ethiopia in many ways. The economic growth in China has been more sustainable and continuing for longer, their transition from communism has been gradual rather than a civil war like Ethiopia, and the country is at higher income levels already.

[145] Following the protests after the disputed May 2005 elections, as many as 30 000 people were detained by the police. While the police shot with live bullets at the protesters, 193 individuals have been killed (Connors 2007). Abbink (2006: 173) notes that while the elections 'showed significant gains for the oppositions, [they] led to a crisis of the entire democratisation process [...] and the political system [...] slid back into authoritarianism'.

[146] The territory of Ethiopia roughly coincides with that of the Aksum Empire in the fourth century. Modern Ethiopia has its origins in the 1850s, when successive emperors expanded central rule and its territory (Henze 2000). It is said that Ethiopia was the country who managed to defeat the colonial powers, which contributes to these notions of greatness.

[147] Begging refers to the famines in Ethiopia of the 1970s and 1980s when the international community had to step in with emergency aid. Ethiopia received world-wide attention through events such as Live Aid (Gill 2010).

grandeur, performance, and resistance to enemies – real or imagined. Its immense size and the fact that it is the largest dam in Africa are thus important components of this approach.

The symbolism of the dam is crucial. The Ethiopian governmentality is based on the paradox that the country owns large water resources, but that external factors have hindered the development of these. Completion of the dam would change this. Ethiopia's water is no longer, as part of the discourse suggests, stolen by Egypt and Sudan, but rather harnessed to benefit the population. It is hard to overstate the importance of this symbolic value. On top of that, the framing of the dam as a "development" project builds legitimacy because of its promises to eradicate poverty, bring modernity, and develop the country. The aim to transform Ethiopia into a middle-income country, as it is formulated in the five-year plan, depends on the provision of cheap electricity generated by the new dam (Ministry of Finance and Economic Development 2010a).

The location of the dam on the Nile river is also significant and distinguishes this project from other large dams, such as the Gibe cascade on the Omo River.[148] The water of the Nile River, with its eleven riparians, is heavily contested and Egypt has traditionally held the upper hand. The construction of a large dam that has the power to stop the river flow is a symbol of defiance of the downstream hegemony and contributes to the national identity and pride of Ethiopia. Moreover, the dam itself could indicate a shift in the balance of power in the river basin towards Ethiopia. If the Ethiopian Renaissance is a discursive invention, the Grand Dam can make it a grounded reality. It is Zenawi's ambition to broker a deal on the Nile himself, and he probably wants to use the Grand Dam to get the best out of it for Ethiopia.[149]

According to the logic of the dam as instrument for national pride and legitimacy, it is more important that the dam is the largest in than that it is the most efficient, or best dam in

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[148] While the Gibe cascade is sizeable and contributes much to the electricity generation, the Omo River terminates right across the border with Kenya in Lake Turkana. Its utilisation is not as disputed as that of the Nile.

[149] The clearest evidence of his ambition is the overtures he made to the Egyptian population during an interview on Egyptian television (Anon 2010). Moreover, the foundation of the Eastern Nile Technical Regional Office, a sub-organisation of the NBI, in Addis Ababa is another sign of the intent of the Ethiopians.

Africa. A nation is not united around good state interventions, but around big state interventions. This is problematic, because the rationality of *grandeur* can blur the eyes of the decision-makers, which can have considerable impacts on the long-term. This explanation may go a long way in explaining the choice for this dam, with its low efficiency, rather the better alternatives.[150]

Observers have been very surprised when the details of the Grand Dam became public – or rather, a public secret. That Ethiopia wanted to build a large dam on the Nile was well-known, given the wider trend of dam-building in the last decade, the increasing energy demands, and ambitions to export energy. However, a dam that is as expensive and inefficient as the Grand Dam is more startling (interview diplomat, Addis Ababa 21-4-2011).

It seems that this dam is rationalised in the context of the Ethiopian Renaissance that was declared in 2008. It will bring a renewed greatness to the country through pride, national cohesion and international power. The dam had to be the largest possible and with a downstream impact as great as possible, in order to generate enough pride to reproduce the government's legitimacy. Yet the consequences have not been exclusively positive.

5.4 The dam and the state

The dam boom of the 2000s brought significant changes to the internal relations of the state apparatus. The demand for large hydraulic structures has created a new elite of water professionals. Together with some of its western development partners, the government has set up scholarship programmes to train young Ethiopians in hydraulic engineering and related disciplines in countries like Norway, Germany, the US and China.[151]

Highly-educated hydropower specialists, agronomists, and civil engineers came to take up key positions in large state-owned enterprises such as the Ethiopian Electric Power Company

[150] Another explanation that is harder to substantiate, is the strong tradition of authority in Ethiopia, where younger well-educated engineers are overruled by the older leadership.
[151] The BBC described Ethiopia in 2010 as an "aid darling" who is very popular in the donor community (Ross 2010). Many of these scholarships are funded by the donors as a form of development aid.

(EEPCo), the Ethiopian Sugar Corporation (ESC), or the major construction firms on their return. These specialists are governed by a class of bureaucrats led by the leaders that grabbed power in 1991. Because the construction of dams is highly technical and very specialised, only this elite of engineers, bureaucrats, and leaders is authorised to speak about the water and conduct the knowledge production for the Nile discourse.

The discourse that rationalises the dams is then transformed into material interventions led by the state. This partly corresponds with Foucault's observation of a process taking place in the western state during the last century: 'power relations have been progressively governmentalized, that is to say, elaborated, rationalised, and centralised in the form of, or under the auspices of, state institutions' (Foucault 2001: 345).[152] In turn, dams influence power relations in two different ways.

On the one hand, the mobilisation of resources required for the dam affects financial relations, labour relations, and the distribution of power among state institutions. Banks are encouraged and coerced to invest in hydropower projects that may not be best investment decisions; workers are sent to far-flung locations to work on projects whose economic benefits are unclear; and utilities and parastatals become more powerful than accountable organisations, such as ministries, parliament and public forums (interview diplomat, Addis Ababa 4-4-2011).[153]

On the other hand, the dam itself has a complex distribution of costs and benefits throughout society, which, on balance, favours large farming corporations over peasants and subsistence farmers in the supply of irrigation water.[154] Similarly, large industries have preference over small businesses in the connection to the grid and supple of electricity. Because

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[152] While Foucault speaks of the western world, notably 19th and 20th century France, some of his observations are increasingly applicable to the developing world as well.

[153] This probably happens to avoid contestation of the ideas. While Ethiopia has some democratic institutions, such as a nominally elected parliament that controls the ministries, democratic control does not extent to the utilities, which are directed from the Prime Minister's Office.

[154] Large-scale farms and industries are easier to organise from the top down and, therefore, have preference to the planners in the capital.

of its size, the Grand Dam is likely to accelerate these processes (interview development planner, Addis Ababa 12-4-2012)

Under the banner of the water development discourse, control over water resources has become a state function and this is leading to the concentration of power among certain governmental elites. Two state wide enterprises seem to benefit directly from the construction of large dams in particular: EEPCo, which is in charge of energy projects and ESC, which leads on the irrigation front.

EEPCo is the leading hydraulic bureaucracy in Addis Ababa because of its role in dam construction. During the dam boom of the 2000s, the utility's workforce has grown by almost 40 per cent. Part of this is natural growth of the business, but part of it is the increasing acquisition of new tasks too. EEPCo is now concerned with the procurement, construction and operation of hydropower plants, as well as the transmission and distribution of electricity throughout the country (interview utility official, Addis Ababa 11-4-2011).

Because virtually all energy production in Ethiopia comes from large hydropower plants, the political clout of the utility is enormous and this is reflected in the ambitions for growth and expansion. One project manager explained that EEPCo's goal was to become the largest energy producer in Africa (interview utility official, 25-4-2011). This objective may seem far off but the process that drives the ambition is very real. Although the CEO, Miheret Debebe, formally reports to the Minister of Water and Energy, Alemayehu Tegenu. In practice, he appears to be very close to Prime Minister Meles Zenawi himself.[155]

The construction of the Grand Dam is a case in point. Rather than being led by the ministry's unit of energy studies, as the formal policy line would suggest, the project was conceived by the cooperation between EEPCo and the Prime Minister's office. One diplomat suggested that his was partly because of the relatively stronger organisation and more competent management of EEPCo, but also partly because the utility is not as accountable as

[155] Personal relations are hard to substantiate and these conclusions are based on rumours and gossip, but confirmed by triangulation with different interviews (interview diplomat, Addis Ababa 7-4-2011).

the Ministry would be and would therefore have more freedom to act (interview diplomat, Addis Ababa 21-4-2011).

A similar process of the growing concentration of political power in unaccountable bureaucracies is taking place at the irrigation arm of hydraulic development. Although sugar composes only a fraction of the current exportable commodities produced in Ethiopia, the ambitions of the government are grand, judging from the goals formulated in the GTP.[156] The five-year aim is to increase sugar production tenfold, up to export levels (Ministry of Finance and Economic Development 2010a). To this end the sugar mills were combined in 2010 under another parastatal, the ESC.

The centralisation of sugar production was catalysed by a significant increase in the budget, brand-new headquarters in the capital, but also a direct link the Prime Minister's office, who took a keen interest in the development of this sector. However, ESC's main role seemed to have been the development of irrigation networks.[157] A huge increase in irrigated land is predicted by the director of the ESC, mostly in places nearby the large hydraulic works, because that is where the water is available.

The land that will come under irrigation in the coming years will also see significant changes in ownership and organisation. The centralised management of production emphasises large-scale agricultural production over smallholder sugarcane farming. Moreover, it has been witnessed that ESC is drawing talented people from the production facilities to increase its own bureaucratic ranks in the capital (interview utility official, Addis Ababa 27-4-2011).

The way that the goals for energy and agricultural production are formulated in the GTP mean that only the state itself is able to make interventions large enough to achieve them. This

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[156] Sugar is hardly the most profitable crop, but according to insiders the government has chosen for sugar because it is relatively easy to handle and to transform into a tradable commodity (interview consultant, Addis Ababa 25-4-2011).

[157] Often, the feasibility studies for these irrigation networks are funded by donors and conducted by western consultants, but ESC uses the studies for different ends. There is evidence that past studies in the Beles Valley have been cherry-picked for the elements that interest the authorities most, including large-scale farming rather than smallholders farming and mono-cropping rather than crop diversity (interview consultant, Addis Ababa, 25-4-2011).

means that in many sectors, power is exercised from the centre and taken away from the periphery. The state apparatus of the "hydraulic industries" is expanding rapidly in response to the construction of large dams and drives the dam boom in turn.[158] Again, the Grand Dam will accelerate this process.

5.4.1 Understanding the Ethiopian state

The growing role of the state in economic processes in Ethiopia seems remarkable in the current global neoliberal paradigm, but Zenawi argues that it is precisely in response to the failure of neoliberalism that the central government is taking the lead in the development of the country. In a book he was writing, titled *African Development: Dead Ends and New Beginnings* (2006), he proposes a model of developmentalism for African states.[159] According to the Prime Minister of Ethiopia, writing under his own name, only the state can deliver the development needs of the population. Clark and Dear (1984) theorise this developmentalism as:

> an increased intervention in the restructuring and maintenance of production relations; and increased centralisation of state functions; […] and a corresponding expansion of the state apparatus (Clark and Dear 1984: 39).

The developmental state is generally defined by state-led macroeconomic planning and the state taking the lead in the industrialisation of a country. Moreover, economic nationalism, the protection of domestic industries, an alliance between the state, labour and industry called corporatism, and a large government bureaucracy are other features identified by Leftwich (1995). Large-scale state-led development projects are central too.

Although the developmental state model comes originally from the East Asian Tiger economies, it is also used to explain the role of the state in Africa too (Mkandawire 2001). Like

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[158] Active hydraulic bureaucracies put pressure on the decision-makers for more projects in order to reproduce their *raison d'être* (Molle et al. 2009).

[159] The draft from 2006 includes a table of contents and a few chapters. It also states that the book is still under development, but it does not indicate a deadline. Although the origins of the draft could not be verified, the documents is published on the website of Columbia University, which attests to its reliability. Part of his argument has been published by Zenawi in an edited volume a couple of years later (Zenawi 2012).

East Asia, Zenawi argues, African development requires a stronger and bigger state and more government intervention in the economy rather than less, if it is to catch up with the West (Zenawi 2006).

Critics have doubted whether Ethiopia would classify as a developmental state (Birdsall 2007). Clientelism is still too dominant as a form of government for state interventions to be successful, argue some (Sarbo 2009). Yet clientelism and developmentalism can coexist as forms of state formation, according to Moore and Schmitz (2008). Others even argue that Ethiopia uses patronage systems for developmental ends (Kelsall 2011). The strong leadership of Zenawi combines the increasing centralisation of rents with a long-term development strategy. Elements of the policy include central control over parastatals and a tight regulation of all economic sectors, notably the financial.

We can interpret the ambivalent rationalities behind the construction of the Grand Dam in these competing logics of patrimonialism and developmentalism. On the one hand, its seems that Zenawi's regime is taking its long-term growth strategy seriously. The goals of the previous five-year plan were virtually all met well before the deadline and he is known as a Prime Minister that delivers. The four large dams that have been completed during the last couple of years attest to this. Using the strong arm of the state to achieve these developmental goals, including the centralisation of decision-making power and a growing bureaucracy may be necessary steps to achieve the GTP goals.

On the other hand, the large patronage networks that exist in the country can still seriously compromise achieving the developmental goals. Centralising the power and increasing the size of the state apparatus through hydraulic utilities such as EEPCo and ESC are processes that lend itself to clientelistic practices *par excellence*. Indeed, presenting Ethiopia as a developmental state is convenient for the elites, because it awards large powers to the state and provides the ideological justification for the growth of the state apparatus. The risk of this process is a lack of transparency. The logic for a certain dam may not be aligned with the development needs of the population, but rather with the logic of the power of the elites.

A dam can be a great catalyser for development, if the right dam is built for the right price. It seems doubtful that the Grand Dam, with an efficiency of only 33 per cent, is the right dam and its rationality is unlikely to be only driven by developmentalist arguments alone. Some smaller dams on the river would provide the same benefits for lower costs. So perhaps the logic of this project can be found in the patrimonial political system, and the desire for the consolidation of power of a newly-established hydraulic elite too.

The centralisation of power and the growth of the state apparatus observed in the context of the Grand Dam hint at the argument made by Wittfogel half a century ago. However, Ethiopia does not seem to have a causal relationship between hydraulic interventions and an authoritarian state organisation. Ethiopia has had an authoritarian regime long before large-scale public hydraulic works were built but also a long history of large-scale state interventions, such as the grand modernisation schemes of Emperor Haile Selassie and the villagisation campaign of the Derg.[160]

There is no geographical law on how the construction of a dam influence state formation. Instead, the political outcomes depend on *how* the dam is constructed. The concentration of power and growth of the state apparatus is a consequence of the lack of procurement procedures and clientelism in the construction process, the impossibility of contestation and the way the goals are formulated in the GTP. This may increase the authoritarian tendencies of the state. Alas, this is not the only way a dam could be build and promisingly, different strategies may have different outcomes.

5.5 Conclusions

The discussion of the relationship between state formation, power and the Grand Dam above suggest how the logic of the dam is rationalised internally in Ethiopia. The sanctioned discourse foregrounds the country's energy needs and the eminent role the dam can play in the

[160] The latter has left a lasting impact on the country. During 1985 and 1985, the Derg resettled over 4.6 million Ethiopians from the dry north to 4500 villages in the south of the country. Access to services was promised but only rarely received (Scott 1998).

development of Ethiopia. Moreover, the geopolitical concerns for disputes over water are discarded because the dam is rationalised within a discourse of "cooperation" rather than conflict, even if this may contradict the realities on the ground.

The logic of the Grand Dam also speaks to a particular process of state formation, where power is centralised on par with the introduction of hydraulic developments. Interestingly, this is in line with the hypothesis of Wittfogel and Worster, although the drivers of the process are arguably different. The concentration of power has little to do with the organisation of labour – as it did in Wittfogel's example – but more with governmental organisation and capital.

While the energy concerns of the Ethiopian government are very real and justify the construction of a new dam, the rationale of the Grand Dam goes far beyond the demand for energy. Instead, I argue that the move can be seen as a form of resistance towards the *status quo* in the Nile basin.

There are two sets of questions the rationalisation of the grand dam poses. Firstly, the question that circulated the local popular press, internet forums and diplomatic circles in Nile basin asks what the new dam will mean for the geopolitics of the Nile river, in particular in light of the Egyptian sabre-rattling of the past. The Ethiopian news site Ethioforum.com published an article after the announcement under the forbidding title: 'Will this be the next Middle East war?' (Ethio Forum 2011). While this is an overstatement by an unreliable source, it does tell a broader story of how geopolitics is used by the elites.

Finally, although the logic of the dam may be rationalised, it still needs to be constructed. How is the dam sold to the population and where will the government get the finance for the dam from. An eminent hydropower expert states provocatively that there is no economic-financial argument behind the dam (interview hydropower expert, London 11-8-2011). Getting the money together will, then, prove quite the challenge for Meles Zenawi and his colleagues.

Chapter 6 Building the Grand Dam on the Nile

The global financial architecture of hydro-finance has changed significantly over the last decade, leading to novel ways of financing hydropower projects. This chapter argues that the Grand dam will be built not in spite of, but because of the adverse geopolitics of the Nile, raising domestic finance and enrolling the population in the project in the process.

6.1 An atypical dam

The economic and social argument for the Grand Ethiopian Renaissance Dam (hereafter, Grand Dam) remains shaky, even though the government has rationalised the project internally by virtue of the electricity it will provide, and the subsequent development the country will experience. The costs, which stand at $4.8 billion for an installed capacity of 5250 MW, are significantly higher than the industry average.[161] Moreover, if the majority of the generated electricity is to supply domestic demand, the dam is unlikely to be profitable with current electricity prices.[162]

The Grand Dam is a very atypical dam, according to representatives of the hydropower industry (interview hydropower expert, London 11-8-2011). Usually, a large dam has a decade-long heritage of plans, feasibility studies, designs and debate before the construction starts.[163] The Grand Dam in its current form, in contrast, appears to have been conceived of only in the second half of 2010, while construction started in early 2011 (interview utility official, Addis Ababa 6-4-2011). It is hardly surprising that many experts question the appropriateness of the project.

The design that was leaked suggests a civil engineering point of view rather than a well thought-out hydraulic scheme (EEPCo & Salini Costruttori 2011), evidence of the lack of studies and absence of technical contestation, as well as the rush in which the project has been

[161] As a rule of thumb, a 1000 MW hydropower plant should not cost more than $1 billion. Although the Grand Dam seems to make this at first sight, the total productivity is much less than 5250 MW with the low plant load factor of 31% (interview hydropower expert, London 11-8-2011).

[162] Electricity and gas are subsidised for many users in an attempt to make energy affordable for poor households. One top of that, tariff collection rates are very low, meaning that many utilities operate below cost-recovery level. (Kebede 2006). Raising the tariffs is not a viable political strategy. Moreover, a large proportion of the population would struggle with the ability to pay.

[163] Generally, the hydropower industry is not most critical of any dam development. However, in contrast to many previous experiences, the secrecy around the project and the sudden announcement make this project different. While the extended period of planning is often seen as problematic by the owner of the project, the design and plans do get optimised over this period of time. Because the Grand Dam missed this period of time, some wonder whether the design will be as good.

pushed through.[164] 'There is no economic argument for the dam', argues the head of one of the leading hydropower industry-wide organisations. Instead 'all I see is a deep determination to change the Nile Game that goes beyond any financial argument' (interview hydropower expert, London 11-8-2011). Perhaps the logic for this dam is, then, not economical but geopolitical.

However, in order for the dam to be actually constructed, more than a deep determination and internal rationalisation is required: at the end of the day the contractors, materials, and employees need to be paid and someone will have to foot the bill. In his commencement speech, Prime Minister Meles Zenawi dedicated 'every ounce of [Ethiopia's] strength and every dime of money […] to complete [the] programme' (Zenawi, 2011: 6), but it is doubtful that this is enough to raise the required $4.8 billion – which is more than two-thirds of the entire federal government budget in 2012.[165] It is also uncertain how an investment of this order of magnitude will be explained to the population, which is generally very poor.

The research question of this chapter is how will the Grand Dam be realised in this adverse geopolitical setting? What processes and actors will make the finance available, how will the government ultimately pay for the dam, and how will it convince the population of the dam's merit, if at all? I focus on the geopolitical window of opportunity of the first half of 2011 during which the project was announced, the changing global architecture of hydro-finance, and the enrolment of the population in the project. The findings contribute to the discussion of how the dam creates new governable spaces in the Nile basin.

6.2 Zenawi's geopolitical opportunism

The news of the Grand Dam was leaked to the press for the first time at a geopolitically opportune moment. When the newspaper *Addis Fortune* reported on "Project X" on 7 February

[164] The early design is not very detailed so this may still change. However, Salini Costruttori, the main contractor, is a civil engineering firm that has to subcontract others for the hydraulic works (interview hydropower expert, London 11-8-2011).

[165] The entire government budget in the 2012 fiscal year (2004 on the Ethiopian calendar), has been $6.9 billion, according to official sources, excluding donor support but including debt servicing (Federal Negarit Gazeta 2012).

2011 (Addis Fortune 2011), the two downstream Nile basin states were in turmoil. Former President Hosni Mubarak of Egypt was ousted from office in the same week, after an unprecedented popular uprising in his country. At the same time, Sudan was about to split into two after the South voted convincingly to secede in the January referendum. With both countries that traditionally oppose Ethiopian water development occupied with their own business, the decision to push the dam through in the Spring of 2011 hardly seems coincidental.

The Ethiopian leadership has been well-aware of the long-standing opposition of the downstream states against the construction of dams in the upper Nile. Previous, smaller water developments such as the Tana-Beles project or the Tekeze Dam, were condemned by the Egyptian popular press and leadership alike. According to Egypt News, the recently completed hydraulic structures in Ethiopia were aimed to provoke its anger and cause Egypt to take swift diplomatic action (Egypt News 2010). Proposing a dam the size of the Grand Dam was sure to meet significant opposition.[166]

Until 2011, the political, economic, and military *status quo* favoured the downstream states. They derived part of their power from the two legal frameworks, dating from 1929 and 1959, that characterised the governmentality of the river. The former was signed by Egypt and Great Britain, who ruled Sudan at the time, and divided the flow of the Nile among these two states. The latter merely reinforced this arrangement. The Nile Waters Agreement (NWA), as it is called, allocated 18.5 km^3 to Sudan and 55.5 km^3 to Egypt, out of a total estimated river flow of 84 km^3 at Aswan. It was projected that ten km^3 would evaporate once the High Aswan Dam was completed in 1971 (Waterbury 1979).

Ethiopia and the other upstream Nile basin states were not included in the agreement and not allocated any water. The legitimacy of the Nile Waters Agreement has therefore been questioned, but according to Nicol and Cascão the document from 1959 'has remained the single largest piece of hydro-political furniture in the basin to this day' (2011: 319). Even though

[166] There is a large difference between the nature of the Tana-Beles project and the Grand Dam. While the former is a run-of-the-river hydropower plant, the Grand Dam will actually compound water and will have a more serious impact on the hydrology.

Ethiopia has not formally recognised the agreement and would under international law not be prevented from developing its water resources, the document cemented the *status quo* and has a strong influence nonetheless, partly because its status has been reinforced by powerful actors and international (financial) actors. [167]

In the 1990s, however, there appeared to be a *rapprochement* between the Nile basin states when two cooperation initiatives were initiated more or less simultaneously. On the one hand, there was the desire to build a new Comprehensive Framework Agreement (CFA), whose negotiations had started in 1997. The CFA process sought to ratify a more inclusive legal framework to replace the 1929 and the 1959 documents. On the other hand, the Nile Basin Initiative was founded in 1999 and was an attempt to coordinate donor efforts and to identify joint investment projects among the riparian states.[168] The implicit goal of both initiatives has been to build trust among the riparian states.[169]

The NBI materialised quickly and two subsidiary offices were founded for the sub-basins, one of which – the Eastern Nile Technical Regional Office (ENTRO) – is mandated to govern the Blue Nile.[170] The CFA process proceeded more slowly but, in 2007, after ten years

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[167] Egypt's position on the Nile has always been supported by the US, because they see Egypt as an ally to achieve stability in the Middle East (Erlich 2002). The US is, of course, the most powerful actor within the World Bank and the largest development lender has, therefore, been hesitant to contradict these agreements and work on projects that could compromise the *status quo.*

[168] The mission of the NBI has been carried by the World Bank, who manages a donor trust fund and coordinates with civil society.

[169] The two-track approach follows the shared vision, shared action philosophy, which dictates that the states need to agree on the smaller things before the delicate issues can be discussed. While the CFA negotiations work towards a shared vision for the basin, the NBI realises relatively small projects for shared action.

[170] ENTRO is the executive arm of the Eastern Nile Subsidiary Action Programme of the NBI, which is driven by the shared vision: 'to achieve sustainable socio-economic development through the equitable utilisation and benefit from the common Nile Basin water resources' (NBI 2011). According to its director, the main goal is to have water professionals from the three countries working together in order to build confidence (interview ENTRO official, Addis Ababa 18-4-2011).

of legal-technical negotiations, a draft was on the table. The riparians agreed on all but one sub-article (14b), which concerned historical water rights.[171]

Negotiations on this sub-article continued for nearly two years, but during a meeting in Sharm el-Sheik in 2010, the bloc of upstream countries confronted Egypt and Sudan and argued that it could wait no longer (interview government consultant, Addis Ababa 25-4-2011). The existing agreement, with article 14b annexed, would open for signature on 14 May 2010 and five states, Ethiopia, Tanzania, Rwanda, Uganda and Kenya signed immediately. It was agreed by all at the beginning of the negotiations that a two-thirds majority for the CFA was required to transform the NBI into a more permanent Nile Basin Commission, a vehicle for donor funding, which would have more authority and could concern itself with water allocations too in the long run.

In February 2011, Burundi signed the CFA as the sixth state, paving the way for the formation of the Commission.[172] Clearly, the "Nile Game", as the geopolitics is often referred to, is changing. The dispute between Ethiopia versus Egypt and Sudan was still standing, but the progress in the CFA process gave the country authority to take control over more of its water resources. (Mekonnen 2010)

At roughly the same time, in January 2011, Sudan successfully organised a referendum on the secession of the southern part, envisioned by the 2005 peace agreement.[173] The vote of 99 per cent that supported secession meant that the Nile would get one more upstream riparian that

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[171] The official text of article 14 is: 'Nile Basin States recognise the vital importance of water security to each of them. The States also recognise that cooperative management and development of the waters of the Nile River system will facilitate achievement of water security and other benefits. Nile Basin States therefore agree, in a spirit of cooperation, (a) to work together to ensure that all States achieve and sustain water security. (b) not to significantly affect the water security of any other Nile Basin State' (Mekonnen 2010). All states agreed except Egypt and Sudan, who proposed to replace (b) with 'not to adversely affect the water security and current uses and rights of other Nile Basin States' (Wikileaks 2011). However, the upstream states feel that the language of current uses and rights, in effect, enshrines the 1929 and 1959 agreements in the CFA.

[172] The Nile Basin Commission can be established once all six states have ratified the agreements in their respective parliaments too.

[173] The referendum was one of the resolutions of the civil conflict between the Islamist North and the Christian and Animist South that lasted between 1983 and 2005. The resolution was encouraged by the Intergovernmental Authority on Development (IGAD), a regional body that included Ethiopia, and dubbed the Comprehensive Peace Agreement.

is likely to challenge the validity of the 1959 *status quo*.[174] Moreover, the ensuing struggles over the border question, the country's oil fields, and other governmental issues would keep both the Khartoum and the Juba leaderships occupied with their own business.

The third geopolitical process at the time was the revolution in Egypt, which was in full force in the first week in February. General discontent with the authoritarian Mubarak regime was exacerbated by grievances over police brutality, lack of free elections and freedom of speech, and the state of emergency laws. On the 11th of February, it was announced that Mubarak would step down and that elections would be organised a year later.[175] This provided an opportunity for Ethiopian Prime Minister Meles Zenawi and other upstream leaders for two reasons.

Firstly, President Mubarak and his Vice President Omar Suleiman were said to have been unapproachable on the Nile issue during the latter days of the CFA negotiations. Some involved in the negotiations have said, in private, that Egyptian negotiators were ready to come to an agreement with the upstream bloc, but that the green light from the top had been missing (interview anonymous, 21-5-2011). The regime had become lethargic over the Nile issue in the last years. A change in leadership could open new opportunities for cooperation. Secondly, at the moment the new Egyptian leadership had its own business to take care of, rather confronting Ethiopia over the Nile.

Zenawi must have seen a window of opportunity to create "facts on the ground" while the cooperation process was turning in favour of the upstream bloc, and Sudan and Egypt were occupied with domestic issues.[176] The announcement of the Grand Dam has been well-timed,

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[174] While it is located on the White Nile River, its territory has a large irrigation potential and an agriculture-driven economy. South Sudan does not utilise much of its water resources at the moment but this could change with the influx of development aid in the coming years (Verhoeven 2011).

[175] A full timeline of the events during the Egyptian revolution has been well documented by Al Jazeera (2011).

[176] "Facts on the ground" is a diplomatic term for creating realities while waiting for a new legal regime. Future negotiations will have to take the Grand Dam as a given that is non-negotiable rather than the subject of negotiations. Through constructions like this the country hopes to improve its starting position. The Egyptians have been accused of doing the same with large irrigation projects in the desert such as Toshka (Waterbury & Whittington 1998)

but the intention to initiate a large project must have been there for a while and the dam is not a spur-of-the-moment thing. As one director within the Ministry of Water and Energy comments: 'one cannot propose a project in just three weeks' (interview government official, 26-4-2011). Nonetheless, the geopolitical developments may have accelerated the Ethiopian plans.

However, there is another process that may have motivated the Ethiopians to pursue the project unilaterally. ENTRO, the subsidiary office of the Nile Basin Initiative, has been exploring the opportunities for the construction of a set of hydropower projects on the Blue Nile. Egypt, Sudan, and Ethiopia were equally involved and would share both the costs and the benefits.[177] Well-endowed with development aid, ENTRO has carried out four Norwegian-funded (pre-) feasibility studies of different dams on the Blue Nile River (interview diplomat, Addis Ababa, 21-4-2011).

Phase one of what is called the Joint Multi-Purpose Project (JMP-1) is to identify the order in which the four dams should be build in order to minimise downstream impacts while optimising energy production. The Grand Dam itself is not in the ENTRO plans, although its location is close to one of the four options. The plans for this cascade have progressed beyond the studies phase, but it seems that the Grand Dam is a wholly unilateral project that has been superimposed on the ENTRO cascade, without any discussion with the multilateral body.[178]

A director of the Ministry of Water and Energy explains:

> Ethiopia's idea was to develop sites [for hydropower dams] together with the downstream states. When we started identifying sites in 2000, everyone was very hopeful. All proposals were taken to the cooperation platform. But this process has been terribly slow, while electricity demand has been increasing rapidly […]. Egypt has been slowing everything down and finally, Egypt rejected all studies (interview government official, Addis Ababa 26-4-2011).

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[177] This plan was conceived of by the Nile Basin Initiative as part of a broader confidence building programme. The idea to build a dam "together" to share the benefits aligns with the World Bank-driven philosophy of "benefit sharing" (Sadoff & Grey 2002).

[178] The (Sudanese) director of ENTRO argues that the public announcement on the 2nd of April was the first time he heard of the Grand Dam. During my interview only a couple of weeks later he was unsure about the future position of ENTRO, although logically the cascade is less sensible now (interview ENTRO official, 18-4-2011).

Although the other achievements of ENTRO are promising, multilateral hydraulic development is evidently a much slower process than unilateral decision-making. This is acknowledged by ENTRO's former director, who concurs: 'ENTRO is sometimes rather slow and does not address the urgency of Ethiopia' (interview water consultant, Addis Ababa 8-4-2011). The Grand Dam has been the way out of this slow process for the Ethiopians and accelerated efforts to achieve their goals.

The fact that Ethiopia chose the unilateral Grand Dam, rather than the multilateral ENTRO cascade does not mean that it is not seeking outside support. It has repeatedly invited Egypt and Sudan to participate in the construction, where "participating" means "sharing the costs". Cooperation is still welcomed, but only on Ethiopian terms and only if it does not interfere with the Ethiopian logic for water development.[179]

The geopolitical context is one of the factors that enables the construction of the Grand Dam. The unrest and political changes in the Nile basin are not the main drivers of the dam, of course, because the logic is also defined by the politics and power relations of Ethiopia. However, the timing of the announcement is a good indicator of Zenawi's hawkishness in foreign policy – an outstanding example of "geopolitical entrepreneurism". Or, in other words, the changing politics of the basin provided a new and unprecedented opportunity to embark on a large and controversial project. An additional, yet crucial, part of the changing setting has been the changing geopolitics of hydro-finance.

6.3 Geopolitics of hydro-finance

A defining feature of the launch of the Grand Dam is the apparent urgency of the project. The lack of a long heritage of studies, analyses and discussion makes mobilising the required finance for the dam a problem.[180] Yet two changes in the geopolitics of hydro-finance may aid

[179] In many ways, this is similar to Egypt's position in the past. Perhaps regional cooperation ultimately always reflects and reinforces the balance of power in the basin.

[180] The apparent urgency does not correspond with the traditional time frames of obtaining finance, which are in the order of years.

Ethiopia in obtaining the finance: the interests of new global actors in development finance for dams, and the nature of electricity as an exportable commodity.

According to one Ethiopian diplomat, the urgency of the dam comes from a 'remorse for lost time' (interview diplomat, London 10-5-2011). There is the strong belief in Ethiopian government circles that decades have been wasted by civil war, military oppression, and internal scheming rather than spent on the development of the country. As a result, Ethiopia lags far behind its neighbours in terms of economic development, and social and political emancipation, and lost the leading role in Africa it used to have.[181]

But the urgency, he argues, is a positive thing: 'now the Ethiopian Renaissance has arrived and the population and government are doing everything they can to achieve rapid and solid growth' (interview diplomat, London 10-5-2011). This sentiment requires the leadership to proceed quickly with the project, in contrast to the notoriously slow start-up time dam-development usually has. However, obtaining finance from global (development) capital markets is difficult because of the mismatch in time-scales between development capital markets and the urgency of the government.

Prime Minister Meles Zenawi said in his opening speech that he had been looking for external funding but that all efforts have been unsuccessful.[182] However, the comments of the ambassador are more likely to reflect the mood among the Ethiopian elites: 'Ethiopia no longer wants to wait for external actors and financial support if it is tied to conditions we do not like' (interview diplomat, London 10-5-2011).

Given this challenge, Ethiopians have two options, according to Zenawi:

> Either to abandon the project or to do whatever we must to raise the required funds. I have no doubt which of these difficult choices the Ethiopian people will make. No matter how poor we

[181] This "leading role" refers to a number of decades ago, when the emperor himself was involved in establishing the African Union (which has its secretariat in Addis Ababa, nonetheless). However, although Ethiopia is one of the few states that has not been colonised, the leading role is mostly a discursive construction.

[182] One is excused for wondering how serious the search for outside funding really has been, given the uniquely brief time period and the contrast with international development discourses that produce an image of Ethiopia's untapped potential.

> are, in the Ethiopian traditions of resolve the Ethiopian people will pay any sacrifice (Zenawi 2011: 4).

There are still different ways to raise the required funds. Some of these, however, will depend on the choice of (sub-) contractor and type of contract. It is common practice in the hydropower industry that the firms involved in the construction of the dam will do their best to help raise part of the money (Trouille & Head 2008).

The energy sector in Ethiopia is still entirely state-controlled and correspondingly opaque in its financial administration. As a result, private operators or even public-private partnerships for the operation of the Grand Dam were not viable options. Instead, the government has chosen to award an EPC-contract for the Grand Dam to Salini Costruttori, an Italian firm with a controversial track record.[183] EPC means that Salini will be in charge of the Engineering, Procurement, and Contracting and deliver the project to the Ethiopian Electric Power Company (EEPCo) only when the hydropower station is ready to start producing electricity.[184]

The EPC-contract puts most of the financial risk with Salini rather than with the government in exchange for a lump sum of $4.8 billion. This is politically attractive for the Zenawi government, because the total amount of money that needs to be raised is known in advance.[185]

Although, the finance of the dam is shrouded in mystery, one keen observer says that the ability of the government to self-finance the Tana-Beles, Tekeze, and Gilgel Gibe-III projects has also been questioned before completion, but each time the government managed to surprise its critics. 'There is something particular about the Ethiopian case that defies

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[183] A critical report on Salini's activities in Africa has been funded by the European Union and was published by *International Rivers* see Campagna per la Riforma della Banca Mondiale (2008). Their study shows how energy can be a joint business for an undemocratic political elite and a western corporations. Democratic deficits in western governments ultimately support these capitalist complexes, which may have adverse consequences for human development.

[184] This in contrast to more traditional forms of contracting where the owner of the project, the government, remains responsible for the contracting and procurement.

[185] The obvious disadvantage is that the cost of the risk will probably be included in the quoted price. Officials from the World Bank critiqued EEPCo for this choice at a public forum (Hydropower for Sustainable Development Conference, Addis Ababa 31-3-2011).

conventional models of hydro-finance. It would not surprise me if they were to pull [building the Grand Dam] off again' (interview anonymous, Addis Ababa 19-4-2011).

6.3.1 The changing financial architecture of development

There has been limited interest from multilateral development banks to finance the Grand Dam or any other large-scale water projects in Ethiopia. This appears to stand in shrill contrast to official policy documents of the World Bank and similar institutions, who loudly praise the opportunities in the country's enormous hydropower potential (Foster & Morella 2010). However, it is not surprising in light of the way in which large projects are pursued by the government. The planning and procurement procedures often fail to meet international standards, while the "urgency" cited by the government does not directly concern investors.

Out of all the hydropower projects completed during the last decade, only the Gilgel Gibe-I dam on the Omo River, essentially the first in the country's dam boom, has been financed by multilateral loans. The World Bank committed a $200 million soft loan and the European Investment Bank a package of €80 million. Although the dam has not been uncontroversial, the project was completed a little over time and rated as moderately successful in the World Bank's evaluation (interview World Bank official, Addis Ababa 19-4-2011).

However, Miheret Debebe, CEO of EEPCo, complained during a public forum that the plethora of rules and regulations of multilateral finance institutions has led to cost and time-overruns, as well as management structures that are too complex (Hydropower for Sustainable Development Conference, Addis Ababa 31-3-2011). He clearly prefers alternative sources of funding.

According to a World Bank official, there is no definite reason for them not funding more hydropower projects; 'it just had not worked out'. The reason, he argues, is that the World Bank has certain requirements, standards and policies that need to be met in letter and spirit before the project commences. These are no longer the political conditionalities of the 1980s, but rather best practices in planning and building a large infrastructure project. This has been hard to reconcile with the urgency the government has demonstrated.

He explains:

> Let us say that A is a set of conditions and B is the project. The Bank requires A before B. The government wants to do B as soon as possible and considers doing A before B an unwelcome delay. In fact, the government prefers to do A and B at the same time. On top of that, the government does not have to follow A if it can get funding from other sources. The success of the project is no longer dependent on the Bank (interview World Bank official, Addis Ababa 19-4-2011).

One of the least strict conditions under A is the completion of sufficient studies to justify the dam, but the government plans to do these alongside construction.[186] This questions the government strategy further: not only would it make sense to study the site before planning a dam, it would also open many doors for funding. Apparently Zenawi *cum suis* have a good reason not to want the multilateral funding.[187]

Apart from best practices in planning and contracting, the conditions seek a certain social and environmental standard, and of course a positive cost-benefit analysis to ensure that sufficient capital will be generated by the dam to repay the loans. However, it also requires the notification of downstream states, if the dam is to impact the river flow.

Downstream concerns used to be a good reason to prevent the World Bank from lending upstream countries funds for hydraulic projects, following Operational Directive 7.50 on shared basins.[188] However, since the NBI has gathered steam, there have been plenty of ways to circumvent this requirement. Lower levels of agreement that are easier to achieve are needed instead (Nicol & Cascão 2011a). Nonetheless, downstream concerns would have been taken seriously. To the Ethiopians, this would be sub-optimal, because they were hoping to push the project through before its logic could be contested by any downstream state.[189]

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[186] This has not been done for the Grand Dam, because of the alleged urgency of the project (interview utility official, Addis Ababa 8-4-2011).
[187] This inference is based on gossip in diplomatic circles and cannot be substantiated.
[188] Elements of this directive include: no appreciable harm by bank-funded projects, obligation to notify other riparians, independent expert opinion sought in case of negative response from other riparians.
[189] Furthermore, because the World Bank was also funding the studies of ENTRO, it would have been unlikely that they would have financed a dam that would be superimpose on the site of the studied cascade.

As an alternative source of funding, Salini managed to bring in bilateral finance to support its contracts in the past. The Italian government provided an unprecedented €220 million aid credit line for the Gilgel Gibe-II project, a move regarded as highly controversial (interview diplomat, Addis Ababa 13-4-2011). The loan, which enabled the project, was condemned by observers because it would further indebt Ethiopia and because the energy was generated for export markets rather than for the local population. It is doubtful that the project would qualify for poverty reduction aid.[190]

Most controversially, the contract was awarded without competitive bid to Salini itself, an Italian company, so the case reeked of corruption. The Prosecutor's Office in Rome started an investigation in 2006, but although the Italian law for development aid has changed in response, no one has been held to account (Hathaway 2008; Campagna per la Riforma della Banca Mondiale 2008).

In essence, Chinese support for hydraulic projects is not very different, but in this case there is little pressure from Brussels or elsewhere for more transparency. Sinohydro is a hydraulic engineering company that is the main competitor of Salini in the Ethiopian hydropower market. It is a Chinese state-owned firm and allegedly the largest dam-builder in the world; its main strength is that many of its projects are underwritten by Chinese finance (interview Sinohydro official, Addis Ababa 5-4-2011).

The Tekeze dam, Sinohydro's first major project in Ethiopia was officially funded by domestic Ethiopian sources. However, the Chinese Exim bank was involved by underwriting the risks, without which no dam-builder would have been likely to step in (interview Sinohydro official, Addis Ababa 5-4-2011). Moreover, although completely separated from the dam on paper, the Chinese government did provide a $300 million aid package for the construction of a set of roads around Addis Ababa, to be constructed by Sinohydro too (interview Sinohydro official, Addis Ababa 5-4-2011). With opaque financial constructions it is hard to trace the connections between Chinese government support and the awarding of major contracts to

[190] Poverty reduction aid is development assistance aimed at the poorest groups in society. This loan, in contrast would benefit the upper and middle classes with electricity provision.

Chinese firms. However, past experience and circumstantial evidence suggest that these connections are very close.

However, Sinohydro and the Chinese government appeared to have less interest in financing the Grand Dam. Some explain this by the major business interests of Sinohydro in Sudan, right downstream on the Nile River (interview hydropower expert, London 11-8-2011). Its representative to Ethiopia acknowledges this fact but also states that while Sinohydro is not the main contractor they may still work on the Grand Dam (interview Sinohydro official, Addis Ababa 5-4-2011). Indeed, the Economist claimed that the Chinese Exim Bank will underwrite the costs of turbines and hydro-electrical infrastructure (Economist 2011a).[191]

So although the government can still claim that it is paying for the dam from its own pockets, the Chinese trade bank plays a crucial role in making the project possible. The Chinese actors are changing the global financial architecture of dams and hydropower. This happens elsewhere too, as other research suggests (Bosshard 2010; Moore & Dore 2010; Verhoeven 2011) Multilateral banks are no longer leading, because their conditions make their offers unattractive for host countries.

A consequence of this is that developing countries are increasingly dropping their standards of planning and procurement, evidence of which we see in the Grand Dam. Political choices for dam constructors are made, based on negotiations and access to capital, rather than on competitive bids.[192] External hydro-finance may align the business interest of global construction firms with the interest of the national elites and certain development capital markets. The outcome of this process for development, and in effect the entire way the dams are constructed, becomes all the more uncertain.

With parts of the costs of the Grand Dam now underwritten by Chinese banks, the government still faces a huge gap in finance it claims to cover from domestic sources alone.

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[191] Typically, this is 40 per cent of the total costs of the dam (interview hydropower expert, London 11-8-2011).

[192] These choices are, hardly surprising, intimately linked to the geopolitics of the dam and river and not only based on socio-economic considerations.

6.3.2 Self-financing the Grand Dam

The vast majority of dams in Ethiopia have been funded from the government budget or financed by alternative sources of state funding (interview government official, Addis Ababa 20-4-2011). In fact, 26 per cent of the 2011-2012 budget has been dedicated to infrastructure. Water development is expected to make up a large chunk of this expense totalling $1.6 billion, according to newspaper reports (New African 2011).[193] This is a considerable portion that cannot be spent on other posts, such as education or healthcare. Government officials argue that it amounts to so much because downstream states have obstructed multilateral financial assistance. We have observed above, however, that there are sets of domestic political practices that obstruct access to international development capital markets instead.

'The government has no illusions that the Nile project will be financed from the outside', said one senior official of the Ministry of Water and Energy, 'it is clear that Egypt does not allow this. We have always understood that the project must be financed by ourselves' (interview government official, Addis Ababa 26-4-2011). Apart from the budget directly or tax surcharges, there are four distinct financial mechanisms to raise money from domestic sources.

Central to the government's plans from the start have been the Grand Renaissance bonds.[194] These are birr-denominated corporate bonds issued by EEPCo of uniquely small amounts, starting at the equivalent of $20. This is part of an attempt of the government to reach the relatively poor population and is both a way to raise funds and to cultivate a culture of saving among the population (interview diplomat, London 10-5-2011). The government has promised an interest rate of 4, 4.5 and 5 per cent respectively for bonds with a maturity time of 5, 7, and 10 years (Grand Millennium Dam 2011).

A version of the corporate bond is available for the sizable diaspora too. Remittances during the 2009-2010 financial year reached $1.5 billion, so the population of Ethiopians living

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[193] The actual budget is not publicly available, so the newspaper probably reports on the basis of government instructions.

[194] This strategy is common in the western world, although the government-backed bonds are sold there based on their financial merit as save investment options (Kjaerland 2007).

abroad has rightly been identified as a major possible source of finance. Moreover, the diaspora can buy the bonds only in pounds sterling, dollar, or euro: the desperately-needed foreign currency to pay the contractors for the dam (Plaza 2011). It has been argued that the motivation to buy the bonds has been more patriotic than financial, because the economics behind the bond have been questioned (Economist Intelligence Unit 2011).

Secondly, the state-control over the country's entire economy can raise more funds. An Ethiopian diplomat explains that the country's parastatals are structured like corporations with a profit-motive, but the profit is redirected into the development projects of the state. This model of developmentalism has been successful in other contexts, notably East Asia, but the intransparency of the sectors involved, telecom, utilities, and agriculture, makes it questionable how much can actually be raised this way. Certain projects, argues the diplomat, are difficult to fund with tax payers' money directly, but redirection of financial flows within the state apparatus are less contentious. Moreover, this approach is also less transparent, of course, although the Ethiopian calls this practice 'making the best use of the resources available' (interview diplomat, London 10-5-2011).

Thirdly, the government's control also extends over the financial sector of Addis Ababa. Although state interference with the country's capital markets has been critiqued by the International Monetary Fund (IMF), it has also been proposed that maintaining macro-economic stability through tight state control may be optimal in a second-best world, even if it comes at a significant cost of efficiency in the financial system (Addison & Gedu 2001). However, the main threat is that the government's control exceeds maintaining stability and uses the nominally-independent financial sector as an investment vehicle.

This worrying trend has been observed after the announcement of the Grand Dam. Newspapers reported that the Prime Minister's Office had made a "patriotic request" to all commercial banks in the country to invest 27 per cent of their portfolios in the government bonds that had been issued (Reporter 2011: p.3; 6 April). This has been confirmed by officials in Ethiopia's World Bank office, who note that this practice was not uncommon in Zenawi's Ethiopia (interview official World Bank, Addis Ababa 19-4-2011).

Although banks neither have a legal obligation to follow the Prime Minister's investment advice, nor a direct economic incentive, they are likely to support the project. A Prime Minister's request is not really different from coercion, because in the economic *status quo* the existence of the banks depends on the goodwill of the government.[195] Officials at EEPCo confirm that much finance for previous hydraulic projects has been raised this way, either through investments of national banks in the projects, or by cheap loans the government tends to get from its banks (interview utility official, 11-4-2011).

Finally, the country's status as an "aid darling" secures a large influx of money into Ethiopia. It is the world's second largest recipient of development aid, after Afghanistan, and the largest beneficiary of British development programmes. The total of grants and soft loans reached almost $3 billion per year, according to a report of different donors (DAG 2009), which equates to half the government budget. Although most development programmes commit their funds to certain sectors and projects aid, like any financial flow, is fungible. This means that for every dollar donors commit to, for instance, healthcare, the government can "free up" a dollar to spend on the dam. Although the practice is frowned upon by the donor community, Zenawi's government is well known to optimise the available funds (interview diplomat, Addis Ababa 26-4-2011).[196]

When approximately 70 per cent of the dam has been completed, some of the hydropower turbines can start functioning to generate electricity and revenues to pay for the remainder of the dam, experts estimate. It is, therefore, also for financial reasons in the government's interest to proceed as quickly as possible with the construction (interview hydropower expert, London 11-8-2011).

In theory, the financial instruments listed in this section would allow the government to raise sufficient finance from domestic resources. However, although the construction of the dam

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[195] The state is the regulator of the financial sector and can use this power to hand out or withdraw permits, or to obstruct banks in other ways.

[196] The Ethiopian ambassador made no secret of this practice and called it 'making the best use of the resources available' (interview diplomat, London 28-5-2011).

may be enabled, there are a number of disadvantages. Mobilising the resources depends on a top-down control, as well as coercion in places like the financial sector. Because of the absence of any real contestation of the plans for the dam, this could give the elites perverse incentives to build the dam regardless of the benefits.

The intransparency is problematic for investors and, therefore, not a sustainable way to raise finance. The macro-economic risks are significant too, if the project collapses and both banks and bond-holders lose their money, the economy would get an enormous hit.[197] Top-down ways to direct the economy have not worked well in the past, as Ethiopia witnessed under the Derg, but Zenawi's developmentalism risks overshooting its goal by focusing too much on this single project. There is one other risk with the current strategy of financing the dam: raising the finance may enable construction, but there will still be bills to pay at the end of the day.

6.3.3 But who will ultimately pay?

Indeed, raising finance is only part of the equation, because it does not equate "paying for". Many of the financial tools listed above require the government to repay the funds over time. The government bonds have a maturity period of five to ten years and the commercial banks of Ethiopia will want their investments back in due course too. On average, commercially-viable hydropower projects have a cost-recovery period of more than twenty years which is at odds with the Ethiopian plans (Plummer 2008).[198]

The economic logic – i.e. sum of benefits minus the total costs – is not the same the availability of finance. In the discussion above the political nature of hydro-finance is such that the government may be able to raise the funds while there is no economic viability. Paying back the loans and the bonds will, then, prove a huge challenge.

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[197] If, for instance, not enough finance is raised for the entire project but some funds have been spent on the first stages of construction. In that case the government will be unable to repay the bonds and bank loans.

[198] However, dams do not need to have an economic logic per se, as electricity provision can be seen as a task of the state. In fact, many dams have only been financially viable after large government subsidies (Reisner 1986).

The formal rationale behind the construction of the dam is the rise in domestic energy demands and the idea that "development" is impossible without adequate electricity supply. However, domestic energy demand is not sufficiently profitable to repay the debts the Ethiopian state incurs through the dam. While demand is certainly rising, subsidies and state control over the energy sector prevent the accumulation of capital. Moreover, the population is generally too poor to pay tariffs that would warrant cost-recovery of the Grand Dam. There are also no sufficiently large industries in Ethiopia that require the kind of electricity produced by the new hydroelectric station.[199]

Instead, foreign currency can be raised by exporting the electricity the hydro-electric power station below the dam produces. Indeed, energy is increasingly seen as an exportable commodity, in particular for countries with large hydropower potential, because the production costs are assumed to be lower than alternative energy sources. Ethiopia's neighbouring states, which are not so well endowed with hydropower potential, have large and growing energy demands (Verhoeven 2011). Importing electricity is a rational strategy for them: they will not run the financial and environmental risks of building power plants themselves and can buy exactly the amount of electricity required. In turn, the tariffs charged to the likes of Kenya, Sudan, and Djibouti are much higher than for domestic consumption because they are, obviously, not subsidised by the Ethiopian state.

This gives EEPCO, Ethiopia's only energy utility a rather perverse incentive. Under great pressure to repay the creditors the utility is more likely to export than to serve the Ethiopian population. In fact, the export potential has even been highlighted as one of the factors that make the project financially viable (interview utility official, Addis Ababa 25-4-2011).

The rationale of energy exports is supported by International Financial Institutions, who have been financing cross-border transmission lines. The World Bank financed a $41 million transmission line to connect Ethiopia and Sudan (interview World Bank official, Addis Ababa

[199] Although the GTP envisions a number of large industries to emerge in the next decade which could take on this role.

19-4-2011). A similar project connects the future dam with Kenya, and transmission lines to Somaliland and under-seas to Yemen are being scheduled (interview utility official, Addis Ababa 25-4-2011). While institutions like the World Bank and foreign donors do not condone the Grand Dam itself (interview World Bank official, Addis Ababa 19-4-2011, they – perhaps unwillingly – support its existence by making the project financially viable through enabling exports.

Moreover, there are larger plans for an East African Power Pool (EAPP), which pools and trades a range of different energy sources. This regional organisation is situated in Addis Ababa and members include Rwanda, Burundi, DRC, Tanzania, Kenya, Ethiopia, Sudan, Egypt and Libya. During a conference for hydropower in Africa, the head of its secretariat Jasper Oduor, even spoke of the ambition to connect Ethiopia's dam to consumers in South Africa in the future (Hydropower for Sustainable Development Conference, Addis Ababa 31-3-2011).

While the level of ambition itself is to be lauded, there are some fundamental flaws with the reasoning behind the East African Power Pool at the moment. Firstly, while it takes the Scandinavian power pool as a model, the sources are not as diverse as there. When the Grand Dam is completed, the electricity base will be over-reliant on hydropower, which is risky because of its seasonality (interview energy consultant, Addis Ababa 5-4-2011). Moreover, many of the member states fail to adequately address their domestic energy demands and successful implementation of the power pool may give the perverse incentives described above.

This is exactly the contradiction of the realisation of the Grand Dam. While the logic is supposed to gather support by emphasising economic development and the eradication of poverty, a significant proportion of the produced energy needs to be exported in order to repay the financiers. For the regime, it is a choice between Scylla and Charybdis. Either it keeps to its promises to supply the country with energy but will be unable to repay the population's bonds, or it will repay the costs by exporting all energy.[200]

[200] While reality is not as black and white as sketched above, the trade-offs are clear.

This insight makes one wonder what the actual motivations of the regime for the dam have been. There are two suggestions I make. Firstly, the construction of the dam concentrates political power and wealth among a small elite. It is, then, not so much a technology to govern the water as one to govern the population. Secondly, the discussion here of the economic logic ignores the geopolitics of the Nile basin. Perhaps that is where we can find more explanatory power for this atypical dam.

The construction of the dam produces new spaces in the process. Connecting the dam through transmission lines with certain urban and industrial centres in the neighbouring countries, creates a space of energy interdependence that is superimposed on other spaces, such as that of the nation-state of the river basin. While the operation of the Grand Dam will have a serious impact on the river basin space, the *Leitmotif* for its rationale is likely to be found in the energy space.

6.4 Enrolling the population in the project

The dam is not a stand-alone project, but the centre-piece of the Ethiopian Renaissance, invented by the regime. The success of this government programme depends on the participation of the population either through coercion or persuasion. Dean calls this dimension of governmentality "forms of identification" (Dean 1999), but others speak of "subjectivisation" or the "making of subjects" (Rutherford 2007). Given the absence of economic logic behind the dam, and the risk that the Ethiopians will reap little of the actual benefits, obtaining the legitimacy from the population for this dam must have given the government headaches.

Agrawal writes about the making of subjects in the context of Indian forest governance (Agrawal 2005). His argument is that government – or exercising rule in general – is much more effective through persuasion than through coercion, following ideas of governmentality. By addressing the identity of the population directly, the government can direct the conduct of the population, to speak in Foucauldian terms, without the resistance that usually accompanies the exercise of power.

The Grand Dam is different from other dams in Ethiopia or Africa for employing strategies like Agrawal and Foucault described. The citizens are involved in a project that transforms them into "geopolitical subjects". Their involvement has a financial, legitimating, and geopolitical component. By issuing the bonds, EEPCo and the government encourage investment from citizens. The bond itself is widely advertised and receives much attention in national media. However, through the act of buying the bonds, citizens contribute to the project's legitimacy in turn, and become enrolled in a Grand Dam identity.[201]

This happens in spite of the fact that the financial rationale behind the bonds is bad by all standards (interview energy consultant, 5-4-2011). Rudimentary economic analysis shows that the investors in the bond stand to lose part of their money even in the best-case scenarios. While the interest rate is only four or five per cent, the bond is denominated in the Ethiopian currency, which devaluates and depreciates quite rapidly.[202] The CIA Factbook estimate of the 33 per cent inflation rate in 2011 underscores the problems (CIA World Factbook 2012).

Moreover, the risk of the project does not justify the low interest rate. Four or five per cent is a rate one can expect in Eastern Europe or the BRIC countries, but not in Ethiopia, where the recovery from the economic standstill in the 1980s is still fragile. Even South Africa, one the most stable and risk-free African economies, offers eight per cent interest on bonds with a similar maturity period (Trading Economics 2012).[203]

On top of that, the fact that the finance raised through the bond issue is exclusively directed towards the Grand Dam, makes the investment even riskier. There is little chance that the dam can earn back the money in five or ten years, there has been no audit of the process, and

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[201] This works predominantly through financial relations. By buying the bonds, the people literally own part of the dam (in other words, the dam is the collateral for the bond).

[202] This means that the relative value of het birr, compared to the dollar or other foreign currencies, decreases over time, at times quite rapidly (Redda & Belete 2009). When the individual investors will get their money back in five or ten years, the value will be only a fraction of the investment. In turn, the government has to convert it in dollars as soon as possible, because most of the bills of the constructor are payable in dollar.

[203] Moreover, Ethiopia is classified as a "heavily indebted poor country", which receives debt relief. This status further questions its ability to repay these investments (World Bank 2012).

there no open procurement process. It is unclear when the government is planning to repay the bonds or whether it can repay them at all.[204]

One may wonder why people would buy the bonds at all. Feleke, my driver in Addis Ababa, says that the lack of economic logic does not matter because the population now finally has a chance to do something for the country. However circumstantial the comments of a taxi driver may be, they hint at the government's broader strategy – one that aims not just to finance the dam, but also to "enrol" the population in the controversial project. What makes this dam different from previous large-scale, top-down interventions, perhaps, is that the dam is not just an elite pet project, but quite literally partly owned by the population.

6.4.1 Bonds as technologies of government

The government strategy to sell the bonds and enrol the population was first announced in a remarkable way. All mobile phone subscribers to Ethiopian Telecommunication Corporation (ETC) – the only mobile network provider in the country – received a text on the morning of the official announcement of the dam. The text reads:

> The 5250MW Millennium Project on Abay River is launched. Citizens are invited to contribute to the success of the project. Ministry of water and energy & EEPCo (text message 2-4-2011).

Of course, the text itself is analytically interesting for many reasons. There are few examples of a similar state monopoly on knowledge consumption by the population. There are about seven million mobile phones in the country and text messaging is widely used. The intent of the text message suggests that the dam is more than a power plant and the bonds are more than a financial product.

In his commencement speech on the same day as the text, Prime Minister Meles Zenawi also announced the bonds as an integral part of the strategy to complete the Grand Dam. Although it is not the most desirable scenario, he argues that it is a necessary sacrifice because

[204] Perhaps this strategy has not been worked out into detail yet, as the events are very recent, or perhaps the government prefers to keep the repayment schedule obscure.

Sudan and Egypt do not want to share the costs of the project (Zenawi 2011b). The government will raise part of the funds, but

> importantly, the Ethiopian people will also be able to contribute their share in bringing the construction of the historic dam to completion. To enable every Ethiopian to do this, the government has launched treasury bonds offering five per cent interest. Buying these bonds will allow all Ethiopians to benefit from the interest paid, and play their part in the completion of the construction of the Millennium Dam according to their income (Zenawi 2011: 5).

This statement is interesting because it plays into the sentiment that the government is an actor separate from society. Framing the bonds this way – as an opportunity for Ethiopian individuals to help out – is thus an attempt to raise further support.

Both public and private newspapers reiterated the Prime Minister's call for people to buy the bonds. Throughout the month of April the country's largest newspaper the *Ethiopian Herald* had a banner on its front page stating 'support the Ethiopian Renaissance by buying Millennium bonds' (Ethiopian Herald 2011: p.1; 4 April). It seems that a month's salary is the expected contribution of individuals to the project. In the propaganda campaign of the following weeks, every day there were reports in the newspaper of groups in society buying the bonds in great number.[205]

However, during these first few weeks the first negative reports of the bond strategy surfaced. European diplomats received complaints from Ethiopians who were forced to spend a month's salary on the bonds (interview diplomat Addis Ababa, 21-4-2011). Judging from the number of reports and the nature of the government it is not unlikely. Moreover, the privately-owned newspaper Addis Fortune even joked about it in a cartoon (Figure 6.1).

One observer commented that selling the bonds by coercion is essentially not very different from other strategies to finance for the dam: 'the alternative would have been to raise taxes, and then people would lose too' (interview World Bank official, 19-4-2011). The main difference is the broader enrolment programme.

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[205] For instance, a few months after the launch of the bonds, it was reported by a government-backed blog that all civil servants in Ethiopia would spend a month's salary on the purchase of the bonds. This way, 2 billion birr was raised (almost $100 million) (Berhane 2011).

Figure 6.1 Cartoon of the bond strategy of the government. Two civil servants are sitting in the bar. Civil servant one says: 'I contributed 100 per cent of my salary to the dam'. Number two responds: 'a while ago you told me that you did not contribute anything', to which the first civil servant says: 'I know, I just heard it on the Ethiopian Television Network (ETN)'. This cartoon critiques the fact that all civil servants had to contribute to the bonds, even though many did not want or did not even know about the policy. It also shows that not the entire population is enrolled in the Renaissance discourse and that there is some contestation. Source: (Berhane 2011).

Moreover, a special bond has been launched for the Ethiopian diaspora, in an attempt to make them part of the project too. These bonds have been promoted as alternatives for sending money home and seem to have been effective for at least part of the diaspora.[206] Social media is used to a certain extent to further encourage people to buy in.

Whereas using bonds as a method to finance dams and hydropower stations is nothing new, the way they are used in this case is unique. The bond issuers emphasise the patriotic nature of the bonds, rather than the economic benefits and they formulate buying the bonds as if it is a duty of citizens. In fact, the strategy of promoting the bonds looks more like a fund-raiser than an actual bond issue.

It is unclear exactly how much has been raised a year after the launch of the bonds. A news report on one of Ethiopia's largest business news websites, dated 2 February 2012 notes that the sale of Grand Renaissance Dam Bonds has exceeded expectations. It reports that the quarterly report of the Development Bank of Ethiopia suggests that since its initiation bonds

[206] The Ethiopian news website NewsDire reports: 'patriotic Ethiopians and Ethiopian-Americans residing in and around the Metropolitan Area of Washington D.C. launched a triumphant fund raising event by purchasing bonds channelled towards the building of the Grand Renaissance Dam amounting to the tune of $1 500 000 at the Chancery of the Ethiopian Embassy in the nation's capital here yesterday' (NewsDire 2012).

worth a couple of billion birr have been sold to individuals, which equates to a couple of $100 million – but less than ten per cent of the total cost (Tekleberhan 2012). While this is not nearly enough to cover the costs of the dam, it is still a lot to have raised from a relatively poor population.

However, the bonds have a broader purpose than financing the dam alone. Although their contribution may have only been a fraction, the feeling of "ownership" is important to legitimise the dam. The citizens are less likely to question the dam logic if their investments are incorporated in this logic.

This has implications for the geopolitics of the Nile too. Selling the bonds has been a way to transform Ethiopians into "geopolitical subjects", where the geopolitical struggle over Nile water control becomes part of the identity of the bond holder. Regardless, it is their investment that is at stake. Seen this way, it is a novel Foucauldian strategy for geopolitics. Ó Tuathail (1999: 114) argues: 'practical geopolitical reasoning is […] part of the socialisation of individuals into certain "national" identities and geographical/historical consciousnesses'.

The Grand Dam identity combines the sanctioned discourse of the Ethiopian Renaissance with a geopolitical imagery of the downstream states as opponents or enemies. Newspaper reports often cite the last battle between the Egyptians and Ethiopia (which was in 1876), but nationalism and feelings of enmity are used as strategies to boost fundraising and to ground the new geopolitical identity in a traditional historical experience.

The creation of geopolitical subjects could influence the international relations between the basin states too. By cultivating these identities, Zenawi is authorised to follow a hard-line foreign policy that reinforces the identities, including the unilateral construction of dams and proceeding with establishing the NBC. In a certain way the geopolitics of the basin is used here to align the population's interest with those of the elites who want to get the dam build. It is also a warning sign to Egypt and Sudan: the dam is not just from the government but from the entire

country. This should dissuade them from thinking about "water wars", is the official line in Addis Ababa.[207]

6.5 Conclusions

The interaction between the revolution in Egypt, the progress of the Nile Basin Initiative, the increasing competition for development finance, the hydro-engineering firms that benefit from the construction, the control of the Ethiopian state over the population, and the internal organisation of the state created a brief time period where the Grand Dam became a real possibility. The Ethiopian leadership seems to have grabbed this opportunity with both hands to realise the dam.

The dam is the product of both geopolitical and geo-economic processes but these logics are conflicting, at times. Geopolitically it affects the Nile basin and the geopolitics of the water, and geo-economic because of its relation with income-generating hydropower export and financial relations with investments. These double logics create different and contrasting spaces in turn. The geo-economic space where the dam is connected with the centres of energy demand abroad is superimposed on the geopolitical space of the river.

Actors with vested interests, such as those in the energy sector and industry, are set to benefit from this alternative spatial production. Others, who pay part of the cost of the dam, will lose out because they are not included in this particular space. This space is constituted beyond the traditional levels of the local, national or global, but transcends each of them. Horizontal, rather than vertical relations shape a space that is hard to conceptualise, for it is wider in reach than the nation-state, but smaller in authority.

The geopolitical component of the dam is also used for geo-economic purposes. While obtaining funding for the dam is complex because multilateral development finance institutions do not want to get involved, the contentious geopolitics of the Nile offers novel ways to raise

[207] The last inference is based on discussions in the diplomatic community and could not be substantiated through official sources or documents. Nevertheless, the argument seems to make sense.

funds and enrol the population in the project. The construction of geopolitical Grand Dam identities has financial, legitimising, and geopolitical benefits.

Chapter 7 Electricity and legitimacy in Kyrgyzstan

The second case study explores strategies of the Kyrgyz government to cope with severe winter energy shortages, which include a shift in the operating regime of the Toktogul dam and plans for a new large dam at the Kambarata-I site. However, this chapter illustrates fundamental problems in the water-energy sector that follow on from a peculiar relationship between state formation and dam operation.

7.1 Cold winters, low water

The people living in Kyrgyzstan experienced an exceptionally cold winter during 2007-2008. Unfortunately, this was followed by a dry summer and another cold winter. The freezing temperatures skyrocketed demand for electric heating in the mountain state, because electricity had become much cheaper than gas-powered heating since the fall of the Soviet Union (Juraev 2009). However, virtually all electricity in the country is generated by a single set of power stations: the hydropower plants below the Toktogul cascade.

The water volume of the Toktogul reservoir and, by extension, the power generation of these hydropower stations depends on the inflow of water from the Naryn River.[208] However, during the dry summer before and between the cold winters there was hardly any rainfall to recharge the reservoir. The water discharges from the Toktogul of the following winter brought the reservoir level down to 9.4 km^3 in August, a level unseen since 1987 when the man-made lake was filled for the first time (Libert et al. 2008).[209]

The low water level of the Toktogul had a detrimental effect on irrigated agriculture in Uzbekistan and Kazakhstan during the subsequent summer. There was simply not enough water in the reservoir to allow for water discharges during this period. Kyrgyzstan itself was hit hard too: because the reservoir volume was so close to the dead reservoir volume, it became impossible to generate sufficient electricity for heating.[210] As a result, the government proposed extensive power cuts of up to eight hours per day (interview World Bank official, Bishkek 9-9-2011).[211]

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[208] The Naryn is the upper stretch of the Syr Darya River. Because it is part of the broader Syr Darya river system I shall hereafter refer to "Syr Darya River" only.

[209] This in contrast to 13.5 km^3 in August a year earlier and 16.7 km^3 exactly two years earlier (Libert et al. 2008).

[210] The dead reservoir volume is the water level at which discharging from the reservoir becomes dangerous because it would damage the turbines and other equipment. 'Sensible managers would avoid the dead water volume at all costs' (interview energy consultant, Bishkek 23-9-2011).

[211] Although eight hours per day has been the average, there have been considerable inequalities throughout the country. Prominent individuals, as well as richer people, could bribe the energy officials to leave their neighbourhood connected to the grid. In turn, this meant that other areas had power cuts of even more than eight hours per day.

One official from the government's State Committee for Water Resources (SCWR) summarised: 'these winters were a difficult time for Kyrgyzstan' (interview government official, Bishkek 14-9-2011). There are different views on the origins of this "energy emergency", as the period was subsequently called by Kyrgyz political scientist Shairbek Juraev (2009), but most experts give one out of three explanations: hydrological, structural or political.

The energy emergency of 2007-2009 was one of a succession of problems, since the country's water-energy sector was subject of immense changes since 1991. Because of the regional importance of the Toktogul installation, its operating regime has been heavily contested by Uzbekistan, Kazakhstan, and Kyrgyzstan, as well as by different actors within the country.[212] Since independence, there has been an articulate change in the timing of water discharged by Kyrgyzstan (Figure 7.3)

According to a spokesperson in the Ministry of Energy, Kyrgyzstan's national interests have moved away from the Soviet-era *status quo*, and thus the priority of the Toktogul operations has been to supply energy to fulfil domestic demand (interview government official, Bishkek 22-9-2011). Yet this raises a number of questions. It is unclear how this change to the *status quo* is explained to the downstream states that rely on the same water discharges. The change can have critical implications for the geopolitics of the basin. Also, one is excused for wondering why there are still energy shortages, if the Toktogul supposedly serves the interests of the Kyrgyz people.

In response to these points, this chapter addresses two research questions how is the logic of operating the Toktogul and building the Kambarata-I rationalised by the Kyrgyz elite? Secondly, how do the dams, as a particular forms of hydraulic control, shape and influence state formation in Kyrgyzstan? In Ethiopia, we have observed a relationship between the combination of developmentalist and patrimonial state forms on the one hand and the Grand Dam on the other, *ergo* the response to the second question may offer interesting comparative material.

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[212] This happens mostly through the exchange of diplomatic notes or expressions in the media (interview government official, Bishkek 26-9-2011).

7.2 The water-energy nexus of the Toktogul

The importance of the Toktogul cascade for electricity provision to Kyrgyzstan and irrigated agriculture downstream in the Fergana Valley cannot be overstated. The sequence of dams and reservoirs is the most upstream system of valves on the entire Syr Darya River and, hence, the volume and timing of water discharges affect the entire river.

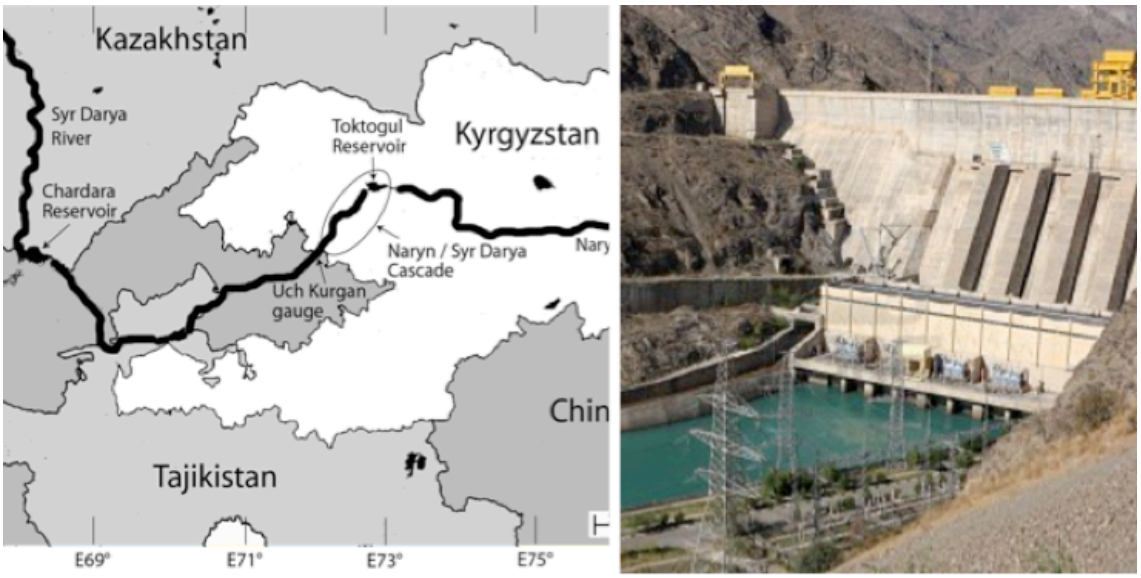

Figure 7.1 Map and photo of the Toktogul main dam. The map shows the location of the Toktogul in the river: it is located in Kyrgyzst territory close to the border with Uzbekistan. From there, the water flows downstream through Uzbekistan, Tajikistan, Uzbekistan again, and Kazakhstan finally terminating in the Aral Sea. Source left: (Bernauer & Siegfried 2008). Source right: Wikimedia commons.

To even out the inter-annual variations in the river flow, the authorities agreed in 1984 that during a normal rainfall year, 75 per cent of the water discharges would be made in the irrigation seasons, which fall during the summer months (Sharma et al. 2004). Using the water flow to generate electricity was recognised, but seen as a pleasant side-benefit rather than a goal *an sich* (Easter et al. 1998).

Nevetheless, the hydropower potential proved to be enormous and four more hydroelectric plants were constructed right downstream of the main dam between 1973 and 1990. These sub-stations are part of the Toktogul cascade, but rely on the main reservoir for the generation of electricity (Figure 7.2).

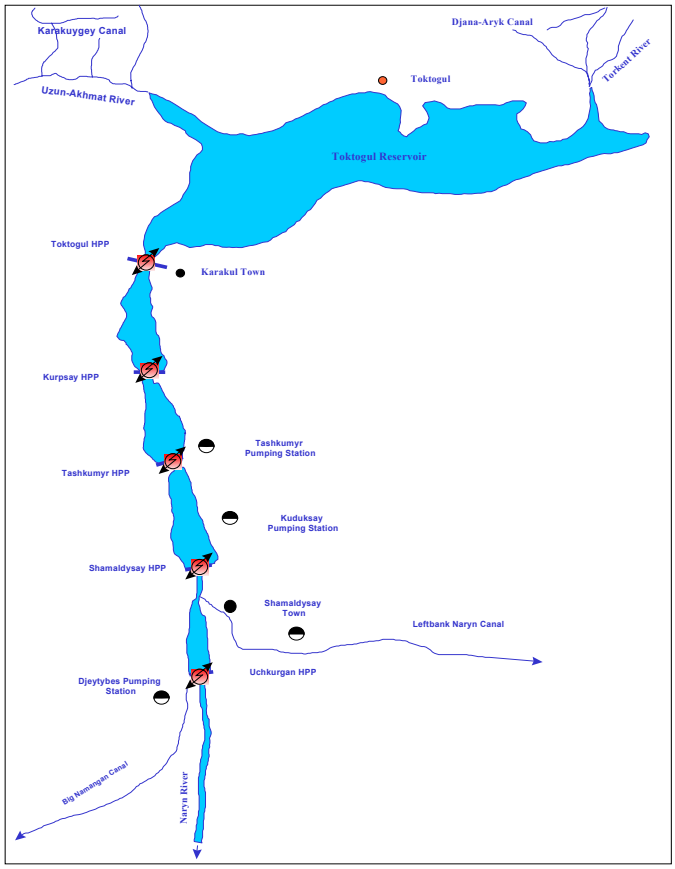

Figure 7.2 Schematic overview of the Toktogul cascade. There are five hydroelectric power stations right below the main Toktogul dam and reservoir. Source: (Sharma et al. 2004).

The cascade became the largest single power generating facility in Soviet Central Asia. Today, it accounts for 91 per cent of total electricity production in Kyrgyzstan with an installed capacity of 2870 MW and it is considered to be the country's most valuable asset.[213] Controlling the river flow and generating electricity are intricately linked through the design of the cascade. Discharging one cubic metre of water from the reservoir will generate about one kilowatt-hour, according to an energy expert (interview energy consultant, Bishkek 23-9-2011).[214] This relationship between water and energy can be conceptualised as a water-energy nexus.

[213] To put this figure in the perspective of the discussion of the previous chapters, 2870 MW is more than the entire installed capacity of Ethiopia before completion of the Grand Dam, even though Kyrgyzstan's population is with approximately five million not even seven per cent of Ethiopia's.

[214] This relation is approximate and depends on a set of factors, but is said to hold based on an average volume of water in the reservoir. More electricity can be produced if the volume is higher because of higher pressure on the water flowing through the turbines. (interview energy consultant, Bishkek 24-9-2011).

However, the economic disintegration of the Soviet Union demonstrated the challenges associated with managing a water-energy nexus. When the Kyrgyz government had to import fossil fuels for its heating during the winter period, rather than obtain them through the integrated Soviet economic space, its consumers realised that electric heating is much cheaper because of the ample supply from the Toktogul cascade. In turn, water was increasingly discharged in the winter months, when electricity demand was highest in Kyrgyzstan. Less and less water reached the cotton fields in Uzbekistan during the irrigation season, as Figure 7.3 suggests. Moreover, the frozen canals downstream were at times unable to handle the water flow in the winter, leading to floods and artificial lakes (Sharma et al. 2004).

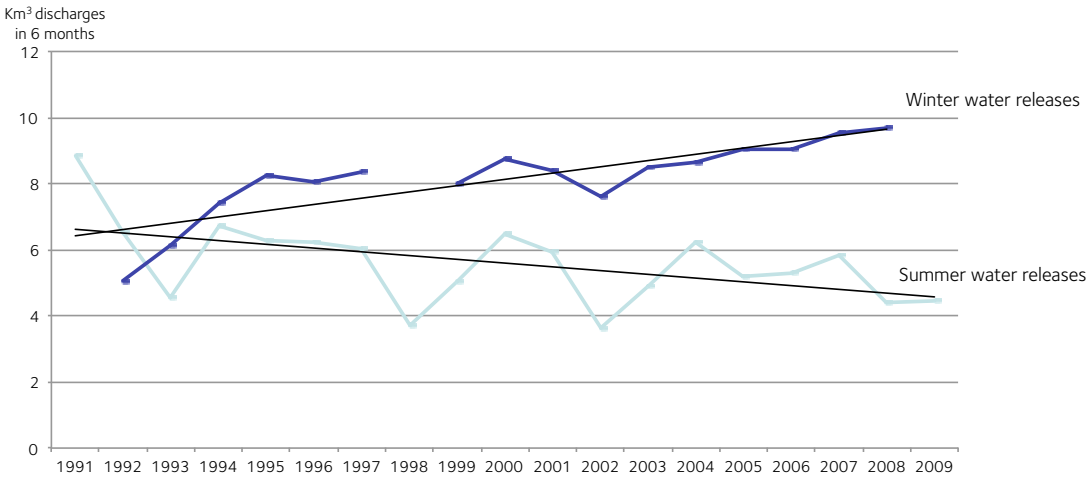

Figure 7.3 Seasonal water discharges from the Toktogul during the last two decades. The monthly discharges for the winter and summer months from the data have been added up and plotted over time. Graph constructed by author based on data from cawater-info.net 2010.

Because of the significant changes in its operating regime over the last two decades, most of the academic and professional literature assumes a distinction between two regimes: the irrigation regime that discharges water in the summer months and the electricity regime that discharges water in the winter months (Antipova et al. 2002; Dukhovny & Sokolov 2003; Kemelova & Zhalkubaev 2003; McKinney 2003; Sharma et al. 2004; Sievers 2001). However, official water discharge figures illustrate that the shift to the winter period has been more gradual.

If there is sufficient water in the reservoir, the Toktogul can provide for both the irrigation and energy needs. Indeed, the utility operating the Toktogul hydroelectric station and

its regulator both confirmed that they need to negotiate between different types of pressures in their decision to discharge water. No clear choice for a particular regime is made before the growing season (interview utility official, Bishkek 19-9-2011; interview government official, Bishkek 22-9-2011).

The gradual shift in the Toktogul's operating regime has led to tensions between Kyrgyzstan and Uzbekistan (and to a lesser extent Kazakhstan). The downstream states have consistently complained about not receiving the water allocated to them by the Soviet-era agreements (interview ICWC official, Tashkent 22-7-2009). Uzbekistan has responded to the low summer water discharges by cutting down gas supplies or closing off the border with Kyrgyzstan (Torjesen 2007). Moreover, the International Crisis Group (ICG) has reported that Uzbek army units have been trained to take the Toktogul by force, if deemed necessary (ICG 2002). However, although this report is often-cited, no further evidence for military preparations has appeared.

The inconvenient reality is that the geopolitical changes after 1991 have bared the multiple nature of the Toktogul. The dam, reservoir and cascade that were once hailed as progress that "tamed" the river (Azrilyan 1983), but in fact they produced a river that could be managed according to alternative governmentalities. While the Uzbeks cling to the idea that the dam is supposed to govern irrigation, the Kyrgyz have re-envisioned the space of the dam as one linked to national interests.

On top of that, there is a conflict between different authorities that claim to have the power to govern the dam. One the one hand, officials of the Tashkent-based BVO-Syr Darya argue that the river is theirs to control (interview ICWC official, Tashkent 20-7-2009). In contrast, government officials in Kyrgyzstan claim that control over the dam is subject to Kyrgyz sovereignty and that the energy regulator and the utility managing the power station should govern the dam instead (interview government official, Bishkek 22-9-2011).

In this politics of scale, it has become unclear what the dam itself really is – a hydroelectric power plant or a river regulating facility –, what the purpose of the dam is, and who is authorised to govern it. The incessant reconstruction of the space of, and rescaling of the

process of dam management itself has the potential to lead to a variety of conflicts, as witnessed by the struggles during the low-water years and cold winters of the last decade. The Soviets may have won their battle with nature, but may have initiated an inter-state conflict in turn.

7.2.1 The paradox of power in Kyrgyzstan

With the Syr Darya River and its tributaries, Kyrgyzstan appears to have abundant hydropower potential.[215] Moreover, most of the capital investments required for the utilisation of this potential have been made pre-independence. Still, there are frequent power cuts, such as those of the crisis winters in 2007-2009, and these challenge political rule.

Controlling the delivery of energy services can make or break a political leader and former President Bakiyev seemed to have understood this notion: 'the weeks before the 2009 elections, there was electricity supply throughout the country for 24 hours per day' (interview World Bank official, Bishkek 9-9-2011).[216] But instead of addressing the power cuts by repairing the losses and inefficiencies in the energy system, successive regimes have focused on the construction of new dams. Many economic arguments have been presented against these dams and the financial viability is shaky at best (Tetratech 2011a).

Kyrgyzstan has a paradox of power, where the immense potential remains either unfulfilled or gets lost in the system, as some observers suggest (interview energy consultant, Bishkek 23-9-2011). This paradox is most aptly illustrated by the energy emergency discussed in the introduction. As I hinted, three different arguments have been dominant in explaining this crisis: hydrological, structural and political.

Firstly, it has been the official view of the Bakiyev government that the water inflow of 2007 and 2008 was much lower than average, although evidence seems to suggest that this

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[215] According to a government report, Kyrgyzstan has a hydropower potential of about 18 500 MW (Omorov 2009).

[216] Bakiyev rose to power after the 2005 Tulip Revolution where he ousted Akayev, who had been president since 1991. Although the revolution was presented as a democratic turn in government, he turned more autocratic during his years in office. In April 2010 he was ousted in turn by a variety of coalition forces, and succeeded by interim president Roza Otunbayeva. In October 2011 the first free and fair contested presidential elections were held and won by Almazbek Atambayev.

anomaly was not unexpected (Figure 7.4).[217] Secondly, the structural problem is that the energy system of Kyrgyzstan is too reliant on hydropower, according to a World Bank energy specialist. Not surprisingly, hydropower is affected by variations in rainfall and river flow and therefore the system is always a risk. He argues that:

> Even in high water years, there is a deficit of 2 TWh in the winter and a 2 TWh surplus in the summer. We have recommended Kyrgyzstan to build more thermal-powered power plants, but vested interest are tied to hydropower. More crises will come unless the base load capacity is built up, which includes a renovation of the thermal capacity (interview World Bank official, Bishkek 15-9-2011).

Thirdly, some experts have argued that the 2007-2009 crisis took place not because of a lack of rainfall, but because of corruption (interview energy consultant, Bishkek 23-9-2011). It is suspected that Maxim Bakiyev, son of the former president, has ordered excessive exports of energy to Kazakhstan in order to make more money through the kickbacks associated with these sales (interview Asian Development Bank (ADB) official, Bishkek 7-9-2011). One official argues that this was possible because the wholesale metering system is dilapidated and no records exist. By then, the son of Bakiyev had already put his own people in charge of the energy companies (Eurasian Transition Group 2010). Stealing is technically easy, because of the elusive nature of the water-energy resource.

The crisis of 2007-2009 demonstrated the interconnectedness of the Kyrgyz energy system and the Central Asian water system, as well as the vulnerability of both. It is more serious because similar crises have happened before (Kemelova & Zhalkubaev 2003).[218] Although inter-annual hydrological variability affects water availability in the reservoir, this does not need to be a problem. The Toktogul has been designed precisely to manage variability (Antipova et al. 2002). Instead, the emergencies display weaknesses in government, regional cooperation and the entire water-energy system. Ultimately the international donor community

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[217] Of course, by then his rule had come under increasing pressure, so his officials would be the last ones to acknowledge structural problems. His grip on the media was relatively strong so the hydrological argument was the one that was expressed most vocally.

[218] The winters of 2000-2002 were also colder than average and there were similar problems with energy and water supply. During the economic decline of the early 1990s problems occurred too although these may have different causes.

stepped in with emergency loans and credits for energy to mitigate the consequences (interview diplomat, Bishkek 7-9-2011). These have been important to the population, but conceal the broader questions the crisis raises.

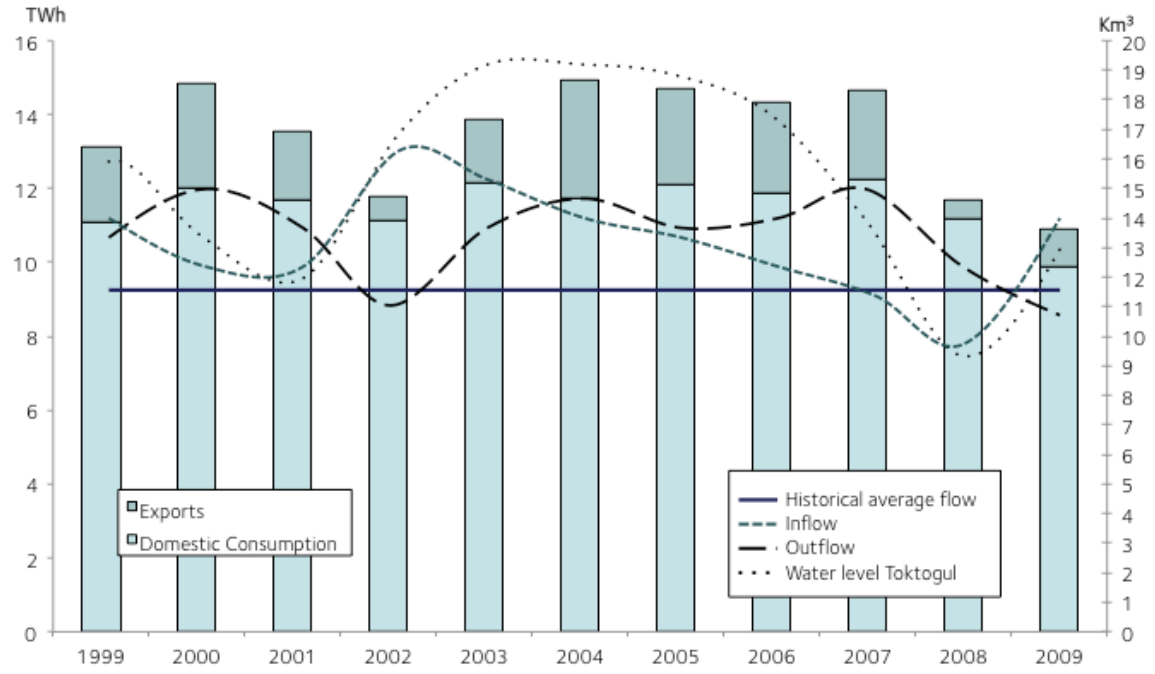

Figure 7.4 Water inflow and outflow of the Toktogul reservoir, including the water level generated electricity. In the bars the annual generation of electricity by the Toktogul is indicated, including the proportion exported. Source: manuscript energy consultant, Bishkek, 25-9-2011, graph edited by author.

A United States Agency for International Development (USAID) unit that is attached to the Kyrgyz Ministry of Water Resources has been trying to map out the weaknesses in the energy system. Their data (Figure 7.4) suggests that water inflow into the Toktogul reservoir has been higher than the historical average until 2007, but also that there has been a downward trend since 2002. The outflow, which is a proxy for energy production, has been higher than the inflow between 2004 and 2009 and far higher in 2006 and 2007. The difference between outflow and inflow brought down the volume in the Toktogul reservoir between 2006 and 2008, leading to the energy emergency discussed above. However, the graph also reveals that electricity exports to Kazakhstan have been very high in 2006 and 2007, even though the water balance was rapidly decreasing.

This illogical situation lends credibility to the argument that electricity has been exported when it should not have been. A report from ICG published right after the 2010 revolution, states that the regime was "pathologically acquisitive" and that, ultimately, the haste to make a windfall profit brought the regime down (ICG 2010). There is evidence that excessive energy was exported in the summer of 2007 for an audited price of 1.3 cents per kWh, even though the market price was around 4.5 cents per kWh. The ICG report suggests that: 'the electricity was in fact sold at the market price, and powerful members of the regime pocketed the difference' (ICG 2010: 3).

These events give some insight into the water paradox of Kyrgyzstan. The country has plenty of water-energy resources, but if it is ill-managed then there will still be shortages and power cuts. To understand this paradox, we need to understand the nature of the post-Soviet state, the patronage networks, and the sources of legitimacy in contemporary Kyrgyzstan.

7.2.2 Incentives, inefficiencies, and the losses of the Toktogul cascade

Reforms in the energy system have been difficult for newly independent Kyrgyzstan because of a mismatch between the continuity in Soviet norms and values, and new market realities. Even without management issues, governing the energy sector is a challenge because of the three key imbalances summarised in Figure 7.5. Pressured by donors, the large integrated parastatal that managed all energy affairs, Kyrgyzenergo, was split up into six separate state-owned companies in 2001: a generation company, a transmission company and four distribution companies, divided along geographic lines.[219]

[219] Pressured by the US, this split followed a western standard that should allow for competition in the energy market better performance, according to the neoliberal logic. However, the nature of the electric resource (hydropower) and the extensive involvement of the state disallowed for any real competition to emerge. Moreover, the four distribution companies that are supposedly split along a geographic logic, are tightly linked to the power bases of various powerful people. In result, only one of the four distribution companies (Severelektro) is economically viable (interview energy consultant, Bishkek 23-9-2011).

In general terms, the generation of electricity at the Toktogul hydroelectric power plant is managed by Electric Stations J.S.C., the generation company; power is subsequently transmitted by NESK, J.S.C., the transmission company; finally, the electricity is distributed to the consumers by one of the four distribution companies (interview government official, Bishkek 22-9-2011).[220]

Key Imbalances of Kyrgyzstan's energy sector	
1	95% dependent on renewable hydropower
2	70% of consumption is in winter: summer surplus but winter deficit
3	Most generation in the south, while 70% of demand is in the north

Figure 7.5 The three key imbalances of Kyrgyzstan's energy sector. Source: Murphy et al. 2011.

However, payment of energy tariffs does not run in the opposite direction, but are collected by a financial vehicle, the *Settlements and Savings Account*, controlled by the Ministry of Energy. In turn, the Ministry of Energy redistributes the income over the six state-owned electricity companies (Figure 7.6). This provides the ministry with disproportionate power in the reallocation of money, which varies on a weekly basis (interview government official, Bishkek 22-9-2011).

Consequently, none of the electricity companies have an incentive to work more efficiently or to address the structural problems of the system: the reallocation of payments is driven by political motivations rather than by efficiency. Without the right incentives, efficiency is lagging behind standards and there are hardly any funds available for the maintenance of the system and for reducing the large losses (interview energy consultant, Bishkek 23-9-2011; interview utility official, Bishkek 15-9-2011).

The inefficiency of the management structures causes large losses throughout the energy system, resulting in increased winter discharges from the Toktogul.[221] Moreover, the opaque nature of the energy system lends itself to corruption; according to some the energy

[220] J.S.C. stands for Joint Stock Company, which suggests more market influence than is the case in practice.

[221] Because of the inefficiency in the energy system, more water discharges are required to generate the same amount of electricity, which exacerbates the water conflict.

sector is the biggest "honeypot" in Kyrgyzstan (interview energy consultant, Bishkek 23-9-2011). Interestingly, the government has refused to calculate the cost of production until 2011. According to an official, this has been done intentionally because of corruption (interview ADB official, Bishkek 7-9-2011). Indeed, knowing the costs of production would give one insight into where corruption takes place.

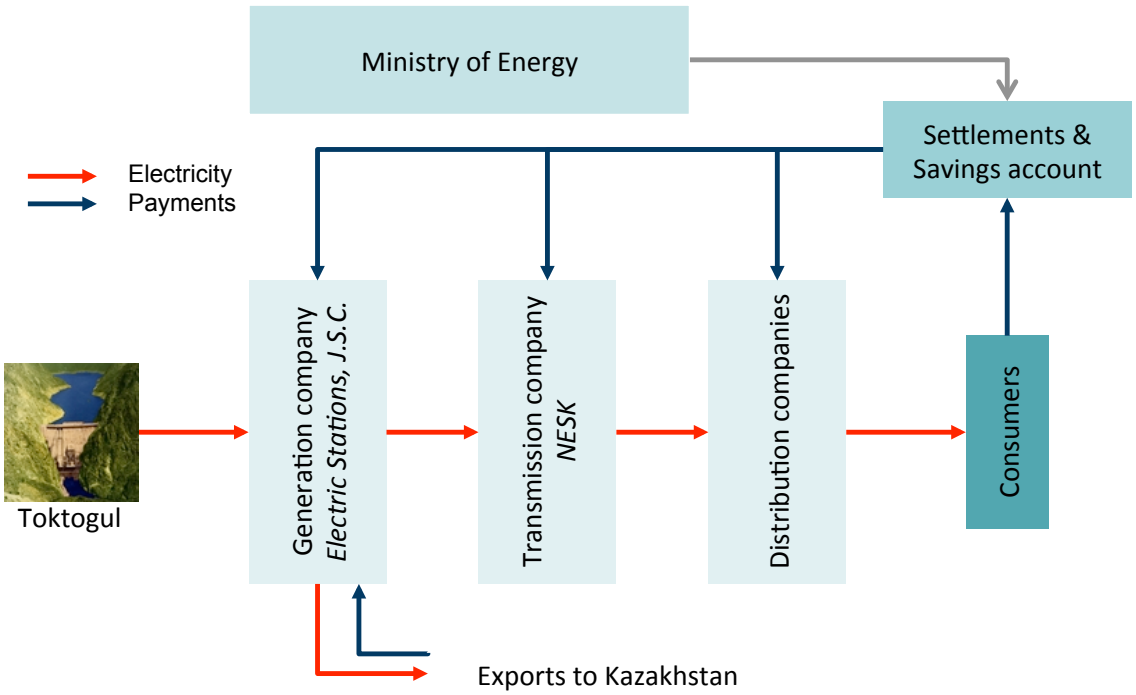

Figure 7.6 Schematic overview of the Kyrgyz energy sector. Constructed by author on the basis of information provided by (interiew government official, Bishkek 22-9-2011).

Figure 7.7, based on three interviews in Bishkek and manuscripts from USAID, provides an estimate of the average annual losses. The losses throughout the system appear to be larger than 50 per cent, which is excessive by any standard.[222] A significant part of the losses is the corruption, which has two types, according to the USAID management diagnostic (Tetratech 2011a). There are kickbacks on large investments of up to 30-45 per cent. On top of that, there is day-to-day corruption that starts with the metering personnel and middle

[222] In fact, even most sub-Saharan African countries have better track records regarding the efficiency and effectiveness of their energy systems (interview energy consultant, Bishkek 23-9-2011).

management, who take bribes to support their low salaries. In addition to the corruption there are collection losses, with nineteen per cent of the metered electricity going uncollected.[223]

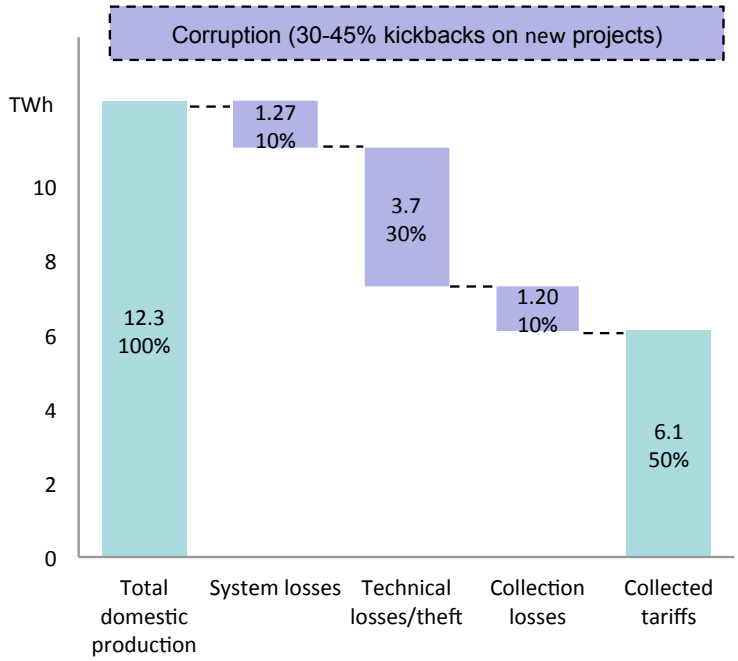

Figure 7.7 Overview of losses in the energy sector. 50 per cent of all generated energy is lost or stolen. Note: data based on estimates and do not represent accurate measurements. Constructed by author.

The technical and system losses can only be diminished once the corruption and commercial losses are addressed, because at present, the electricity utilities have insufficient capital. Technical losses include broken transmission lines, inefficiencies at substations, and the lack of maintenance at the main hydroelectric stations (interview energy consultant, Bishkek 24-9-2011; interview utility official, Bishkek 19-9-2011). .

The inefficiency can be conceptualised as a "cascade of losses" because they need to be addressed in turn. As the water-energy nexus is produced in the Toktogul, losses in the Kyrgyz energy system put pressure on the water available for Uzbekistan's and Kazakhstan's irrigation systems.[224]

[223] This can partly be explained by the Soviet legacy where electricity used to be virtually free. Also, it is impossible to enforce collection as entire flats are connected to the same energy inlet.

[224] Admittedly, only technical and system losses increase the winter water discharges from the Toktogul, because commercial losses do not increase the total amount of electricity generated. However, these commercial losses do impact the technical losses directly as the figure suggests.

There appears to be a dichotomy in how people view the technical losses and losses through corruption and theft. Spokespersons for the Ministry of Energy and the utility *Electric Stations, J.S.C.*, overemphasise the large technical losses in an attempt to increase donor support (interview government official, Bishkek 22-9-2011; interview utility official, Bishkek 19-9-2011). On the other hand, international observers argue that the technical losses are often overstated to hide the corruption in the system. One expert argues that 'technical losses are not too great. Academics are hired to calculate technical losses, but also to hide corruption and commercial losses' (interview energy consultant, Bishkek 23-9-2011).[225]

Surprisingly, no satisfactory inquiry has been conducted into the causes of the crisis in 2007-2009. According to the country representative of a German development bank, this is because: 'too many people in the current government have been involved in Maxim's deal, therefore, there is no interest in making the energy sector really transparent' (interview development bank official, Bishkek 13-9-2011). [226] However, the solution to the energy problem proposed by the government is to build more dams, rather than address the losses. This is insightful for understanding the rationalisation of the water-energy nexus.

7.3 More dams, more power

The new general manager of Electric Stations, J.S.C., agreed that there were considerable problems in the Kyrgyz energy sector.[227] In response, the utility intends to construct six to eight more dams to double to generation capacity. He argues that this should not only satisfy domestic demand, but also produce enough electricity to export to places as far away as Russia and Pakistan (interview utility official, Bishkek 19-9-2011).

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[225] Both groups (government officials and international observers) have an agenda. The international observers are part of a discourse critiquing the government and they should be interpreted as such.

[226] "Maxim's deal" refers to the illegal exports of electricity to Kazakhstan in the summer of 2007, that were overseen by Maxim Bakiyev, son of the former president.

[227] The new manager is Aman Tentiev, who worked previously for global firms in Russia and Georgia. He was placed there by the interim government after the energy exports debacle. The previous general manager, and much of his direct staff, were fired on corruption allegations.

Former president Roza Otunbayeva inaugurated the first of this series of dams, the 200 MW Kambarata-II, in August 2010. However, critics argue that this dam can only function effectively in combination with its larger counterpart in the cascade, Kambarata-I, because at the moment there is no adequate reservoir upstream to control the flow of the river. (interview UN official, Bishkek 21-9-2011).

Indeed, the Kambarata-I dam is central to the expansion plans of Electric Stations, J.S.C. These plans were developed during Soviet times, but were abandoned after independence because of the high costs.[228] The price tag is still immense at an estimated two billion US dollars and the question is why are the utility and the government so aggressively pursuing this project, when they could address the losses in the power sector at a much lower cost elsewhere as suggested by the USAID Management Diagnostic (Tetratech 2011c).

Theoretically, the Kambarata project provides an answer to the regional problems with the water-energy nexus. The Kambarata dams could be used to generate sufficient electricity for Kyrgyzstan so that water can be stored in the Toktogul reservoir, a little downstream, to supply water for irrigation whenever required for the downstream states. The plans are also framed in this context of cooperation by successive Kyrgyz leaders. Kurmanbek Bakiyev stated at an ICWC meeting that: 'implementation of [the Kambarata projects] not only satisfies our republic's energy needs, but will also allow the Toktogul to operate in an irrigation regime which our regional partners are interested in' (Bakiyev 2009: 2). In reality, building new grand dams is sexier for a political leader than addressing commercial losses and corruption, or than building regional institutions.

However, it is unlikely that more dams will improve energy security in Kyrgyzstan. Energy consumption is constrained by the imbalances of the system, not by the limited capacity. Even if the Kambarata is built, dry years will still leave the country with a deficit if too much energy is exported and if the commercial losses in the system are not addressed. An additional problem is raising sufficient funds, given Kyrgyzstan's unstable public finances.

[228] The Soviet-era Kambarata plans were part of the broader Soviet governmentality of the river, where the Kambarata-I and -II were intended for frequency regulation of Toktogul inflow.

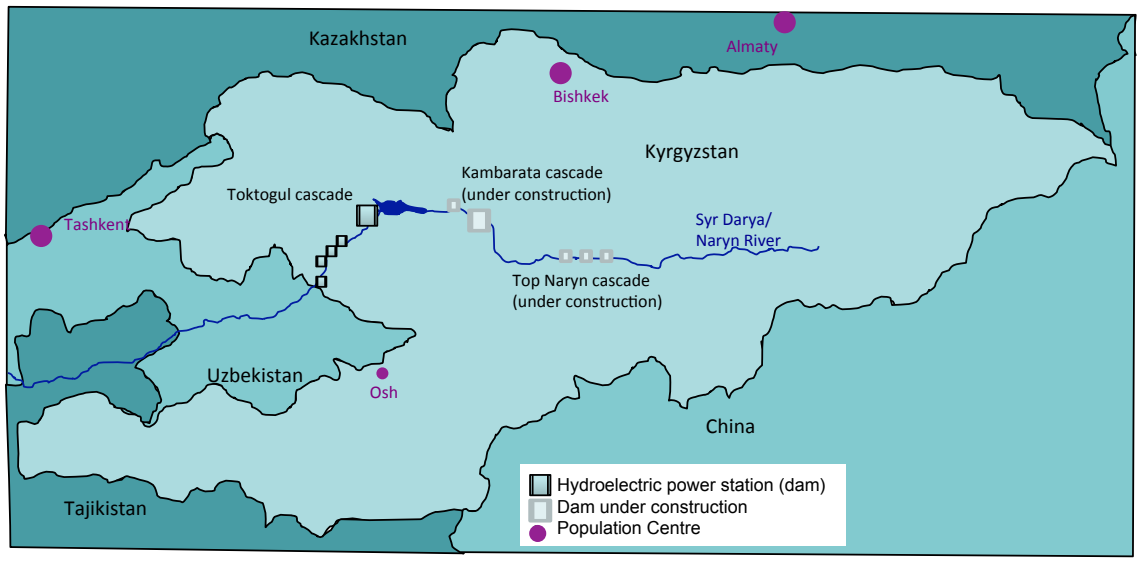

Figure 7.8 Map of proposed dams in Kyrgyzstan. Map constructed by author.

Indeed, external observers are vehemently against the project. The World Bank's specialist argues that more dams are not the solution. 'More hydro is nonsense, the Kambarata-II is economically not feasible' (interview World Bank official, Bishkek 15-9-2011). Economic analyses of USAID have shown that any coal-fired power plant would be a better deal, financially, economically, and structurally (Tetratech 2011a). To explain the desire for the dam nonetheless, another World Bank official argues that 'Kyrgyz official [of the SCWR] are much like the Soviet modernisers: big canals, large dams, and high production targets' (interview World Bank official, Bishkek 9-9-2011).

More dams means more power, but to understand the motivations behind the Kambarata project one needs to ask power for whom. In countries like Kyrgyzstan, development of large state projects is intimately linked to the personal (business) interests of the elites.[229] Corruption is part of this, but building a large dam also provides legitimacy to a regime on the grounds of economic performance and national pride.

[229] Feaux de la Croix notes that 'in Kyrgyzstan [...] the lines between public, private and the criminal in the energy industry are frequently blurred. This is partly because of now common international forms of combining state and private agencies in quangos or joint-stock companies, and partly because of the inheritance of a near-complete overlap of the state and (official) economic sphere from Soviet times' (Feaux De La Croix 2011: 93).

7.3.1 The Kyrgyz rationale of large dams

The Toktogul has always been part of a broader nation-building project, since it was constructed in the 1970s. Old ideological slogans like "Communism is Soviet power plus the electrification of the entire country" still mark the operating room of the dam (Feaux De La Croix 2012). In addition, the virtue of the construction workers has been extolled in old Soviet films and posters (Figure 7.9 contains two examples).

The spirit of the workers no longer dominates the dam-building discourse in present-day Kyrgyzstan. Instead, the idea that the Toktogul helps the country asserting its due regional power, has become influential and contributes to the same nation-building exercise (Feaux De La Croix 2011). Kyrgyzstan has had a failing economy, social problems, and disappointment in service delivery during the 1990s and 2000s. Directing attention to large-scale state-sponsored projects instead would surely benefit the elites.

This explains why the Bakiyev regime has devoted so much attention to the construction of the Kambarata dams while there are so many more pressing problems in the energy sector. In fact, a new dam the size of the Kambarata-I would contribute to both national pride and Kyrgyzstan's regional power. Bakiyev was hoping for a similar boost to his popularity as leaders in the past got from the completion of the Toktogul and other large dams. He presents the dam as a national project, notwithstanding the financial aid from Russia and elsewhere that would be required:

> If somebody has told four years ago that Kyrgyzstan will build the hydroelectric power station, most likely, nobody would have believed in it. However, we have proved it and now we are building the hydroelectric power station due to own funds and forces [sic] (citation Bakiyev in Times of Central Asia 2009).[230]

However, critics realise that nationalism has been a veil to disguise his personal motives, rather than any real commitment to the project (interview diplomat, Bishkek 16-9-2011). Construction of the Kambarata-I has not started and the same newspaper reported two years later that

[230] The Tulip Revolution took place exactly four years before this statement.

Kambarata was purely a political pet project of Bakiyev without any real economic value (Levina 2011).

Figure 7.9 Photos of workers taken during the construction of the Toktogul dam. Young, healthy workers were often used as propaganda for socialism and these photos have been spread throughout the Soviet Union. Source: (Feaux de la Croix 2011).

Surprisingly, the Kambarata project has met relatively little opposition, either during Bakiyev's rule or post-revolution. Feaux de la Croix (2011) contends that:

> The general acceptance of the new Kambar Ata dam (acceptance that it should be built, but not that it can be owned by foreign stake-holders) seems to point to a continuity in feeling, a modernist and civic/patriotic sentiment "left over" from the Toktogul dam, raised by and for workers (Feaux De La Croix 2011: 93).

The manner in which the transition government and the new Atambayev regime have continued pursuing the project imply that this sentiment was not owned by Bakiyev.

Large dams like the Toktogul or the Kambarata provide the Kyrgyz government with a useful tool to conduct foreign policy and the assertion of regional power. It has been argued that an assertive, nationalist foreign policy stance leads to increased popularity at home and is, thus, an effective diversion strategy if domestic legitimacy is fragile (Evera van 1994; Lo 2002).

Some observers have argued that Bakiyev's policies contrasted with previous President Akayev's in this aspect: where Akayev was always looking for cooperation and consensus over the Syr Darya, Bakiyev is said to have provoked disputes over the Toktogul's operations

(interview government official, Bishkek 6-9-2011). The tension with Uzbekistan that increased between 2005 and 2010 has cleverly been blended into a discourse of nationalism.[231]

The implications are twofold: a strong nationalist discourse may boost legitimacy, but it prevents regional cooperation. The dam logic becomes detached from the imperative of regional cooperation, because good government of the river's water resources is subordinated to the survival of the ruling class.

7.3.2 Financing the Kambarata-I

Building a new dam may provide a strategy to legitimise rule, but the prohibitive costs associated with the large civil and hydroelectric works make it a serious challenge to complete. Kyrgyzstan has only limited financial and technical resources, so raising funds for the dam draws it into a broader geopolitics – and geo-economics – of project finance. This dynamic connects the Kambarata-I with the regional water politics and the international politics of development finance.

Construction on the Kambarata cascade was officially initiated in 1987, but halted three years later following the dissolution of the Soviet Union and the lack of financial resources (Korchevskii et al. 1987). It was only ten years later that the plans came back on the table again, and in 2007 construction of the Kambarata-II resumed, which was finally inaugurated by president Otunbayeva in 2010. At the moment, the Kambarata-II uses only half of one out of three 120 MW generating units, because the Kambarata-I dam that has been designed to regulate the inflow has not been completed yet (Kloop 2010).

The director of the project has said to Kyrgyz journalists that the construction of the second and third unit will continue only when the larger dam in the cascade, Kambarata-I, is completed (Kloop 2010). While 60 MW contributes to the energy balance of the country, the Kambarata-II is effectively worthless without Kambarata-I. Financing the latter has proved problematic.

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[231] Some have argued that this antagonistic discourse was one of the drivers of the ethnic riots between Uzbeks and Kyrgyz in June 2010 (Bond & Koch 2010).

February 2009 seemed to herald a breakthrough with Russia announcing that it would fund the dam with an extensive aid package. Kyrgyzstan was to receive a $150 million grant, a $300 million concessional loan, and a $1.7 billion credit, enough to roughly cover the costs of the Kambarata-I as well as President Bakiyev's re-election campaign. Russia also agreed to write off all of Kyrgyzstan's debt. Not surprisingly, Moscow expected a *quid pro quo* for this generous offer.

According to an ICG report, the implicit deal was that Kyrgyzstan would close the American air force base Manas, near the capital Bishkek (ICG 2010). The Americans had rented the base to support the Iraq and Afghanistan wars and their presence in Russia's backyard has long been a thorn in Russia's side.

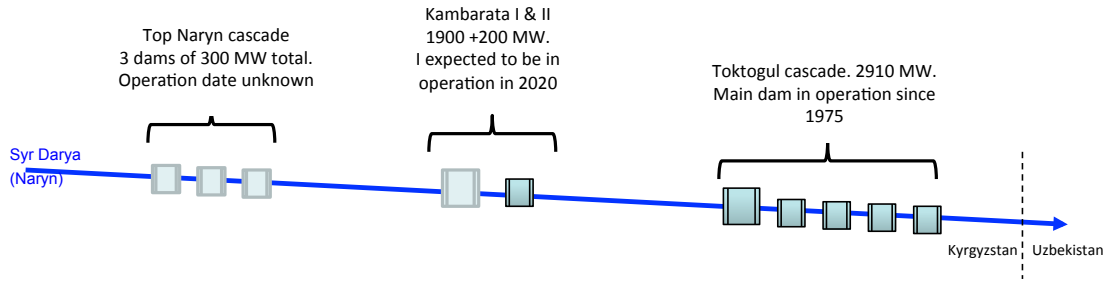

Figure 7.10 Diagonal of the river with the completed and projected dams. The Kambarata I would have the largest single generating capacity. Figure constructed by author.

In return for the credit, Russia also obtained a fifty per cent stake in the Kambarata cascade, according to the ICG report. This is significant, because control over the dam would give Moscow virtual control over the entire waters of the Syr Darya River: not only the river in Kyrgyzstan, but also the downstream flow through Tajikistan, Uzbekistan, and Kazakhstan. This reminded many in Central Asia of the imperial past.

Not surprisingly, the Uzbek leadership in Tashkent was not pleased with this arrangement. President Karimov stated at a regional summit on water and energy in 2009 that 'third countries which would very much like to take part in this discussion are also pursuing their own aims' (Karimov as cited in Eurasianet 2009). Nonetheless, he could not fully voice his opposition, because Uzbekistan depends on Russia, too. As one observer puts it: 'the Uzbeks

are opposed to the dam, but they cannot protest against the Russians' (interview ADB official, Bishkek 7-9-2011).

As critical geopolitical theory suggests, the outcomes of international affairs are tightly linked with national politics. By April 2009, Bakiyev had fallen out of favour with Moscow and the credit line was interrupted. This was widely believed to have been caused by the failure to close the American air base at Manas. The US had reopened negotiations on the base, offering to quadruple annual fees to $200 million per year. Although Bakiyev insisted that the closure was never part of the deal, Moscow remained adamant. According to them, Bakiyev had not kept his word and would, therefore, get no more support (ICG 2010). When a popular uprising ousted Bakiyev a year later, some saw the hand of the Kremlin behind it (Tisdall 2010).

One of the first actions of the new government was to fly to Moscow to discuss, among other things, the Kambarata credit. Although it remains unclear what Medvedev and then-interim Prime Minister Atambayev exactly talked about, it emerged a couple of months later that he was promised a similar credit line for the Kambarata project as Bakiyev, if he would win the October 2011 presidential elections – which he ultimately did (Eurasianet 2012).

Finishing the Kambarata-I will have serious implications for the geopolitics of the region. On the one hand – and this is the view held by Kyrgyz officials – it provides Kyrgyzstan with sufficient energy supply in winter so the Toktogul can be operated in its irrigation mode in summer (interview government official, Bishkek 14-9-2011).

However, there are reasons to suspect that outcomes will not necessarily be this positive to the downstream states. At the moment, the World Bank is financing a project constructing transmission lines from Kyrgyzstan and Tajikistan to Afghanistan and Pakistan. The latter two have severe shortages of electricity and are willing to pay for the supply over distances like this. For the Central Asian mountain states, it provides a solution to the summer surplus and an opportunity to generate additional income.[232]

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[232] The project is called Central Asia South Asia – 1000 (CASA-1000). Its feasibility study was completed in 2011 and if all goes according to plan the first electricity will be exported in 2016 (SNC-Lavalin 2011).

The creation of two new and growing exports markets for electricity could seriously alter the value of water. The discharge of water from the reservoirs will, quite literally, get an economic value that may be greater than the value of cooperating with Uzbekistan. It will provide Kyrgyzstan with a choice in export markets, driving up the price in the process. Critics and proponents of the Kambarata-I alike, have argued that the completion of CASA-1000 is the only way to make the dam economically viable (interview World Bank official, Bishkek 15-9-2011). Moreover, the economic rationale will increase Kyrgyzstan's regional power.

The general manager of the power utility that runs the project explains: 'we have been looking at different ways to finance Kambarata-I: capital investments from Russia, Kazakhstan and Kyrgyzstan; taking a loan from the Eurasian Development Bank, but I prefer the Chinese Exim bank because it's cheaper and better' (interview utility official, Bishkek 19-9-2011). An additional advantage of Chinese finance is that the credit does not have the same diplomatic conditions the Russians expect.

In the longer run, the Chinese may be interested in building a transmission line from the power station to their energy-hungry province of Xinjiang, across the border. This would have altogether different implications for the water and energy politics of Central Asia. One observer notes the impact of China on the water politics of Central Asia: 'it seems that Uzbekistan is not pushing water issues in the same way as before, probably because of the involvement of Russia and China in the hydropower sector' (interview government official, Bishkek 6-9-2011).

The Kambarata appears to be an appealing project to each Kyrgyz regime; successful completion will most certainly boost the popularity of the government. The legitimacy that ruling elites may acquire from the construction of a dam, the *grandeur* associated with regional power, and the perception of great achievements all contribute to the emphasis that has been placed on the Kambarata-I. Meanwhile, despite Moscow's displeasure, the US retains the key Manas air base.

If completed, the Kambarata dam is unlikely to address the water-energy paradox described above, because the imbalances in the system cause the problems, not the total production capacity. The geopolitics of financing the Kambarata illustrates how the interest of

countries like the US, Russia and China can be brought into line with those of the Kyrgyz energy elites to rationalise projects that would be deemed irrational by conventional standards.

The logic behind big dams is often outside the realm of simple economic cost-benefit analysis and the greater good of the population, but may be shaped by the interaction between a wider geopolitics and the business interests of local elites. At the same time, completion of the project depends on the geopolitical processes of project finance, which may lead to outcomes that cannot be predicted by the current leadership.

7.4 Electricity and revolutions

Not addressing the failures of the energy system, but attempting to build new dams, is indicative for the Kyrgyz case and tells us much about the state. Ultimately, the lack of reforms in the energy sector has implicitly caused the downfall of the Bakiyev regime. In April 2010, thousands of people took to the streets of Bishkek and other towns in northern Kyrgyzstan to protest.[233] The protesters condemned government corruption, repression, and rising utility prises in what seemed a re-run of the previous revolution in 2005 (Bond & Koch 2010).

Most accounts agree on the abruptness of the April 2010 revolution, even though unrest had been brewing for a while. On April 6, a thousand people gathered in the provincial capital Talas, where they stormed the government buildings. A day later, there were rallies throughout the country. In Bishkek, the protestors moved to central Ala-Too Square where it came to clashes with the riot police. The president instigated a state of emergency, but events spiralled out of control with protestors increasingly taking over government buildings. On April 15 Kurmanbek Bakiyev resigned and fled to Belarus into exile (Collins 2011).

An interim government was installed, composed of various opposition leaders, while former diplomat Roza Otunbayeva was chosen as interim president. The constitution was

[233] Although the ousting of Bakiyev in April 2010 has been referred to as the "April 2010 events" in western media, Kyrgyz scholars call it a revolution and I follow their definition here, noting the controversy over terminology and the sensitivity of the term revolution (interview academic, Bishkek 13-9-2011).

changed a month later and the country was formally transformed into a parliamentary democracy. According to the Organisation of Security and Cooperation in Europe (OSCE), the first "free and fair" elections in the history of Central Asia were held for Kyrgyz parliament in October 2010, and the people chose their president in October 2011 (OSCE 2010). The former opposition leader and interim Prime Minister, Almazbek Atambayev, became the new president.

Figure 7.11 Iconic photo of the 2010 Kyrgyz revolution. Young men have taken over control of the office of the president and strike a leisurely pose for a picture. Source: The Guardian, 7-4-2010.

Trying to account for the drivers of the revolution, the usually well-informed ICG reports that the rebellion that ousted Bakiyev from power had been 'sparked by anger at painful utility price increases and the corruption that was the defining characteristic of President Kurmanbek Bakiyev's rule' (ICG 2010: 1). A senior European diplomat, who was in Bishkek during the events, supports this view, arguing that 'everybody got fed up with the Bakiyev family, more his son and brother actually. They treated the country like personal property' (interview diplomat, Bishkek 5-9-2011).

According to an academic from the American University Central Asia (AUCA):

> The rise in electricity prices was the trigger [of the revolution]. Utility costs increased and the people were very unhappy. Underlying this was the poor economic situation, no infrastructure. Corruption and nepotism were other important drivers (interview academic, Bishkek 13-9-2011).

Electricity prices were raised from 0.7 som/kWh to 1.5 som/kWh overnight, which is a bad political move by any standards. Economists from the World Bank report that they did

suggest a tariff increase, but a multi-year step-wise increase rather than an instant doubling (interview World Bank official, Bishkek 15-9-2011). Although the price increase itself is necessary at one point to cover the costs of production, the timing seems to be related to the corruption and nepotism of the Bakiyev regime.

After a highly questionable procedure for lack of transparency, one of the four power distribution companies, Severelektro, was privatised and sold to the only bidder, a consortium led by Maxim Bakiyev. Doubling the tariffs would provide a huge cash flow (interview ADB official, Bishkek 7-9-2011). Although the fact that the country's most valuable distribution utility would be virtually given away to the son of the president was not widely advertised, Kyrgyzstan is a small country and gossip travels fast. Just as people suspected that Bakiyev and his cronies were behind the over exports of electricity during the summer before, they associated the utility price increase with this type of clientelistic practice (interview academic, Bishkek 5-9-2011).

The increase in electricity tariffs seems unreasonable because of the poor service delivery of the past two years, with long and frequent power cuts. As one observer puts it: 'people do not believe that any increase in tariffs will go to improvements in the energy sector, because of corruption' (interview academic, Bishkek 13-9-2011). Moreover, the country remains in poor economic conditions and the ability to pay is rather low, even though economists from the ministry suggest otherwise (interview government official, Bishkek 14-9-2011).[234]

In a sense, the low tariffs for water, gas, and electricity, have been part of a social contract. Clientelism through patronage networks was implicitly accepted to a certain extent, on

[234] Utility pricing is more than question of "ability to pay" and concerns what people think is right to pay instead. Although successive Kyrgyz governments have redirected the sanctioned discourse towards a more market-oriented model, this enormous price increase – albeit an attempt to cover the costs of production – is still too much and too soon.

the condition that the government would take care of the population in turn.[235] The increase of 2010 tilted the balance of the social contract in the wrong direction. Corruption increased while the state could no longer take care of the welfare of the population. The population did not accept this and decided to show its anger.

Kyrgyzstan has never been known for its strong internal security forces, so unlike Uzbekistan and Kazakhstan it could not fend off popular unrest with violence. This can be explained by the small size of the population. 'Security forces will never shoot on protesters because there is a large chance that family members are included' (interview academic, Bishkek 5-9-2011).

Figure 7.12 Overview of the links between tariff policy and politics in Kyrgyzstan. Constructed by author.

Although the political outcomes of the revolution are still uncertain two years after the revolution, some implications are clear:

> In order to re-win the legitimacy of the population, the transition government has pledged to lower the electricity and heating tariffs. Now the president will never raise the prices in the next two years […] No way that people would support any increase, they cannot cover the costs of the higher tariffs (interview academic, Bishkek 13-9-2011).

[235] Cook (1994) argues that there was a tacit agreement in the Soviet Union between the regimes (post-Stalin) and the working class where the state provided the economic and social security in return for political compliance. She also notes that this Soviet model started to crumble after 1991, because of deep conflicts between the type of social contract and the imperatives of economic reform.

This has been an important victory of the population over the corrupt establishment, but the utilities are still in deadlock, because the income from tariffs remains too low and below cost-recovery level. Financing the power sector remains problematic without adequate tariff reforms, even though the rulers could theoretically improve much by addressing losses in the system (Figure 7.12 shows this vicious circle).

It has become evident after the April 2010 revolution that the operation of the energy systems, which include notably the Toktogul dam, and domestic politics are tightly linked. Mismanagement of the hydroelectric system in Kyrgyzstan can have detrimental consequences for the legitimacy of the ruling elites. The relationship is more complex because the demands and expectations of the population also influence the choices made in the energy system.[236]

Tariffs cannot be increased without large public unrest and are, therefore, deliberately kept low. This prevents the utility from making the necessary investments in the energy systems and more water needs to be discharged from the Toktogul in the winter period to satisfy demand.

The rationale for operating the Toktogul is, thus, directly linked to domestic politics, the post-Soviet social contract, and the failure of the energy system. It appears that the patronage networks, the implicit social contract between the elites and the population, and the dilapidated electricity network, are holding each other hostage. This rationalises a logic of building more dams in turn. The dam logic is, as we have observed, increasingly diverging from the logic of governing the river at the basin scale. This should provide insights into the question of state formation in Kyrgyzstan.

7.4.1 Understanding the Kyrgyz state

The April 2010 revolution has forced many dominant theories on the Kyrgyz state to reinvent themselves. Political scientists have variously called the 2005 revolution a power struggle

[236] Ironically, Dahl used the concept of a reservoir as a metaphor for legitimacy. If the water remains above a certain level, the political situation will be stable. If too much water is discharged at one point in time and the water level drops, legitimacy is under threat. He would have been surprised to see that this metaphor can be interpreted literally for the case of Kyrgyzstan (Dahl 1971).

between northern and southern factions (Juraev 2008; Juraev 2010), a limited rotation of elites (Radnitz 2006; Tudoroiu 2007) or a transition to democracy (Cummings & Ryabkov 2008), but none seem to have expected or have been able to predict the second revolution.

Although at first glance the successful elections and the shift towards a parliamentary democracy seem to give credibility to the argument of Anderson (1999) who proposes that Kyrgyzstan is an exception to authoritarianism in Central Asia; a so-called "island of democracy". However, this version of transition theory fails to account for the omnipresent corruption and clan relations.[237]

The personal interests of the elites seem to be aligned with their clans, and these tend to guide decision-making in government and business. Sehring (2009) proposes that Kyrgyzstan (and neighbouring Tajikistan) can be qualified as neopatrimonial regimes because of the interaction between legal-rational formal democratic structures and traditional patronage networks. There is a relatively well developed political party structure; the parties are not divided along ideological lines but rather alongside patronage networks, or clans (interview diplomat, Bishkek 19-9-2011). Because politicians serve their network rather than the country as a whole, it has been argued that the initial democratisation has actually made clientelistic practices worse (Petric 2005).

Sehring (2009) further argues that the goals of water reforms since Kyrgyz independence have been in line with the standards of good water governance, and that the policy objectives are hard to reach because the neopatrimonial setting provides little room for reforms. New water management institutions are introduced at the formal level, yet at the informal level these are transformed into the existing networks of patronage. This framework

[237] Collins explains Central Asian politics through clans and patronage (Collins 2006).

holds for Sehring's study of public water reform but the focus on institutions fails to explain the interaction between the Kyrgyz energy sector, investors, and other riparian states.[238]

Another source of legitimacy of the Kyrgyz regime has been nationalism (Fierman 1997). While most observers have focused on the democratic transition of the clan-based patronage organisation, Megoran (2002) writes that building a concept of "the nation" has been central to President Akayev's authority, who ruled between 1991 and 2005. According to him, political competition centres around which group can construct itself best as guarantor of the nation. A nationalist ideology around the epic hero Manas has been constructed in such a way as to benefit the authority of the ruling elites.

Dams come into the story because of their service delivery (energy supply) and national symbolism. Feaux De La Croix (2011: 28)interprets the Kambarata cascade as 'a novel effort of the Kyrgyz government to boost its legitimacy and regional power'.

On top of this, there seems to be a social contract between the ruling elites and the population, which provides another source of legitimacy. Political participation remains limited, but a basic level of service delivery has always been expected and delivered, including low tariffs for gas, water, and electricity. An ICG report predicted that the legitimacy of the regimes in Central Asia will increasingly come under threat as the services decay and decline, which is in line with the model of this type of social contract (ICG 2011).

To conclude, I argue that a combination of nationalism, patrimonialism, and the Soviet legacy defines the logic of water-energy policy, the shifting operation of the Toktogul, and the desire to construct the Kambarata project. However, the balance between patronage networks competing for power and the project of nation-building through dam construction is an uneasy one. A dam may be built for the nation, but the kickbacks on the project are shared among a patronage network.

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[238] The limits of institutionalism have been indicated by Dave (2007) who criticised the formal-informal dichotomy of institutional approaches. Instead, she argues that state-formation 'has proceeded alongside the consolidation of the Soviet-erected regimes' (Dave 2007: 11). Indeed, a look on institutions alone misses out on the broader project of nation-building, which is linked to dam construction and operation in many ways (Mitchell 2002).

There are contradictions between the demands, with the identity of the patronage network on the one hand, and of the nation on the other. Nonetheless, this relationship rationalises building large dams but not fixing broken equipment. This is a rationality where enormous amounts of money may disappear and the persons involved can continue their work unabated (for a while), but where people take to the streets when utility tariffs are brought in the direction of cost-recovery level.

7.5 Conclusions

Kyrgyz leaders seem to focus on large-scale technocratic solutions to social and economic problems. This can partly be explained by large-scale projects providing a kind of legitimacy to the ruling elite that small bottom-up projects would not provide. It is more interesting to open a new hydroelectric power plant than to address the commercial losses in the energy system, even though the second may be more effective. Moreover, the latter strategy risks compromising one's own patronage network, because corruption and clientelistic practices are all-pervasive in the energy sector.

Operating the Toktogul to satisfy domestic energy demands and building the Kambarata-I dam is a project of nationalism, patrimonialism, and provides a form of charismatic authority to the leadership. Dams function as symbols of power of the state and a large dam like the Kambarata-I speaks to the population's feeling of national pride and *grandeur*. External experts, however, have argued that the Kambarata dam is based on flawed economics. Regardless, the logic of dams in Kyrgyzstan is not just based on economic cost-benefit analysis as the discussion above illustrates.

Kyrgyzstan is a particularly interesting case study for the relationship between dams and state formation, because the 2010 revolution seems to have shifted the country towards a more accountable form of government. The first signs look promising: the elections have been "free and fair", and Roza Otunbayeva was the first president in Central Asia that stepped down voluntarily (Economist 2011). However, new President Atambayev has stated in the past that he

thinks the presidential system is a better mode of government for Central Asia (interview academic, Bishkek 5-9-2011). It is uncertain where this will lead the country in the future.

The link between legitimacy and water-energy has explained some of the trends in the geopolitics of Central Asia's rivers, as well as the behaviour of the Kyrgyz elites. To run a water-energy system, however, many people need to be included. The question that remains is how these are either enrolled in the same discourse or how the elites can realise a certain operation of dams and reservoirs.

Chapter 8 Operating the Toktogul

The operations of the Toktogul dam and reservoir are governed by the complex and opaque interaction of various actors and processes. The description of the network of decision-making of Toktogul water discharges in this chapter hints at the prominence of informal relations over policy networks and provides an alternative for understanding agency and power in river management.

8.1 Meeting Manasbek

The water dispute of the Syr Darya basin states is, ultimately, only concerned with *when* the water flows in the river. The hydraulic mission transformed the river into a governable space and gave politicians, engineers, and bureaucrats a choice in the volume, timing, and frequency of water discharges. However, the alternative options have led to conflicts of interest post-1991.[239]

Operating the dam is primarily seen as a technical and economic trade-off between irrigation potential, hydropower interests, and international obligations. Consequently, some researchers have attempted to optimise operations with elaborate hydrological, agronomical, and economic models (Cai et al. 2003; Antipova et al. 2002; Murray-Rust 2003).

This chapter demonstrates that such analyses are wobbly at best and do not hold for the case of the Toktogul, because they neglect political processes and informal relations. In contrast, I argue that the operations are guided by fragile and unstable power relations. The character of these relationships between people, processes and ideas leads to a particular mode of dam operation. These power relations are formulated in part by the geopolitics and geo-economics of the river and dam, but influence both processes in turn.

One can imagine this with the following *thought experiment*. There is one individual in the operating room of the Toktogul hydro-electric power station who pulls a lever or presses a red button to open the dam's sluices in order to let the water flow. My requests to visit the dam and interview this individual have repeatedly been declined by the Kyrgyz government, on grounds of national security. Therefore, I am compelled to take a literary and analytical liberty in this chapter. I have invented a personage that operates this dam. He is an engineer with the

[239] These are, in fact, new conflicts that do no predate the construction of the dam or the geopolitical shift of the 1990s.

quintessential Kyrgyz name Manasbek and in this chapter I describe the network of actors and processes that influence his choices.[240]

This approach borrows some of the epistemological and methodological assumptions from actor-network theory (ANT) and will reconsider the workings and meaning of power and agency. Agency is not a quality "owned" or "held" by actors, but rather a property of the networks that are composed by relationships between various actors. ANT theorists call this "network effects" (Bosco, 2006). The agency of Manasbek himself is, thus, only of minor interest to this study. While his personal motivations cannot be ignored, this approach argues that these are the product of relationships with others anyway.

The descriptive analysis has explanatory powers too. All the relations in the network are underpinned by other relations of causality and fundamental structures. Moreover, a descriptive nature has a value by itself because:

> uncovering the heterogeneous 'actor networks' of associations allows us to explain the mechanisms of power and organisation in society, and to understand how different things (from knowledge to institutions to material artefacts and technologies) come to be, how they endure over time, or how they fail and exit from our lives and our world (Bosco 2006: 137).

The approach of this chapter can be seen as a 'move beyond deterministic models that trace organisational phenomena back to powerful individuals, social structures, hegemonic discourses or technological effects' (Whittle & Spicer 2008: 616) Instead, it helps seek out patterns of multiple causation in processes and relationships, some of the central concerns of this research project.

Although Manasbek is a fictional character, the rest of the chapter is based on processes and relations that are produced by, or reconstructed through data generated during the periods of fieldwork, exploration of primary sources, and an extensive literature review. The network is very real. It is the purpose of this chapter to unpack the logic of Toktogul operations. The chapter responds, then, to the sub-question how do elites operationalise their logic for operation

[240] I am aware of the gender bias in the construction of my character. However, in contemporary Kyrgyzstan the person is more likely to be male and, for the sake of argument, I had to select a gender.

the Toktogul dam and reservoir? It is concerned with political questions such as who is authorised to govern the river, in what interests and for whom.

8.2 Governing the Syr Dayra River

Operating the dam equates to governing the river.[241] Theoretically, these decisions are based on a set of evaluations in a policy structure. However, the analysis in this section demonstrates that there are shadow processes that may be more influential than the legal-rational policy process.

The Toktogul appears to be governed by a conventional public policy structure, with vertical lines of decision-making between the Prime Minister, directors of the Ministry of Energy and the State Committee for Water Resources (SCWR), managers of the utility *Electric Stations J.S.C.*, down to the operating engineers. However, this formal model does not correspond well with practice. The policy model does not hold because of its exclusive emphasis on formal, or legal actors.

The shortcomings of policy analysis in Central Asia have been identified by Sehring (2005) and Herrfarhdt-Paehle (2010), who have studied the institutional changes to water management in Kyrgyzstan. They worked around this problem by combining policy-network analysis of formal decision-making bodies and procedures with ideas on informal clan and patronage relations. Although this method has proved fruitful, it is no radical departure from the ontology of policy-network analysis and will only work if the right actors and processes are actually included in the analysis.

In contrast, the analysis below interprets the decision-making as an actor-network between our engineer Manasbek, who operates the Toktogul, and the actors that influence his choices. Discharging water from the reservoir at a certain time is the product of these

[241] Operating the dam refers to the decisions made as to when to open the dam's sluices, in order words, when to let the water flow.

associations and describing this process gives an indication of *how* the river is governed.[242] Evidently, these relationships are not stable and vary in their constellations and direction of causality. The narrative of this chapter is thus merely the discussion of a snapshot of the network, but it should provide insights into the complexities nonetheless.

8.2.1 The contradictions of the formal-legal framework

Manasbek, our fictional personage who works in the operating room, sits next to the red buttons and levers that open the flood gates of the Toktogul. He is an engineer, not a manager so follows the orders of his superiors, who are enrolled in the formal-legal procedures of dam operation.

The formal-legal decision-making structure of the Toktogul dam and reservoir looks, on paper, like a text-book example of a vertical policy hierarchy. A range of actors and institutions are involved in well-defined roles. Unfortunately, it does not function like the text-books, as our Manasbek has experienced during the last decades. The formal processes described below are contested by the informal and external actors that enter the stage in the next sections of this chapter. But even in the formal-legal domain of decision-making there are three types of inconsistencies: a principle-agent problem, competition among state institutions, and a power struggle in the coalition government.

Figure 8.1 illustrates the formal decision-making procedures at a state-unit level.[243] Manasbek is an employee of Electric Stations J.S.C., the state-owned utility that owns and operates the vast majority of power generating facilities in Kyrgyzstan. This includes, as its prime asset, the dams and hydropower stations of the Toktogul cascade. The utility is formally regulated by the Ministry of Energy, because the primary task of Electric Stations J.S.C. is the production of electricity.

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[242] This is opposed to the approach of most authors, who take the nation-state as departure point and understand the interests of the Uzbekistan and Kyrgyzstan as the stable drivers of decision-making (Elhance 1999; Sievers 2001).

[243] Although this level of analysis does not give due attention to the politics within state units, it is sufficient to illustrate the argument of complexity

However, because of the nature of the power source, hydroelectricity, the discharges of water are, in turn, regulated by the SCWR.[244] Above that is the cabinet of ministers, as well as the Prime Minister's and president's office. At the time of writing, the Prime Minister is the only state unit that has direct influence over the utility as well, but this has been the president at different times in the past.[245]

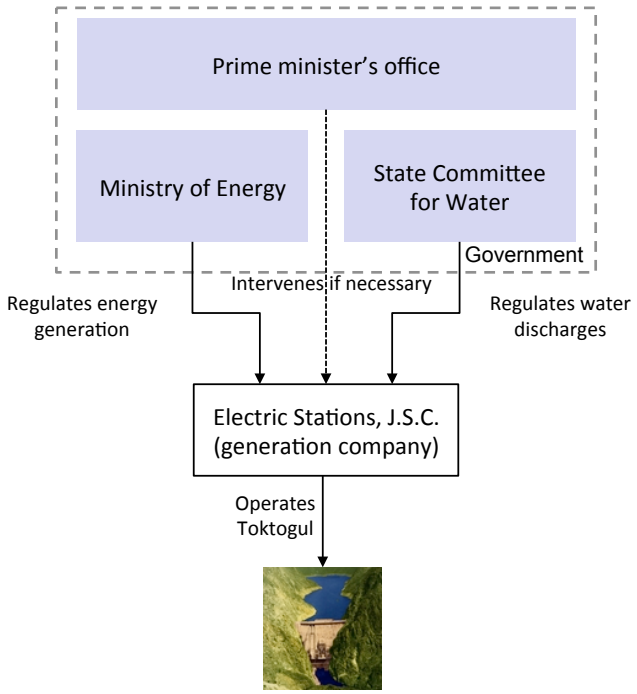

Figure 8.1 The formal-legal decision-making structure for operating the Toktogul. Constructed by author.

Consequently, Manasbek or his superiors, are given orders by three different state units: the Ministry of Energy to regulate the electricity production and sales of electricity; the SCWR to regulate the water discharges; and the Prime Minister's office in special cases, or if these regulations are conflicting (interview utility official, Bishkek 19-9-2011).

[244] SCWR has the same role, level of responsibility, and mandate as a regular ministry. It was founded by the post-revolution government by splitting the former Ministry of Agriculture and Water Resources. Experts are not entirely sure why it has been dubbed a State Committee rather than a Ministry, but this is likely the product of an internal bargaining process by the parties that grabbed power after the April 2010 revolution and the water technocrats of the former Ministry of Agriculture and Water Resources (interview energy consultant, Bishkek 24-9-2011).

[245] Constitutionally the Prime Minister is the only individual that can overrule the ministers, but under both the Akayev and Bakiyev presidency this role was taken over by the president. It is still unclear what Atambayev's position on this constitutional issue will be, but when he was Prime Minister he has demonstrated a keen and direct interests in the operation of the Toktogul himself (interview diplomat, Bishkek 16-9-2011).

The director of the SCWR paints a rosy picture concerning this interaction: 'at the moment, the Ministry of Energy and State Committee decide these things together, if they can't reach consensus, the Prime Minister may intervene. Fortunately, consensus is always reached' (interview government official, Bishkek 14-9-2011). This can be explained by the conflict between the state units, the importance and symbolism of the Toktogul to the nation as a whole, and by the power a politician derives from being involved in the operations of the state's most valuable asset (interview energy consultant, Bishkek 23-9-2011).

The first problem with this network is a principal-agent problem, where Electric Stations J.S.C. is in charge as the agent, but the government – or society at large – is the principal, being the owner of the utility.[246] A principal-agent problem generally entails that the interests and actions of the entity in control may be different from those of the owner (Grossman & Hart 1983). It is questionable indeed whether Manasbek's interests are the same as those of society at large.

In countries where water management plays an important role in public and political life, large bureaucracies of water technocrats may emerge. Molle, Mollinga and Wester (2009) argue that water bureaucrats have become very powerful and have their own interests and ideologies:

> bureaucratic power is strongly correlated with the size of the budget received from state coffers, the number of staff, and in the case of water the heavy equipment needed for infrastructural interventions (Molle et al. 2009: 336).

The former Soviet Union was characterised by large bureaucracies like those described in the quotation and this was not different for the water management community in Central Asia.

Electric Stations J.S.C. in particular has been critiqued for being a small empire in itself. The USAID management diagnostic produced a rather crushing report and recommended to re-evaluate labour productivity:

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[246] In fact, Electric Stations J.S.C. is owned for 90% by a government agency, the Ministry of State Property. The rest of the shares are owned by pension funds and other state-owned investors (7%) or private individuals who obtained shares during the voucher privatisation of the early 1990s (3%) (interview utility official, Bishkek 19-9-2011).

> The company organisation is a hold-over from socialist days […]. There are also, by any metric, far too many employees for the mission and task of Electric Stations J.S.C. […]. The flow of information and technical direction are archaic and unnecessarily complex and there is duplication of effort between the field and head offices (Tetratech 2011: 8).

The operations of the hydroelectric power stations are organised in such a way that the organisation of Electric Stations J.S.C. can reproduce itself and occupy an important position in society. More people work in this particular hydraulic bureaucracy than necessary given the work available and the organisation commands a disproportionate portion of the government budget (interview energy consultant, Bishkek 23-9-2011).

This does have implications for the how the dam is operated too. It is Manasbek's direct interests to keep his position and, by extension, the relative power of the utility.[247] The reproductive power of the utility has frustrated many donors that have tried to address the inefficiencies in the energy section (interview development official, Bishkek 13-9-2011). In other words, the principal-agent relation of the government and Electric Stations J.S.C. is a particular type of geopolitical relation that is riddled by contradictions and complexities.

The second problem with the policy network of the Toktogul is that there are conflicts between the regulation by the Ministry of Energy and the SCWR. The former regulates the generation of electricity and the latter the discharge of water.[248] The SCWR is the state unit that joins the water allocation discussions of the ICWC, but ultimately the outcomes of these negotiations are only one set of factors influencing the discharges of water, much to the chagrin of Uzbekistan and Kazakhstan.[249]

On the other side, the Ministry of Energy negotiates annual electricity sales to Kazakhstan (interview government official, 22-9-2011). Theoretically, Manasbek could be instructed to generate *more* electricity to satisfy energy agreements and domestic demand, as

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[247] In particular in light of the budget cuts and reorganisations proposed by the Ministry of Energy and development partners such as USAID.

[248] To recap, these are directly connected in the water-energy nexus: generating 1 kWh discharges approximately one m^3 and vice versa.

[249] One Uzbek ICWC official argues that 'Kyrgyzstan ignores the regional agreements, by not following the ICWC motions' (interview ICWC official, Tashkent 22-7-2009). However, this wrongly suggests that the other riparian states have, in fact, devolved more decision-making power to the ICWC, which is not the case.

well as to discharge *less* water to be able to meet regional agreements.[250] This demonstrates that the logic of governing the river and the logic of operating the dam are, at times, linearly opposed.

When asked, who is responsible for the operation of the Toktogul the involved officials respond:			
Electric Stations, J.S.C.	Ministry of Energy	State Committee for Water Resources	Ministry of Foreign Affairs
'Everything is managed by Electric Stations J.S.C., but we work together with the State Committee'	*'The prime minister has to agree first but then we decide and tell Electric Stations J.S.C.. The State Committee is not involved in these decisions'*	*'Ministry of Energy is responsible for operation Toktogul, but at the moment, the Ministry and State Committee decide on these things together'*	*'In essence, there are two different agreements for water and energy'*
(Interview utility official, Bishkek 19-9-2011)	(Interview government official 22-9-2011)	(Interview government official, 14-9-2011)	(Interview government official, 26-9-2011)

Figure 8.2 Top bureaucrats of the responsible government units disagree on Toktogul policy.

Every now and then, Manasbek will also receive instructions directly from higher state units, which is likely to happen in the period after regional summits when the president or Prime Minister want to demonstrate his or her good intentions. Indeed, the high-level summits tend to take place an organisational level above the ministerial and can lead to more contradictions in the instructions. A trend of the presidential administration duplicating the regulating and commanding functions of the ministries has been observed in the past (Dukenbaev & Hansen 2003).

However, the formal-legal framework becomes messy and unclear because of these contradictions. This is partly due to bureaucratic power struggle and partly to the historical separation of water management from energy management. Surprisingly, even among top bureaucrats the division of tasks between the roles of Electric Stations, J.S.C., the Ministry of Energy, the SCWR, and the Ministry of Foreign Affairs appears to be murky at best (Figure 8.2).

[250] While none of my sources has a concrete example of this happening, it is highly likely that such contradicting instructions do occur. Alas, the interests of the opposing actors are completely different.

The third problem with the policy network for the Toktogul has its origins in the recent political developments. Kyrgyzstan is governed by a coalition government since the first free and fair parliamentary elections were held in October 2010 (Collins 2011). The coalition formation process was difficult, as political parties are divided along clan and patronage lines rather than ideological divisions (interview academic, Bishkek 5-9-2011). Ultimately the largest party was forced into opposition, with three other parties forming the government: the Social Democratic Party (SDP), Ak Zhurt, and Respublica.[251]

The different parties control different executive agencies in the government and there appears to be little policy coordination among them, partly due to the acrimonious clan relations (interview newspaper editor, Bishkek 19-9-2011). The Prime Minister is from SDP, the Minister of Energy, Askar Shadiev, is from Ak Zhurt, while the chair of the SCWR is from Respublica. Cooperation has been difficult because, according to one senior diplomat: 'they hate each other's guts' (interview diplomat, Bishkek 5-9-2011).

The lack of communication does not need to be a problem if the political parties would have the same policy aims. However, the patronage-like nature of Kyrgyz politics aligns the goals of the respective parties with their power bases. The Social Democratic Party is from the North, whereas Ak Zhurt is the successor party of Bakiyev's Ak Zhol Party with a power base in the South (interview academic, Bishkek 13-9-2011). The South has more irrigated agriculture whereas the northern part of the country has higher energy demands.

Moreover, the rents from the energy sector are distributed unevenly with the main beneficiaries in the political establishment in the North (interview energy consultant, Bishkek 23-9-2011). The difference in interest between the constituencies of the parties combined with the lack of positive cooperation, may exacerbate the existing contradictions in the formal-legal policy framework. The associations between clan, party, state unit, and water could become very important for decisions pertaining to water discharges.

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[251] Contrary to what its name suggests, SDP of current President Atambayev has nothing to do with social democracy, according to observers. Its policies have been characterised as right-wing, protectionist, and nationalist (interview academic, Bishkek 5-9-2011).

Most theories of transboundary water management posit that the Toktogul dam is operated by "the government" (Sievers 2001; Wegerich 2004), but this idea needs to be problematised. The government is not a unitary actor itself, but made up out of the complex interactions of various individuals, institutions, and corporations. Looking beyond the level of state units at the individuals involved, the picture becomes even more complex. Manasbek is not instructed by "the government", but rather by a complicated figuration of different actors. Figure 8.3 shows the contradictions of the formal-legal framework.

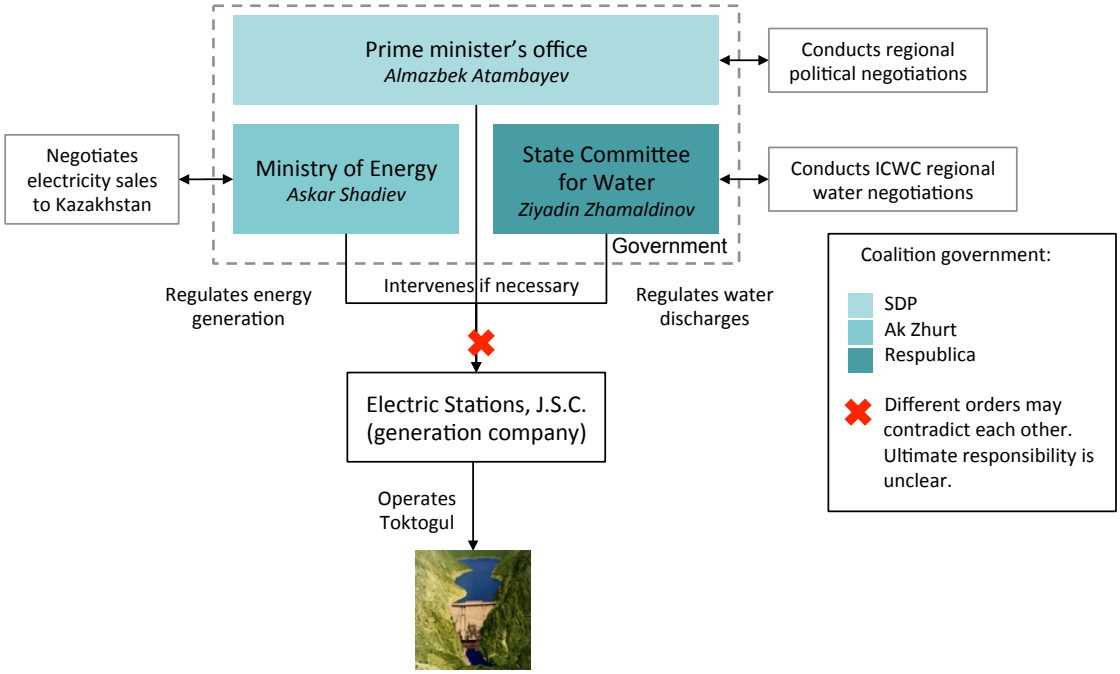

Figure 8.3 The decision-making network for operating the Toktogul including some of its complexities and contradictions. Constructed by author.

Evidence of water discharges suggests that there are other actors not that have not been included in the discussion above. The ambiguity in the formal-legal policy hierarchy leads to the increasing importance of informal relations. Manasbek and his superiors need to take decisions with conflicting orders, and almost by definition this gives rise to shadow relationships in the network.[252] This echoes Sehring's (2009) discussion of Kyrgyzstan water

[252] The concept "shadow relations" follows work on the Soviet shadow economy, or black market. This is the part of the economic system that is organised outside of the realm of the state (Feldbrugge 1984). Likewise, I use the concept to describe policy relationships that are not part of the formal-legal framework.

institutional reform in the neo-patrimonial context: formal institutions are there, but informal relations remain more important.

8.2.2 "Stealing the water": the Toktogul and corruption

Although Manasbek and his colleagues are aware of the formal-legal framework, they are likely to be involved in patronage networks too. One example of these informal networks is the involvement of the family of former president Bakiyev in the energy emergency in 2008-2010.[253] The son of President Bakiyev, Maxim is the central figure in this story. Maxim was the most influential advisor to his father. Between October 2009 and the fall of the regime in April 2010 he was also formally head of the Central Agency for Development, Investment, and Innovation.[254] It has been argued that Maxim, not his father, had the real power in the country (Bond & Koch 2010).

People knew that informal patronage networks were an integral part of society and rule in the country (Collins 2006), but things had grown progressively worse since the 2005 Tulip Revolution. Two events in particular affected the water operations in the country, as well as the public opinion of the Bakiyev regime: the illegal exports of electricity in the summers of 2007 and 2008, and the privatisation of Severelektro in January 2010. Both events have had a significant direct and indirect impact on how Manasbek operated the dam and reservoir in that period. Because it is methodologically problematic to map out shadow networks of power, I describe these two events to give insight in the extent and nature of informal relations in the water network, based on my interviews, newspaper articles, and reports.[255]

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[253] See Chapter 7 for more information on the nature and origins of the 2008-2010 energy emergency.

[254] The Russian acronym of this organisation is TSARII, or the diminutive of tsar, which is somewhat ironic given Maxim's standing in the inner circles of power.

[255] Informal networks include corruption, which makes description rather challenging. Few people want to talk about corruption, because of fear for the state or because of their own involvement. Moreover, most of the information on this topic was based on rumours and gossip, challenging the robustness of the research project.

The first sign that there was something off with the Toktogul was when then-Prime Minister Chudinov requested an emergency energy credit from the World Bank in July 2008 to ensure sustained electricity supply for the coming winter (AKIpress 2008). According to an ICG report, by this time those in the inner circle of the presidential administration knew that water had been discharged from the Toktogul in the winter of 2007-2008 and the energy sold to Kazakhstan 'by a highly influential figure close to the ruling family' (ICG 2008: 14). The rumours spread among government officials and experts during the summer of 2008 and soon it became a public secret in Bishkek and beyond.

The problems became clear the next winter when low water levels in the reservoir warranted severe power cuts (Juraev 2009). It was not until after the April 2010 revolution, however, that evidence was revealed that the Bakiyev family had sold the energy for private profits, while it would be so sorely needed domestically the next winter (interview energy consultant, Bishkek 24-9-2012).

It turned out that an additional 1 TWh of electricity had been sold to companies in neighbouring Kazakhstan in the summer of 2007 (ICG 2010).[256] Although these excess energy sales have been denied by government spokesmen to this date (interview government official, Bishkek 22-9-2011), evidence of water discharges and energy production suggests otherwise. It seems highly unlikely that such sales would have taken places without the presidential entourage being involved.

The consequences of these sales are simple: 'the water level in Toktogul, the country's largest reservoir and the source of most of its energy, was catastrophically and inexplicably low' (ICG 2008). The low water levels led to twelve-hour power cuts in Kyrgyzstan, too little water being available for irrigation in Kazakhstan and Uzbekistan, and tension between the states in result. Although likely commanded by someone in the presidential administration, many people must have been involved in such a deal, including our Manasbek. Regulation from

[256] Which is, staggeringly, the equivalent of 1 km^3.

the Ministry of Energy and the SCWR is rather ineffective when the engineers are directly commanded by the son of the president.

Some have tried to explain how these illegal exports of electricity by the Bakiyev clan could happen. An expert states that 'Maxim had put his own people in charge of the energy companies' (interview ADB official, Bishkek 7-9-2011).[257] With the right people in place, discharging water and generating electricity became relatively straightforward because of the out-dated equipment.

'"Black holes" of technical losses have been abused. Stealing the energy was technically easy because the equipment is old. Spilling of water has been used as an excuse' (interview ADB official, Bishkek 7-9-2011).[258] This patronage network functioned well and provided Maxim and his cronies with huge rents, until the hydrology started to work against them. Less rainfall and a low water level in the following years made it obvious that much water had disappeared.

Officials from the Ministry of Energy are still in denial over this event, probably because it casts doubt on the professionalism of the entire sector. One director of the Ministry of Energy explained

> Excess export of electricity happened in 2008 and this affected the availability of electricity to the population. The average water level [in the Toktogul] is usually 12 km^3 but in 2008 it was 8 km^3 […] but in my opinion, it is impossible to discharge water without anyone knowing. There is a cascade of five hydroelectric power stations right downstream of the Toktogul. Stealing electricity is impossible because it the water had to pass all five stations. Very many people should have been involved and this did not happen (interview government official, Bishkek 22-9-2011).

The last comment is interesting because of what it tells about the network that is involved in the discharges of water. Figures suggest that the recorded exports of electricity in

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[257] In Bakiyev-era Kyrgyzstan, this was relatively easy to do, because every official's position depended on how well they got along with the president and his sons, according to some (interview energy consultant, Bishkek 23-9-2011). Taking direct orders from the top seemed to be the best way to thank the Bakiyevs for providing one with one's job. This corrupt employment system was in place at all levels, from the Ministry to Manasbek himself (interview energy consultant, Bishkek 23-9-2011).

[258] Spilling water is the term used for discharging water without generating the corresponding electricity. Usually, this only occurs when the reservoir is too full.

2007 have been the highest on record (see Figure 7.4 of the previous chapter) and this does not even include any undocumented sales of electricity.[259] His statement is therefore unlikely to be entirely correct. Instead, it seems that *very many people* have been involved in the event.

The second event that gives insight into the extent of the shadow policy network also concerns Maxim Bakiyev's involvement in the energy sector. He must have intended to formalise his network of control over the sector: to move form shadow control over the engineers and bureaucrats to legal ownership. In January 2010, a couple of months before the revolution, the government set out to privatise one of the four electricity distribution companies: Severelektro.[260]

Privatisation does not need to have a negative impact on the economy, if it is done well. Moreover, it was recommended by various international agencies (interview World Bank official, Bishkek 15-9-2011). Unfortunately, the Kyrgyz effort turned out to be a disaster for the energy sector of the country, for the Bakiyev regime and, ultimately, for Maxim himself. The selling price for Severelektro was $3 million, even though the company had been valued at $317 million two years earlier (Suhir 2010). Moreover: 'two weeks before the privatisation, the parliament adopted a law that wrote off all of Severelektro's debt' (interview energy consultant, Bishkek 23-9-2011).

It was not Maxim Bakiyev who bought the company directly, but his involvement was widely suspected. Severelektro was bought by an unknown company called Chakan. According to a report in the Times of Central Asia a couple of months later: 'the chairman of the board of Chakan Hydroelectric is Alexei Shirshov, who is a member of the inner circle of Maxim Bakiyev, the youngest son of ousted President Kurmanbek Bakiyev' (Times of Central Asia 2010). At the time of the privatisation of Severelektro, 'Shirsov sold an old 1974 Yak-40 plane

[259] The reports from newspapers and the International Crisis Group talk about illegal sales of electricity, but this is not technically correct. Although Electric Stations J.S.C. is a state-owned company, it can legally operate as it pleases, particularly if there are instructions from the top. Misreporting of sales or the prices for the sales, however, is probably illegal.

[260] According to experts Severelektro is the only profitable distribution utility, because it serves Bishkek and the more affluent northern part of the country (interview energy consultant, Bishkek 23-9-2011).

to the government for $3 million too This was a round trip transaction' (interview energy consultant, Bishkek 23-9-2011).[261] This can no longer be described in terms of patronage networks, but is blatant corruption.

There are three ways in which this event would affect the network of Toktogul operations. This corruption was large enough that it caught the public eye, albeit only after the revolution. It is not unlikely that similar blatant corrupt practises have taken place elsewhere, including possibly around the engineers that operate the dam and reservoir. Moreover, control over Severelektro or any of the distribution companies means control over the supply of electricity, and, by extension, over the water discharges from the Toktogul. Finally, it turns out that the processes of dam operation that tend to be described as highly technical processes, are in fact mired in political intrigue, shadow practices, and plain corruption.

After the revolution the scale of the corruption around the privatisation became fully apparent and Severelektro was nationalised again (Abdrakhmanova & Toktonaliev 2010).[262] However, the events of the excess sales of Toktogul-electricity and the privatisation of Severelektro tell a broader story.

This network of corruption and patronage is, I argue, an integral aspect of the network that governs the water discharges from the Toktogul. Manasbek is enrolled in the shadow network as well as the formal-legal network of dam operations. The interaction between these decision-making networks is, however, not linear and this may lead to unexpected outcomes. Mapping these relations by including the shadow association between powerful people is difficult by any methodological standard.

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[261] A plane of this age and type is worth only a fraction of $3 million (interview ADB official, Bishkek 16-9-2011).

[262] Just like Kyrgyztelecom, another state-owned company that was privatised to associates of Maxim Bakiyev in similar ways.

8.3 Geopolitical relations of transmission lines

Although Kyrgyzstan holds *de jure* sovereignty over the dams and reservoirs in its territory, in practice its policy is influenced by external factors too. The Central Asian United Energy System (CAUES) influences the geopolitics of dam operation significantly. Evidence suggests that Kyrgyz leaders are coerced to operate its dams to support irrigation in Uzbekistan, because the Uzbeks control virtually all electricity transmission lines to Kyrgyzstan.

This paradox is a consequence of the integrated water and energy system of the Soviet Union, called CAUES, which made much sense during the single Soviet economic space. Energy resources were distributed unevenly throughout the region and the carbon-fired power plants in Uzbekistan and Kazakhstan could provide a balance to the seasonality of the hydroelectric facilities in Kyrgyzstan and Tajikistan. Consequently, the transmission lines between the population centres (base loads) and power stations does not follow national borders. After independence the Central Asian Republic would depend on one another for (part of) their electricity transmission or production.[263] The integrated system consists of a ring of a 500 kV transmission line through Kazakhstan, Uzbekistan, Tajikistan and Kyrgyzstan, augmented by underlying networks of 220 and 110 kV (Tetratech 2011c).

The majority of the power lines to the Kyrgyz base loads pass through Uzbek territory and its substations. The majority of the supply to Bishkek pass through Kazakhstan as well. This provides the Uzbek leadership with the power to completely obstruct electricity supply to the southern Osh and Batken oblasts, while both they and the Kazakh leadership could severely limit supply to Bishkek and the northern oblasts. In fact, only Jalalabad oblast has a domestically contained transmission system (interview energy consultant, Bishkek 23-9-2011).

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[263] It has been argued that both the borders between the Socialist Republics and the energy lines have been drawn by divide and rule tactics under Stalin. The borders were to spread the ethnic groups over different states to have them fighting with each other rather than questioning Moscow's authority. Particularly the Ferghana Valley has become subject of this policy (Roy, 2000; Sabol, 1995). The energy links (including gas and oil) were supposedly designed to make the states dependent on each other too. However, this view has also been challenged by others because it oversimplifies ethnic relations (Edgar, 2004).

Figure 8.4 shows a map of the electricity network in this part of Central Asia. The Toktogul cascade is indicated, located at a geographically inconvenient place: there are east-west mountain ranges that that the map does not reveal, splitting the country geographically in two. The second-largest city of the country, Osh, is served by a transmission line from the Toktogul that passes through Uzbek substation Lochin. This puts the city at severe risk, because there is no alternative electricity supply to Osh.

The northern part of the country is limited too. Although 1100-1200 MW can be sent to the North from Toktogul, the Frunzenskaya substation can deliver no more than 850 MW to Bishkek. The rest of the electricity is provided by lines that pass through Uzbekistan and Kazakhstan. Moreover, this is all transmitted by one 500 kV power line. When it breaks, lights go out in Bishkek.

The current set-up is highly problematic for Kyrgyzstan. According to the management diagnostic USAID has written for the state-owned transmission company NESK 'Uzbekistan in particular has threatened for the past three years to disrupt flows through their part of the network, and, in fact, is building transmission facilities that would enable them to serve their national customers without using external transmission facilities' (Tetratech 2011b: 9).[264] The risk of either Uzbekistan or Kazakhstan leaving CAUES is very real and would severely hamper provision of power (Yadgarova 2009).

In the meantime, Uzbekistan has updated its Lochin substation so it no longer depends on Kyrgyzstan for its own transmission. According to one expert, this 'has been a highly strategic move from Uzbekistan, but the Kyrgyz have been wasting their time in corrupt scheming' (interview energy consultant, Bishkek 23-9-2011). The Kyrgyz have failed to construct a North-South transmission line that bypasses the Ferghana Valley and remain dependent on Uzbekistan.

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[264] NESK is another state-owned utility responsible for the transmission of electricity. Electric Stations J.S.C. generates the power and NESK transmits it. Although both are supposedly separate entities, they are still very much interconnected in their business operations (interview utility official, Bishkek 19-9-2011).

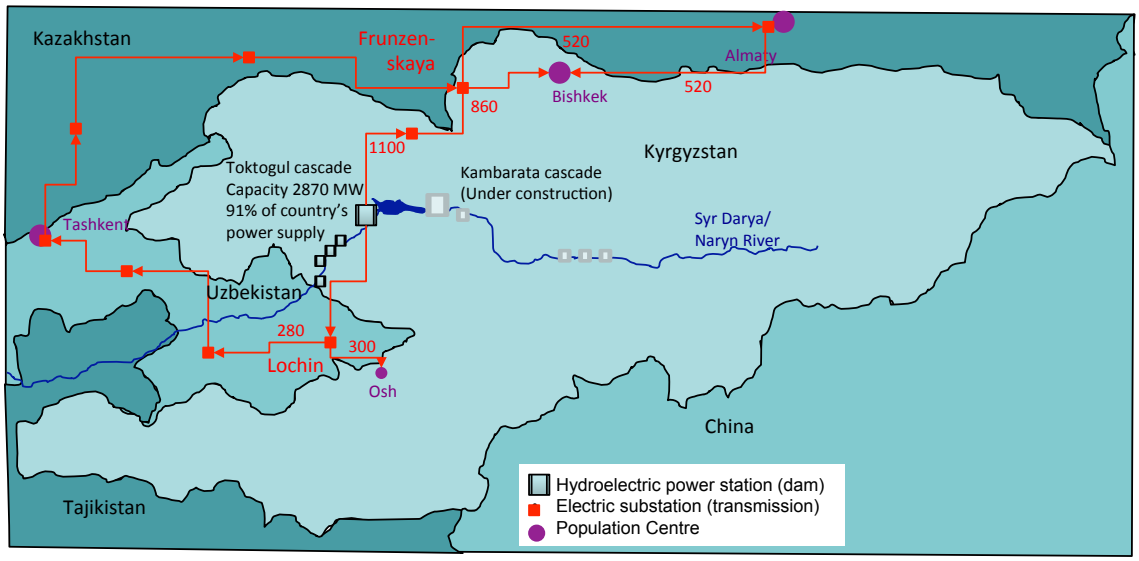

Figure 8.4 Map of the transmission network of Kyrgyzstan. Electricity generated in the Toktogul cascade does not reach the consumers without obstacles. Map constructed by author, based on Manuscript from interview with energy consultant, Bishkek 24-9-2011.

Uzbekistan now charges a hefty $7-9 million annual fee and they are holding the Kyrgyz leaders in the palm of their hands 'It is not certain how this will develop. It seems like Uzbekistan is extorting Kyrgyzstan, which reduces Kyrgyzstan's leverage over the Toktogul operations' (interview energy consultant 23-9-2011). Kyrgyzstan has been subject to bullying in the past, with gas supplies cut off and borders closed, and this geopolitical process is likely intended to increase Uzbek leverage over Kyrgyzstan (Megoran 2002).

The $7-9 million fee, which amount almost 25% of NESK's annual revenues, is likely to have two purposes. Primarily, it is an expression of political power. However, it also provides a form of control over Toktogul operations. Kyrgyzstan realises that not giving in to Uzbek water demands could mean that the electricity generated by the Toktogul will never reach the consumers. When I asked a spokesperson of the Ministry of Foreign Affairs on the link between the geopolitics of transmission lines and Toktogul operations, he avoided an answer, although he did say that there were annual negotiations with Uzbekistan over both the electricity transmission and water timing and allocation (interview government official, Bishkek 26-9-2011). This suggests that the two issues are connected at the highest political level, even though spokespersons from the Ministry of Energy, Electric Stations J.S.C., and the SCWR have denied this (interviews government & utility officials, Bishkek 14-9-2011; 19-9-2011; 22-9-2011).

Plans for the North-South transmission line have been on the table since the 1990 but never materialised.[265] At the moment, a Chinese firm is building the long-awaited Datka-Kemin line, albeit years overdue (interview ADB official, 7-9-2011). At the time of writing there were also large concerns over the disintegration of the CAUES. At a press conference in early 2012, Minister of Energy Shadiev expressed worries that Kazakhstan intends to leave the system (Kostenko 2012). This could cause immense economic damage to Kyrgyzstan.

The geopolitics of transmission lines have a significant, mostly negative effect on Kyrgyzstan's sovereignty over decision-making on the Toktogul. The geopolitical process is made up out of complex interactions, including the shared Soviet history, inter-state relations characterised by animosity, and the construction of new power lines. It does not matter whether the threat from Uzbekistan is implicit or explicit. Clearly energy self-sufficiency and energy security are different things.

8.3.1 The global water discourse and donor agendas

At the global scale there are processes influencing the policy-making of the Toktogul too. Certain observers have noted a change in emphasis of the global water discourse and by extension donor policies, from a green, environmental agenda, to a brown, utility-based agenda (interview World Bank official, Bishkek 9-9-2011). According to an official of the Institute for Water Problems (IWP) 'in the 1990s, the donor community was unwilling to talk about energy, only the environment was on the agenda. This has changed and now it is possible to talk about energy" (interview government official, Bishkek 6-9-2011). Consequently, there has been a considerable shift in the type of projects supported by the donor community. In the 1990s it was all about the Aral Sea and saving ecosystems throughout Central Asia, but during the last three

[265] It seems that corruption has harmed the country here too: a project financed by a Korean firm was involved in a huge scandal and the transmission line never materialised (interview energy consultant, Bishkek 23-9-2011).

or four years, bilateral and multilateral donors project their aid increasingly at the problems in the Kyrgyz energy sector directly.[266]

This is related to a global discourse of water, energy and development. Arsel and Spoor (2010) illustrate how global ideas on IWRM and Water User Associations (WUA), have influenced water management in Central Asia. These ideas are offshoots of a broader post-Cold War neoliberal paradigm that emphasises individual economic and political freedom, democracy and the free market (Allan 2005).[267] Through development organisations and donors, academia, and the conditions to financial credit packages, certain ideas and practices are transported to and implemented in Central Asia.

Global policy networks influence the way dams are constructed and operated, and how ideas and discourse on water and energy develop. Although the professional hydropower communities of Manasbek and his colleagues may not be directly enrolled in the neoliberal discourse, donor agencies of western countries are. Every project from the World Bank, the European Bank for Reconstruction and Development (EBRD), or from bilateral donors has to adhere to certain principles, many of which may seem to make sense.

The government of Kyrgyzstan, in the meantime, is struggling for funds to run the country, so any project is gladly accepted (interview government official, Bishkek 19-8-2009). The amounts are significant: more than $100 million was provided in soft loans and grants for the energy sector alone in the fiscal year 2008-2009 (Donors.kg 2009).[268] Although the actual amount is uncertain, it is clear that the proportion of finance coming from donors is greater than the finance coming from the annual budget.

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[266] The clearest example of this is the foundation of the IFAS, supported by numerous western donor organisations. A large proportion of development aid for Central Asia went to this organisation.

[267] Of course these ideas are not uncontested, but they are still dominant in policy communities like the World Bank, IMF, or specifically for water management, the International Water Management Institute (IWMI) and IHA.

[268] The amount is likely to have increased in recent years. The data is from the donor coordination webpage donors.kg. Although the webpage gives an overview of the projects going on at a certain point in time, it is updated on a irregular basis and there is no detailed financial information available.

Donor assistance influences the operation of the Toktogul in two ways: either through conditions tied to the finance or by the choice of projects. For instance, the ADB has a project of $45 million to support the energy transmission utility.[269] While the project is not a bad development, it does impose parts of the western development discourse on Kyrgyzstan. In return, the country is expected to restructure the relation between the generation, transmission and distribution utilities, while wholesale metering reduces use of electricity at the house rather than community level. On a longer time scale, the aid package may influence tariffs (interview ADB official 7-9-2011).

Even more direct is the influence of USAID. As part of a broader energy sector project in Central Asia, it has attached a unit of its employees to the Ministry of Energy. This unit has conducted some very valuable work, including management diagnostic studies of the power utilities and calculating the prime cost of electricity. Interestingly, the Ministry of Energy has also outsourced its human resources recruitment process to USAID, in an effort to combat corruption (interview energy consultant, Bishkek 24-9-2012).[270] While the help is welcomed, it brings particular ideas on how to organise the energy sector, strictly following the neoliberal discourse. It can also be interpreted as a form of new imperialism.

The Nile River case study has demonstrated the considerable influence of development partners on the construction of new dams. Although Manasbek himself may not identify the things he hears and the restructuring of his organisation as part of a global discourse, it does affect the decisions he makes indirectly. The 2001 Water Code, for instance, which seeks to acknowledge the economic value of Kyrgyzstan's water resources, is the clearest example of the neoliberal discourse being transformed into policy (Herrfarhdt-Paehle 2010). The role of donors and global discourses needs to be acknowledged when mapping out the "network effects". This

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[269] The project aims to replace all wholesale metering systems in Kyrgyzstan, rehabilitate seven substations, and install a new communications system. It also has a soft component that trains personnel in tariff settlement and reorganising the transactions between the state companies (interview ADB official, Bishkek 7-9-2012).

[270] It is unclear whether this has been done voluntarily or whether it was a condition of energy emergency aid package.

tells us much about the relationship between global phenomena and local actions, as well as about how power works in the energy sector of Kyrgyzstan.

While it may not change how Manasbek pulls the lever on a daily basis, it is likely to have a deeper impact on the underlying networks and structures to which Manasbek responds and this should not be understated.

8.4 But the river speaks too

The narrative of this chapter suggests so far that the decisions made by Manasbek are outcomes of interactions between humans only. Although this research project ascribes to an anthropocentric worldview, there are natural influences that cannot be ignored. There would be no water disputes if sufficient water would be available. However, the natural flow of the river is not a stable, immutable actor. The volume, timing, and even direction of flow are variable. The variability, and perceptions thereof, influence decision-making structures and ultimately determine how much water is discharged at what time.

The river run-off comes mostly from the basin's 3000 alpine glaciers in the Tien Shan Mountains in Kyrgyzstan (Savoskul et al. 2003).[271] By extension, the climate variations in the high mountains have the strongest impact on the variability in the hydrological regime. Climate change and glacial recession will have an impact over time too. If the summers come later than usual and the glaciers melt later in turn, the standard operating procedures of Manasbek and his colleagues will be compromised.

The concept of "network effect" suggests that agency is a relation between different actors. In practice, this theoretical leap means that we need to account for non-human actors in the discussion of the network of Toktogul discharges. This includes notably the river itself, whose volume, timing and variability obviously affect the decision-making structures in the

[271] Many of these glaciers are rather small. In total, however, they cover a significant area of 1658 km^2 and a volume of 81.5 km^3. In contrast, the natural lakes in the basin (excluding reservoirs) hold only 4 km^3 (Kotlyakov, 1968 in Savoskul 2003).

network. The rainfall, glacier melt, and changing climate are, from this theoretical perspective, all actors in the region's water management.[272]

It also includes the dam as a material structure. Feaux De La Croix (2011) writes about the agency of the dam in similar terms: 'this block of concrete is a resource, a machine created by Communist labour, the source of higher standards of living (electricity) but also of shady political deals' (Feaux De La Croix 2011: 78). The way the structure is designed provides Manasbek with a limited number of options to choose from when operating the dam. The designers are by extension included in the network of operations, just like the materials they constructed, because these influence the decision-making.

Inclusion of non-human actors to account for the "network effects" is a considerable intellectual challenge. The list of actors and processes that affect the decision-making risks becoming so sizeable and complex that it obscures the decision-making process itself. To avoid this I take the liberty in my analysis to select three type of non-human actors to illustrate the argument, rather than provide an exhaustive overview: hydrology, variability, and the dam.

8.4.1 Hydrology, variability, and the dam

One critique on regional cooperation efforts that emphasise the problem of the Toktogul is that a significant proportion of the water is generated downstream of the reservoir (Wegerich 2011). The area where the run-off is generated varies per season and depends on inter-annual trends. These hydrological characteristics stand in stark contrast to the image of a controllable nature and the natural river system has, thus, a highly volatile effect on the agency of decision-making. In fact, it is rather inconvenient for Manasbek to realise that there is more to the system under his command than the volume in the reservoir.

The seasonal variability of the river is the type of variation that is most easy to adapt to. Figure 8.5, however, is a plot of the inter-annual variability, which is much harder to cope with.

[272] The agency of non-humans is part of ANT theory that has frequently been subjected to criticism. However, ANT scholars maintain that with a model of network effects, agency does not equal intention, which can only be attributed to humans (Latour 2005).

The spatial and temporal variability provides the river with an agency that is hard to predict by the policy-network. Clearly, Manasbek and other bureaucrats, engineers, and politicians involved in operating the Toktogul need to engage with this variability.

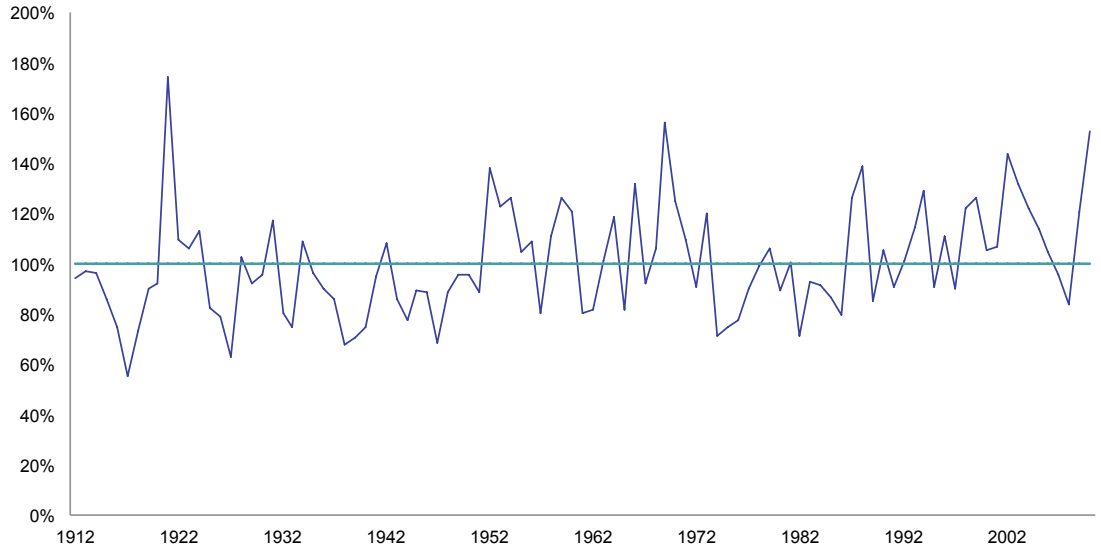

Figure 8.5 The inter-annual variability in river run-off. The huge variations brings forth an uncertainty that contributes to the river's agency. Graph constructed by author based on data from (Cawater-info.net n.d.).

That hydrology, variability, and perceptions of the river influence the governmentality of the river is nothing new. Regardless, dams are primarily designed to cope with variability. Therefore, the agency of the water inflow and the variability has always been acknowledged by water managers. Yet the natural-social divide frequently leads to misrepresentation of this agency and to miscalculations in the management. The technocratic nature of the policy-network has produced an illusion that hydrology and variability do not matter anymore in the modernist world.

But we have seen that the natural aspects of the river do more than just provide the context for Manasbek's decision-making, they are important actors in the decision-making in their own right. The "coincidence" or "chance" of low water inflow influences politics.

The effect is most vividly illustrated by the discussion of the excessive exports of electricity by Maxim Bakiyev and his cronies. With hindsight, it seems like political suicide. However, one observer explains their motivation by arguing that 'they were betting on the

weather patterns, but the rains did not come so they got caught' (interview energy consultant, Bishkek 23-9-2011).

This is a likely explanation for the political folly that took place. If the next year would have been a water abundant year, the excessive exports of power may not have become public at all and Maxim would have got away with it.. The interconnectedness of these two processes shows how outcomes follow from the interactions between different actors. The river could behave according to expectations, but it could also act differently, leading to alternative political outcomes.

Simultaneously, Manasbek's decision-making is much less contentious in water abundant years. If there is sufficient water, both the energy demands of Kyrgyzstan and the downstream irrigation demands can be met without any problem. This confirms that the hydrology and variability of the river are important actors in the geopolitics of the river; perhaps the agency of the river determines bilateral relations between Uzbekistan and Kyrgyzstan in the end.

Engagement with the hydrology and variability by scientists, engineers and policy-makers produces new actors that mediate between the river and the water discharge decision-making. These includes models, simulations, and predictions of the water flow in the river. Indeed, the basin management organisation BVO-Syr Darya bases its annual water allocations on the predictions of the meteorological agencies of the riparian states (interview BVO official, Tashkent 20-7-2009).

However, decision-makers have always had an uncomfortable relation with the levels of uncertainty the models and predictions provide. The hard-nosed geopolitics of the Syr Dayra basin in particular does not leave much space for uncertainty and models with uncertain predictions are, in the heat of the argument, often transformed into facts and truths.[273] Of course, these models and simulations have, in fact, always been political. Certain assumptions privilege some actors and processes over others.

[273] Annual ICWC negotiations define water allocations to the cubic meter, even though they are based on models with high levels of uncertainty (interview BVO official, Tashkent, 20-7-2009).

Another space where the transformation from scientific measurements becomes highly political is the tracking of water levels in the Toktogul reservoir. Water was an ally of former President Bakiyev when it was in abundance in the reservoir, but it was an enemy in times of drought. The newspapers reported daily on the water level of the Toktogul when there was enough water to boast about, but no reports appeared when water levels were low.[274] Under the new regime too, the messages that appear in the newspapers about the water level are irregular and nearly always positive. Feaux de la Croix notes that

> the dam reservoir depends on seasonal glacier melts and cross-border negotiations for its potential. Citizens can gauge both the height of tensions between Central Asian states as well as yearly rainfall patterns and temperatures from the level of the reservoir and the extent of their electricity cuts (Feaux De La Croix 2011: 80).

The relation between water level and politics seems to follow Zonn's (1999) dictum that control over nature equates to control over society. A full reservoir gives the leader power, as Dahl's (1971) metaphor of the reservoir as source of legitimacy suggests. Perceptions, models, and measurements of the river become actors because they "translate" the natural processes into parts of the network decision-making vehicles.

The material structure of the dam influences Manasbek's choices too. The structure of the dam interacts with the hydrology of the river to create the reservoir. The dam has been designed according to certain criteria. There are also norms and practices closely related to the structure itself, that have been established years ago. These practices may include the discharge of water at a certain day of the year for irrigation downstream. More research into this aspect will certainly reveal interesting components of the argument.

The network of water discharges is only complete with inclusion of actors like the dam and the river. Our engineer Manasbek is trained to use the technology of the dam and this is the lens through which he approaches any of the relations with other actors. Politics and power relations are interpreted through the options he has in the operating room. While the inclusion of

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[274] Ibraliev (2009), for instance, reports on the country's most prominent news website that "the Toktogul water reservoir level has reached 6.472 billion m^3".

non-human actors in ANT models of agency is not without contestation, something Latour acknowledges (2005), it can also be understood as a way to account for chance.

A leaked US Embassy note reiterated the agency of non-human actors like the river when discussing the possible consequences of the drought for Uzbekistan in 2008: 'If the ICWC does not produce an acceptable compromise, all will depend on the severity of the coming winter (Norland 2008). If even the US government argues that winter has agency, we may need to rethink our models of policy analysis.

8.5 Conclusions

While the regional institutions ICWC, IFAS, and their sponsors see the Syr Darya river basin as a geopolitical space, this chapter has demonstrated that there is also an overlapping geo-economic space. This space is constructed by the interactions of multiple actors, including the transmission network, the power utilities, but also the patronage networks of the governing clique, investors, and global energy firms.

The demands on Toktogul operations are multiple and contradicting, as irrigation and energy interests seem to be linearly opposed to each other. Amid these contradictions of the formal policy hierarchy, shadow relations inevitably exist and our Manasbek has to juggle between bureaucratic formal-legal instruction and informal, corrupt, and clientelistic relationships.

Power over the operations of the Toktogul is diffused among many actors, it is non-linear and based on fragile associations. Decisions made in Moscow, Tashkent, or Washington may interact with rainfall patterns in the Tien Shan mountains to limit or expand the options that Electric Stations J.S.C. has for operating the dam and hydropower station. These conclusions suggest that vertical hierarchical models of power and spatial scale do not hold for the Toktogul, instead, a flat ontology of relations seems more appropriate.

'Networks are never purely local because actors in certain locations are bound in sets or relations to actors located elsewhere' (Kortelainen 1999: 237). The politics of the dam does not

only take place at the regional summits with the five presidents in a conference room where decisions are taken, but also the operating room of the dam, the mountains where the water is generated, and the fields where the water is used for irrigation.

These interactions may provide a certain rationality for Manasbek's choices that is hard to understand without incorporating this multiplicity of actors. While these ontological assumptions that include the agency of non-humans are subject to critique and risk accusations of a "butterfly effect", it is a useful framework to account for "chance" and "coincidence" in politics and policy-making. The tools of post-structural theory can help the researcher uncover at least a part of this rationality and merit further research.

Manasbek is unlikely to initiate a water war by himself. However, the purely technical approach to dam operations which is fashionable in Central Asia can be dangerous, because it blatantly ignores the political nature of the water. But so far, the conflict looks more like bullying than like a water war. And luckily, the relations of the network are fragile, but that also means that they can be reproduced or produced in different ways if adverse political outcomes threaten to appear.

Chapter 9 A critical geopolitics of dams and rivers

The contribution of this thesis is the argument that water conflicts in the case studies can be explained by a *geo-economic* dam space being superimposed on, and contradicting a *geopolitical* river space. The significance of the alternative ideas on the space and scale of water politics, as well as on the nation-state, power, and agency contributes to some of the analytical gaps in the literature. This concluding chapter highlights three lessons for further research: the water-energy nexus, the geo-economics of water, and the role of discourses in the construction of space.

9.1 Governing rivers

The geopolitical processes studied in this thesis – the construction of the Grand Dam and the shifting operating regime of the Toktogul – have had, on balance, a negative impact on the political relations between the river basins riparians. At worst, these processes could lead to disputes or (violent) conflict between the riparian states over water in the future, but it has compromised regional cooperation and institution building already.

In the Nile basin, one official in the international community contemplated that the Grand Dam may well signal the end of the NBI and that the World Bank would have to reconsider its Nile basin policy, if one riparian could so easily – and unilaterally – disturb the Bank's ambition for the river (interview World Bank official, Addis Ababa 20-4-2011).[275] Likewise in the Syr Darya basin, the Toktogul policy has challenged the mandate of the ICWC and BVO-Syr Darya. The Uzbek deputy minister of agriculture even complained at a public forum that 'the Kyrgyz want to make a desert out of Uzbekistan' (UNDP Water and Food Security Conference, Tashkent 23-7-2009).

We can explain the tension between the geopolitical processes on the one hand and the river basin cooperation discourse on the other by the alternative social construction and political contestation of dam and river space. There are rather different rationales for governing the river basin – which incidentally includes the major dams – and for governing the dams themselves.

The emerging *geo-economic* dam space, which is the product of the power relations between utilities, rising energy demands, and global investors, is superimposed on, and contradicts the *geopolitical* river space, which is defined by global narratives of IWRM, the development community, and international legal frameworks. Moreover, different actors are authorised to govern each space: the river basin space is the domain of the nation-state with its

[275] This statement tells more about the episteme of the international community than about the merits or disadvantages of the Grand Dam perhaps. Some have called the Washington Consensus a "new imperialism" (Alam 1999).

government officials and diplomats, whereas the dam space is governed by utilities, investors, and global energy firms.

Water conflicts can, then, be understood in terms of the tension and contradiction between these different spaces. The epistemological distinction between the local and the global has been "performed", or enacted, by these actors and has, subsequently, become an ontological distinction (Kaiser & Nikiforova 2008). Unfortunately, this distinction fails to acknowledge the multiple interactions between the logic of large dams and the politics of transboundary rivers.

Both geopolitical processes have a surprisingly similar outcome. While the *status quo* is being contested by the upstream riparian, disagreement over the basin-wide management of water resources does neither lead to violent conflicts as some predicted (Cooley 1984; Starr 1991), nor to effective cooperation and benefit-sharing, as others had hoped (Conca 2006; Sadoff & Grey 2002; J A Allan 1998). Instead, the situation in both regions can be characterised by uneasy political relations among basin states, very inefficient economic systems, nationalist domestic politics, and weak regional institutions (Zeitoun & Mirumachi 2008).

It has been the purpose of this thesis to look for the different explanations that may have led to these outcomes. If we take the spatial scales of rivers and dams to be socially constructed and politically contested, then unpacking the politics and deconstructing the discourses helps to draw causal inferences, even though establishing absolute causality is, arguably, unattainable with the current research design (Brady & Collier 2004).

9.1.1 Explaining transboundary water politics

There are a number of explanations for the uneasy and fragile political *status quo* of my two case studies. Imperialism, colonialism, and the post-Soviet transition have a lasting legacy in both river basins. In Central Asia, the existing water management institutions, the legal framework, and the economic organisation of the riparian states have originally been created in line with the political and economic interests of Moscow, not with those of the people, or even the elites living in the basin. In turn, even the design of the Toktogul Dam follows this

imperialist imperative.[276] Perhaps changing the operating regime of dam and reservoir has been merely an attempt to erase the Soviet-era space of water management

Ethiopia, on the other hand, has been prevented from utilising its water resources not only by its domestic problems, but also by the 1929 and 1959 agreements, and the military threat of Sadat (Kendie 1999). These constraints have been enforced by the UK, US, and the international institutions under their sway, and have been grounded in an imperial interest in Egypt's cotton, and later in a geopolitical interest in the Peace Agreement between Egypt and Israel.[277] In effect, the Grand Dam is a bid to change this existing space of the Nile, because it is being perceived as unfair by the Ethiopians.

While this argument explains part of the situation, the relationship between state formation and water management is relevant too. Wittfogel assumed that hydraulic civilizations will turn despotic over time (K A Wittfogel 1957), but his argument does not hold for these case studies. Both Kyrgyzstan and Ethiopia have had authoritarian tendencies for decades or even centuries before they were able to harness their water resources. Moreover, the main driver of the authoritarianism of hydraulic regimes, according to Wittfogel's model, is the immense command over labour required to complete hydraulic works. However, with industrialisation and a growing mobility, not labour but capital is the limiting factor.

In turn, the capital required for investment, as well as the capital that can be generated by the large dams and hydropower stations, do influence state structures. Ethiopia is in the process of centralising political and economic power among its governing elite and hydraulic bureaucracies, whereas in Kyrgyzstan the capital generated by hydropower has been a reason for leaders to expand their patronage networks. The geo-economics of hydropower changes the rationales of the elites, making them more entrepreneurial – or acquisitive – which compromises cooperative behaviour in the regional arena.

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[276] A (rational) sovereign Kyrgyzstan would build a rather different dam, designed exclusively for energy production and not for irrigation.

[277] Since the Egypt-Israel Peace Treaty was signed in 1979, Egypt has been a staunch ally of the United States. In return for peace and stability in the region, the US has promised to support Egypt on water issues, and to uphold the *status quo* that has been cemented by these two agreements (Erlich 2002).

A third explanation is the globalisation of water and energy policy. Global actors such as the UN, World Bank, WCD, and IHA authorise and legitimise hydraulic interventions while some of them also promote models of regional cooperation under the umbrella of IWRM. Supported by the capital of development partners, investors, and donors, we have seen in the case studies that these ideas can become very influential, if they can be aligned with the interests of national elites.

This leads to two contradictions. Understandably, both Ethiopia and Kyrgyzstan appear to have a "pick-and-choose" policy for the ideas on water and energy management proposed by international donors. The restructuring of Kyrgyzstan's energy utility, proposed by USAID, has become a vehicle for corruption rather than a move towards greater liberalisation, because the introduction of competition to the energy market, also proposed by the US, has been kept at bay. At the same time, global discourses can have contradicting outcomes. There is a friction in promoting Ethiopia's hydropower potential on the one hand and highlighting the importance of cooperation with other Nile riparian states on the other. The inconsistency in the approaches of external actors further exacerbates the uneasy political *status quo* in both river basin.

"Chance" is another precipitating factor, albeit inconvenient to academic work. Not all geopolitical behaviour is intentional and part of the outcome is based on opportunities, coincidence, and gambles (Kelly 2006).[278] The revolution in Egypt is, geopolitically, a process distinct from Ethiopia's dam development policy, but it has had an accelerating effect on the latter. Similarly, the 2010 revolution in Kyrgyzstan was driven by utility prices, abuse of power and allegations of corruption, but it cost the country the credit line for the new Kambarata-I dam. They are distinct events, but the "coincidence" of the revolutions, caused a change in outcomes of the geopolitical processes. Moreover, natural issues such as droughts, floods, and general variability affect the decisions the elites make, even they fall outside of the domain of intentionality.

[278] This argument challenges the ideas or neo-realist or neo-liberalist IR theories, as well as classical economic theory, which take humans, institutions, and nation-states to be rational actors.

The colonial/transitional history, state formation, globalisation and chance all contribute to the explanation and lead to an interesting dynamism. The *status quo* is be fragile, so when power relations or the interaction between these explanations shift, the *status quo* will be altered too. While imperial history has had a lasting influence on affairs, this influence will not last forever as nation-states increasingly assert their independence and sovereignty. A compelling consequence of Foucauldian analysis is that 'if things are "made" rather than found, then the possibility exists for them to be "unmade", or "made differently" (Rutherford 2007: 305 emphasis in original).

Arguably this process is painful and may lead to tension between societies or groups within societies at times. The political organisation of states changes naturally through internal and external pressures that may be unrelated to water. The long-term trend has been one towards more freedom, transparency, and democracy, all of which are promising developments for the balance between explanatory factors and, ultimately, for the governance of transboundary water resources.

9.1.2 The lessons of the case studies

The case studies hold a number of lessons for the study of the wider problem group of transboundary rivers. I will highlight three factors have been understudied by scholars of water and geopolitics so far: the water-energy nexus, the geo-economics of water, and the role of discourses in the construction of spaces.

Water management is directly linked to electricity systems in many countries, notably through the production of hydropower. This means that, by extension, the state apparatuses of energy are important actors in the politics of transboundary rivers. However, these actors, including power utilities, energy corporations, and investors in power plants are often excluded from the space of water management. Nevertheless, the management and operating efficiency of utilities effectively determines the water that is required to generate a certain amount of electricity. Much progress in addressing water disputes can be booked by improving organisations like EEPCo or Electric Stations J.S.C.

Secondly, the politics of transboundary rivers is not just about geopolitics but about geo-economics as well. This challenges conventional approaches of cooperation building in river basins, because it is not only necessary that the basin states cooperate on a political level, but also that other actors are included in the economic part of the equation. Ignoring the geo-economic component goes a long way in explaining the failure of formulating a river-wide government regime. The water minister of an upstream state may agree with the regime, but it is useless unless the energy utilities and corporations involved in the operation of the dams are on board as well.

The third factor is the importance of discourses in constructing the spaces of river and dam. We have observed that socially constructed spaces are subsequently essentialised by the practices of the actors (Kaiser & Nikiforova 2008). The establishment of regional institutions, the redirection of donor development funds, and a bio-politics of hydrology, are all practices that "perform" the river basin space and transform it from an epistemological to an ontological category. Similarly, the practices of energy generation and export, the building of transmission lines, and the funds transferred from investor to dam constructor act on the dam space and transform it from a discursive to a material reality.

These conclusions make one wonder whether there is a future for transboundary water law at all. While the negotiation of international agreements is morally a laudable project, its effectiveness remains doubtful, not in the last place because international law does not have any enforcement mechanisms. Moreover, laws would formally transform the cooperation discourse into "truths" and "untruths". Reality is, perhaps unfortunately, much more ambiguous. In turn, it is better that universal principles remain exactly that: principles rather than codified practices, because that is the only way to account for different regional discursive formations and geographic diversity.

Global examples of successful riparian cooperation over transboundary rivers do manage to align the logics of dam construction and operation with cooperation over shared water resources. They are based on geo-economics as well as geopolitics and incorporate energy firms and utilities in the agreements. Successful cooperation efforts can be seen as effective

deals that take the geographical circumstances into account, rather than examples of transboundary water law.

The United States and Canada, for instance, have a functioning and mutually profitable agreement over the utilisation of the Columbia River (Sadler 1993). Elsewhere, the experience of Paraguay and Brazil in constructing the Itaipu Dam stands out. When the treaty commissioning the project was signed in 1973, both were, in fact, authoritarian regimes (Nickson 1983). It is therefore striking that the cooperation over the Parana River stands out as a "best practice" example (Elhance 1999).[279]

9.2 Theoretical contributions

The analysis of the similarities between the case studies of this thesis has been used to develop new concepts and ideas through analytic induction (Ragin & Amoroso 2011). The main theoretical contribution of this research project has been to propose governmentality as a framework for analysing the relationship between dams and rivers. This approach highlights the production of governable spaces through power relations, technologies of government, and discursive constructions.

The nation-state remains an important arena for these power relations. However, it is unsatisfactory to perceive of the state as the only legitimate actor in an international arena, which is the assumption of many IR theories. The discussion of the geopolitical processes in this thesis problematised this "territorial trap" and proposed that deconstructing the governmentalities that construct spatial scales provides some insights.

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[279] The *Columbia River Treaty* was signed in 1961 and commissioned the construction of four dams on the river (three in Canada, one in the US). The treaty also arranged the regulation of power sharing. While it is generally regarded as a *best case* example of cooperation on transboundary water resources, and the economic benefits have been significant, there have been concerns over the social and environmental costs for the indigenous population (Sadler 1993). For the other example it is interesting that Paraguay and Brazil have had a history of acrimonious relations. Elhance (1999) explains the successful cooperation by the long time they took to implement the water accord, and that the existing conflicts had mostly been fought out. Nevertheless, in both cases one riparian (Canada and Paraguay) felt it was losing out.

In practice, this theoretical contribution means that we need to have a more critical look at spaces of government. The first analytical category that needs to be deconstructed is the river basin. While both NBI and ICWC take the basin as a "natural" unit for government, Molle (2009) argues that, although the watershed makes hydrologically sense, as a political unit it is just as socially constructed as other spatial scales. The river basin is a scale that, in fact, reinforces asymmetrical power relations, where some actors are authorised to govern and others are excluded.

With these views I concur with Sneddon and Fox, who contend that 'the analytic and normative focus on cooperation among states, characteristic of the vast majority of [the literature on transboundary rivers] is unnecessarily limiting' (Sneddon & Fox 2006: 197). The case study of Manasbek in the operating room of the Toktogul serves to illustrate the limits of the nation-state and the individual to act. The argument of this thesis, then, contributes to resolving the 'division between the water conflicts construed as transnational versus those associated with other geographical scales' (Sneddon & Fox 2006: 193).

Governmentality theory has filled some of the gaps of existing theories of transboundary rivers, such as those pertaining to the role of the nation-state and power. While certain actors, for instance elites, are more powerful than the population, spaces of water governance are produced through power relations rather than by individuals or groups alone. In a sense, this argument follows Foucault on the productive nature of power and Latour who argues that neither agency nor structure exist (Foucault 2001; Latour 1993). Instead, the relationship between different actors produced "network effects" that cause action.

Dams are realised, for instance, by the combined efforts of national elites, transnational corporations and development agencies. Moreover, a particular set of international relations, the availability of capital, and the interests of an ambitious elite needed to be aligned in order for the project to become a success. For instance, the right geopolitical momentum may have provided the opportunity for the Grand Dam, but it have been individuals, such as Prime Minister Zenawi and the CEO of EEPCo, Debebe, who make the final decisions for the dams.

The location of agency is, therefore, opaque, fuzzy and complex. Perhaps no single actor has the power to change political outcomes all alone, but all actors have some form of agency in relation to other actors – the power relations. One of the theoretical contributions of this thesis has been to demonstrate that power is diffused far beyond the nation-state.

These views on agency, power, and the nation-state have implications on the geopolitics and geo-economics of the river too. Because the nation-state-as-actor model does not hold, I have introduced the concept of "geopolitical entrepreneurs" to indicate the governmental and business elites, who influence the geopolitics and may use transboundary political relations for other ends.

These elites operate with the purpose of accumulating wealth, but also towards nation-building or legitimising their own rule. Important is how discourses, as well as material interventions, are used to construct certain spaces to these ends. Both the Grand Dam and the Toktogul have been used in relation to the risky geopolitics of the river by geopolitical entrepreneurs for these purposes. This means that the logic behind large dams is often beyond the cost-benefit analyses that are supposed to guide decision-making. While this insight is perhaps not new, the conceptualisation of geopolitical entrepreneurs provides a systematic way of analysing the politics of rationalising dams and other large public works in future research.

Reducing dams to "tactics as power" does not tell the complete story. Further research should focus on unpacking dams as political processes and pay due attention to the opaque and multiple motivations behind hydraulic interventions.

9.3 Reflections on methodology

Relying on discourse analysis to reveal more of the geopolitics has its advantages and disadvantages. My strategy of identifying the main strands of narrative that rationalise the geopolitical processes in the two case studies showed some of the underlying power relations, the behaviour of elites, and the politics behind the construction of geopolitical facts. I have

avoided formal models of discourse analysis so as not to be constrained by procedures and to allow for the generated data to "speak more" by itself (Waitt 2010).

However, Kelly (2006) exposes some of the limits of critical geopolitics' emphasis on discourse:

> Which scripts and discourses are to be examined, how solid are the links between the statesmen's motivations and their discourse, can such discourses be manipulated by their creators, do we exaggerate a unity of interests among elites, are elites really in such command of most situations, are all elites corrupt, could radicals also be tainted, do the critics mistake "geopolitical" scripts for "ideological" scripts? (Kelly 2006: 49).

Reliance on discourse analysis leaves these questions unanswered and, according to Kelly, calls for the "so what is next" question after seeing what the discourse reveals. In response, critical discourse analysis is only part of the process of knowledge generation and induction. Evidently, further research on this topic should both refine this methodology and seek alternatives methods for triangulation.

There are two other limitations to the discourse analysis of this project. Access to data has been a constraint. Analysis of discourse at the highest level of knowledge production – that of the heads of state and government – is based on secondary materials such as newspapers, speeches, and government materials. Although these sources have an interest in publishing what the leaders want to say, things get lost in translation, as well as by the amplification and reduction of the research process (Latour 1987). I obtained more detail through in-depth interviews with government officials and other policy makers, but the sanctioned discourse had been transformed slightly in the process of knowledge dissemination.

Furthermore, it has been a challenge to give a place to rumours and gossip in the official discourse. While this is often the only way to get information about events, motivations, and political intrigue, it tends to be hard to substantiate with more reliable data. One example was the scheming of the son of the former Kyrgyz president, but because that story is deemed "common knowledge" in Kyrgyzstan I decided to use the gossip. At other points I have acknowledged my doubts in the text.

A more fundamental challenge to discourse analysis is that the researcher has to position him or herself outside of the discourse that is subject to analysis. However, this is, of course, based on the false assumption that the researcher is the exception to Foucault's idea that everyone is bounded by the limits of certain discourses. True enough, the delineating discourse of the social researcher is more dynamic and flexible than that of the governments I studied, but this seems to be a major inconsistency to this methodology. "Being critical" is the only step towards acknowledging and dealing with this inconsistency.[280]

Another critique levied at work within critical geopolitics is the virtually exclusive focus on elites and elite discourse. Megoran (2006) argues that 'an emphasis on discourse study means that [critical geopolitics literature] is in danger of becoming both repetitious and lopsided, relegating or even erasing people's experiences and everyday understandings of the phenomena under question' (Megoran 2006: 622). I acknowledge that this research project is guilty to these accusations too.

My motivation for this choice has been that the decisions are made by the elites rather than by the populations. In order to understand and unpack these decisions, one needs to look at "high politics". I do recognise that research on this topic would benefit from studies that take account of the everyday experiences of people living in the river basin, or of those involved in the construction of the dam, but that is yet another avenue for further research.

Another motivation for this choice is an issue of positionality. Aware of my position as an "elite" operating among elites, it has been methodologically more fruitful to gain access to formal, privileged spaces than to "everyday experiences". Operating in countries with difficult fieldwork environments, the choice for methodology has been linked to my positionality for practical reasons.

The comparative research design has highlighted and revealed certain aspects of the questions and data, which a focus on a single case would not have permitted. Importantly, this design attempted to make the link between cases with the broader, philosophical questions

[280] Although one can only "be critical" in the context of the academic discourse of critical theory and within the format of the academic product: the thesis.

Castree called for (2005). This includes explorative work on theory and operationalisation of particular concepts.

While the cases have maintained their historical experience and geographical context, I managed to distil a set of common themes that are most likely to apply to the broader problem. Moreover, the current research design allowed for finding multiple explanations for the outcome of the geopolitical processes, through "multiple conjunctural causation" (Brady & Collier 2004). Of course, there are multiple relationships between dam and river, and comparative research helped to identify a number of them.

The choice for a sample size of two has been deliberate, but research with larger samples has its own advantages and disadvantages. The *n=2* has been useful to retain the empirical depth and to avoid reducing the analysis to the study of commonalities, which is a real risk for research with a larger *n*. Furthermore, limiting the sample size to two gave me the opportunity to conduct fieldwork in both places, which has been instrumental to the success of this thesis.

Nevertheless, the research design can be improved for further research. There can be more focus on how organisations such as utilities or RBOs work in practice, because this could tell us even more about questions of agency and power. Moreover, a more robust way of theorising and analysing relationships between actors would be beneficial too. However, the sub-field of comparative water studies is still nascent, so hopefully this thesis can get its place in the broader intellectual project.

9.4 Conclusions

In this thesis I examined the logic of large dams and its influence of the geopolitics of transboundary rivers. The argument is that the rationale of large dams is often opposed to, or conflicting with the rationale of managing the river basin. The tension between the logics of different spatial scales does not only pose a challenge to academics, but to hydraulic

bureaucrats, diplomats, and politicians alike. Worryingly, this tension can have rather adverse geopolitics consequences.

However, both the "water war" and "water cooperation" narratives are reductive and ignore the complexity of governing water and the geographical diversity of rivers. While outright water wars seem unlikely for many reasons, disputes and conflicts do occur but these take place in multiple alternative spaces. There may be diplomatic conflicts, economic sanctions, bullying, and cold conflicts between states, but water is likely to be only one of the contributing factors.

A more direct challenge to the government of rivers is perhaps an environmental one. The conflicts over water resources in Central Asia and the decline of the Aral Sea, for instance, are driven by the same governmentalities, as I argued elsewhere (Kraak 2012). Arguably, this environmental disaster has had a much greater impact on everyday lives than the disputes over water allocations. Dams are producers of modernity *par* excellence, but in the Latourian sense and in the way states have mobilised them to "modernise".

While large dams are political questions, they are also environmental questions, though this was outside of the scope of this thesis. With climate change, depleting freshwater resources, and further degradation of the ecosystems looming, this may be the real future challenge.

The title of this thesis *Dams of Damocles* seems, after these discussions, strangely appropriate. Dams do offer great wealth, power and authority to their owners. However, their contested nature shows a great risk: a risk of financial viability, an environmental risk, and a geopolitical risk. There is a direct relationship between the dam and river, and no one can expect to build a dam without influencing the geopolitics of the river in turn. These risks are not unlike a metaphorical sword of Damocles hanging above the dams. While this situation is threatening for many reasons, we can only hope that – like in the original allegory – the sword does not fall.

Appendix 1 List of interviews

#	Name, Position	Organisation	Date	Place	Type[281]
1	Available	ICARDA	20/07/09	Tashkent	academic
2	upon	BVO-Syr Darya	20/07/09	Tashkent	RO
3	request	IWMI	21/07/09	Tashkent	NGO
4		SIC-ICWC	22/07/09	Tashkent	RO
5		UNESCO	22/07/09	Tashkent	IO
6		Embassy of the Netherlands	23/07/09	Tashkent	diplomat
7		IFAS	24/07/09	Tashkent	RO
8		CAIAG	11/08/09	Bishkek	academic
9		Kyrgyz State University	12/08/09	Bishkek	academic
10		AUCA	14/08/09	Bishkek	academic
11		Institute of Water Problems	14/08/09	Bishkek	government
12		UNDP	17/08/09	Bishkek	IO
13		World Bank	17/08/09	Bishkek	IO
14		Ak Zhol Party	18/08/09	Bishkek	government
15		EU Mission	18/08/09	Bishkek	diplomat
16		Kyrgyz State University	18/08/09	Bishkek	academic
17		Ministry of Agr. and Water	19/08/09	Bishkek	government
18		Ministry of Agr. and Water	19/08/09	Bishkek	government
19		Embassy of the Netherlands	20/08/09	Bishkek	diplomat

[281] RO = regional basin-wide organisation, IO = international organisation. NGO = non-governmental organisation. Abbreviations for organisations in appendix 2. Names and positions are left out of this table to ensure the anonymity of the interviewees.

#	Name, Position	Organisation	Date	Place	Type[281]
20		Kyrgyz State University	20/08/09	Bishkek	academic
21		AUCA	21/08/09	Bishkek	academic
22		Global Environmental Facility	02/09/09	Almaty	IO
23		CAREC	03/09/09	Almaty	NGO
24		IFAS	08/09/09	Almaty	RO
25		IFAS	08/09/09	Almaty	RO
26		IFAS	08/09/09	Almaty	RO
27		Ethiopian Embassy	28/03/11	London	government
28		Embassy of the Netherlands	04/04/11	Addis Ababa	diplomat
29		Independent consultant	05/04/11	Addis Ababa	academic
30		Sinohydro	05/04/11	Addis Ababa	corporate
31		ENTRO	06/04/11	Addis Ababa	RO
32		EEPCo	06/04/11	Addis Ababa	utility
33		Embassy of Norway	07/04/11	Addis Ababa	diplomat
34		ENTRO	07/04/11	Addis Ababa	RO
35		EFDP	07/04/11	Addis Ababa	government
36		EEPCo	08/04/11	Addis Ababa	utility
37		Independent consultant	08/04/11	Addis Ababa	RO
38		EEPCo	11/04/11	Addis Ababa	utility
39		Halcrow	12/04/11	Addis Ababa	corporate
40		Institute for Security Studies	13/04/11	Addis Ababa	academic
41		Embassy of Italy	13/04/11	Addis Ababa	diplomat
42		ENTRO	18/04/11	Addis Ababa	RO
43		Ministry of Water	19/04/11	Addis Ababa	government
44		Ministry of Water	19/04/11	Addis Ababa	government

#	Name, Position	Organisation	Date	Place	Type[281]
45		World Bank	19/04/11	Addis Ababa	IO
46		Ministry of Water	20/04/11	Addis Ababa	government
47		IWMI	20/04/11	Addis Ababa	NGO
48		World Bank	20/04/11	Addis Ababa	IO
49		New Gen. University College	20/04/11	Addis Ababa	academic
50		Embassy of Norway	21/04/11	Addis Ababa	diplomat
51		Independent consultant	25/04/11	Addis Ababa	government
52		EEPCo	25/04/11	Addis Ababa	utility
53		EAPP	26/04/11	Addis Ababa	RO
54		Ministry of Water	26/04/11	Addis Ababa	government
55		Ethiopian Sugar Corporation	27/04/11	Addis Ababa	utility
56		Energie de France	26/04/11	Addis Ababa	corporate
57		Embassy of the Netherlands	26/04/11	Addis Ababa	diplomat
58		Independent consultant	21/05/11	London	IO
59		Ethiopian Embassy	28/05/11	London	government
60		IHA	11/08/11	London	corporate
61		Embassy of United Kingdom	05/09/11	Bishkek	diplomat
62		AUCA	05/09/11	Bishkek	academic
63		Institute of Water Problems	06/09/11	Bishkek	government
64		EU Mission	07/09/11	Bishkek	diplomat
65		Asian Development Bank	07/09/11	Bishkek	IO
66		Kyrgyz State University	09/09/11	Bishkek	academic
67		World Bank	09/09/11	Bishkek	IO
68		GIZ	13/09/11	Bishkek	donor
69		AUCA	13/09/11	Bishkek	academic

#	Name, Position	Organisation	Date	Place	Type[281]
70		KfW Development Bank	13/09/11	Bishkek	donor
71		Kyrgyz State University	14/09/11	Bishkek	academic
72		DFID	14/09/11	Bishkek	donor
73		SCWR	14/09/11	Bishkek	government
74		GIZ	15/09/11	Bishkek	donor
75		World Bank	15/09/11	Bishkek	IO
76		Independent consultant	16/09/11	Bishkek	IO
77		Embassy of the Netherlands	16/09/11	Bishkek	diplomat
78		Times of Central Asia	19/09/11	Bishkek	corporate
79		Electric Stations, J.S.C.	19/09/11	Bishkek	utility
80		UNDP	21/09/11	Bishkek	IO
81		IFAS	21/09/11	Bishkek	RO
82		Ministry of Energy	22/09/11	Bishkek	government
83		Independent consultant	23/09/11	Bishkek	donor
84		Independent consultant	24/09/11	Bishkek	donor
85		Ministry of Foreign Affairs	26/09/11	Bishkek	government

Appendix 2 List of abbreviations

Abbreviation	In full	Explanation
ADB	Asian Development Bank	Development Bank
ANT	Actor-network theory	Social theory
AU	African Union	International organisation
AUC	African Union Commission	International organisation
BVO-Amu Darya	River Basin Organisation of the Amu Darya	RBO. Russian acronym: *Basseinovye Vodokhoziaistvennye Ob'edineniia*
BVO-Syr Darya	River Basin Organisation of the Syr Darya	RBO
CAIAG	Central Asian Institute of Applied Geosciences	Academic institutions
CAREC	Central Asia Regional Economic Cooperation	ADB programme for economic development
CAUES	Central Asian United Energy System	Integrated energy system of Central Asia
CPSU	Communist Party of the Soviet Union	Political party
DFID	Department for International Development	UK government department for development policy
EAPP	East African Power Pool	Regional organisation for energy trade
EBRD	European Bank for Reconstruction and Development	Development Bank
EFDP	Ethiopian Federal Democratic Party	Ethiopia's largest political party
EIB	European Investment Bank	Development Bank
ENTRO	Eastern Nile Technical Regional Office	Sub-basin organisation of the NBI
ETN	Ethiopian Television Network	Television Network
FCO	Foreign and Commonwealth Office	British government department
GIZ	Deutsche Gesellschaft fuer	German government department for development

Abbreviation	In full	Explanation
	Internationale Zusammenarbeit	policy
GOELRO	Soviet State Commission for Electrification of Russia	Russian acronym: *Gosudarstvennaya komissiya po elektrifikatsii Rossii*
ICARDA	International Center for Agricultural Research in the Dry Areas	NGO
ICG	International Crisis Group	NGO
ICOLD	International Commission on Large Dams	NGO
ICWC	Interstate Commission for Water Coordination of Central Asia	Regional organisation for water in Central Asia
IFAS	International Fund for Saving the Aral Sea	Regional organisation for water in Central Asia
IHA	International Hydropower Association	NGO
IMF	International Monetary Fund	International organisation
IR	International relations	Academic discipline
IWMI	International Water Management Institute	NGO
IWP	Institute for Water Problems	Kyrgyz government organisation
IWRM	Integrated Water Resources Management	Water management paradigm
KfW	Kreditanstalt fuer Wiederaufbau	German development bank
NBC	Nile Basin Commission	Regional organisation that will be established
NBI	Nile Basin Initiative	Regional organisation for water in the Nile basin
NELSAP	Nile Equatorial Lakes Subsidiary Action Program	Sub-basin organisation of the NBI
NESK	National Electricity System Kyrgyzstan	Utility for energy transmission
NGO	Non Governmental Organisation	
RBO	River Basin Organisation	Regional organisation to govern watershed
SCWR	State Committee for Water Resources and Land Reclamation	Kyrgyz government department for water

Abbreviation	In full	Explanation
SDP	Kyrgyz Social Democratic Party	Political party in Kyrgyzstan
SIC-ICWC	Scientific Information Center of the Interstate Commission for Water Coordination	Research centre of ICWC
STS	Science and technology studies	Academic discipline
TVA	Tennessee Valley Authority	RBO in the United States
UN	United Nations	International organisation
UNESCO	United Nations Educational, Scientific, and Cultural Organisation	International organisation
USAID	United States Agency for International Development	US government department for development policy
W	Watt	Unit for energy conversion
WCD	World Commission on Dams	International organisation
Wh	Watt-hour	Unit for energy: product of Watt and time
WUA	Water User Association	Water management paradigm

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