

The Influence of Policy Discourses on Multilevel Water Governance

A case study of the Equatorial Nile Basin

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Abstract

This research assesses how discourses on climate change and water security during policy making impact on actual water management, analysing the Equatorial Nile Basin and its riparian countries (Uganda, Kenya, Tanzania, Burundi, Rwanda and DR Congo) as a case study. The thesis looks at the significance of informal policy networks for water governance, and critically discusses the extent to which the framing of issues by these networks are reflected in the practical implementation of multilevel water governance.

This thesis uses a mixed methods approach, combining qualitative with quantitative methods. Qualitative data was collected through semi-structured interviews with policymakers, through the analysis of policy reports and other documents, and through a focus group with representatives of Water User Associations. Qualitative data was triangulated with quantitative data derived through a Q Methodological study on perceptions of water resources management, climate change and water security.

The thesis finds that two policy networks, which revolve around the Nile Basin Initiative and the Lake Victoria Basin Commission, shape the design and implementation of multilevel water governance in the Basin. Actors from both policy networks frame water resources management along the following three frames: environmental risk, governance, and infrastructure development – which are then transferred onto thinking around climate change and water security. The thesis concludes that, whereas climate change and water security are explicit in policy design, consideration of policy delivery does not feedback into future policy framing. The research therefore provides strong evidence that, for successful integration of climate change and water security in the development context, the starting point for policy creation should be a realistic view of the challenges surrounding practical delivery of current water management.

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List of Acronyms

AMCOW	African Ministers' Council on Water
CAAC	Catchment Area Advisory Committee
CDA	Critical Discourse Analysis
CFA	Cooperative Framework Agreement
EAC	East African Community
ENSO	El Nino - Southern Oscillation
ENTRO	Eastern Nile Technical Regional Office
EQNB	Equatorial Nile Basin
EU	European Union
GEM	Global Environmental Management
GIZ	German International Development Cooperation
GLOWS	Global Waters for Sustainability Programme
GoK	Government of Kenya
GoT	Government of Tanzania
GWP	Global Water Partnership
INGO	International Non-governmental Organisation
IPCC	Intergovernmental Panel on Climate Change
IR	International Relations
IWRM	Integrated Water Resources Management
LVBC	Lake Victoria Basin Commission
MWI	Ministry of Water and Irrigation
NAWAPO	National Water Policy
NBI	Nile Basin Initiative
NELSAP	Nile Equatorial Lakes Subsidiary Action Program
NEMA	National Environment Management Authority
NGO	Non-governmental Organisation
RBO	River Basin Organisation
REDD+	Reducing Emissions resulting from Deforestation and Forest Degradation
SIDA	Swedish International Development Cooperation Agency
SMM	Sio-Malaba-Malakis Catchment
UNDP	United Nations Development Programme
UNEP	United Nations Environmental Programme
USAID	United States Agency for International Development
WRM	Water Resources Management
WRMA	Water Resources Management Authority
WRUA	Water Resources Users' Association
WSRB	Water Services Regulatory Board
WSTF	Water Services Trust Fund
WUA	Water Users' Association
WWF	World Wildlife Fund

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1. Introduction

Transboundary water resources management in the Nile Basin and the allocation of its water are politically contested issues.¹ The Nile Basin has been mentioned as one of the transboundary river basins that is at risk of the outbreak of violence over its water resources (Cooley et al. 2009; Gleick 1993; Homer-Dixon 1994). Although many have challenged the hypothesis of the outbreak of violent conflict between riparian countries in the Nile Basin (Carius 2006; Dabelko 2008; Dinar 2009; Wolf 1998), the political and strategic importance of the resource for the basin riparian states is undeniable.

The availability of and access to water are important prerequisites for social and economic development in the Nile Basin, whose riparian countries have a combined population of 437 million, 238 million of whom reside in the Basin itself (NBI 2012a). The Nile Basin constitutes of eleven riparian countries, namely Egypt, Sudan, South Sudan, Ethiopia, Eritrea, Uganda, Kenya, Tanzania, Rwanda, Burundi, and DR Congo, and contains about 40% of Africa's population, which is expected to double by 2025 (El-Fadel et al. 2003). The growing industrial sector, the increase irrigated agriculture and the rise in living standards across the Nile Basin are contributing to a rise in the demand for water (NBI 2012a). Eighty per cent of the Nile Basin's population is employed in the agricultural sector (CIA Factbook 2009), and their livelihoods are closely linked to water access and availability. As the drought of 2011 in East Africa showed, changes in rainfall can have a dramatic effect on livelihoods, and severe food shortages and famine in parts of Ethiopia and Kenya were associated with the drought (The Guardian 2011).

Climate change is expected to affect the availability of water in the Basin. Based on the definition of the IPCC, climate change refers to

a change in the state of the climate that can be identified (e.g. using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. [This] refers to any change in climate over time, whether due to natural variability or as a result of human activity. (IPCC 2007: 30)

¹ In the following, water resources refers to freshwater resources, including surface water from rivers and rainfall, as well as groundwater.

Africa as a continent is one of the regions most vulnerable to anthropogenic climate change worldwide, due to its high exposure and low adaptive capacity (Boko et al. 2007; Niang et al. 2014). A significant increase in annual mean temperature in parts of eastern and southern Africa has been observed over the past three decades (Anyah and Qiu 2012), and it is projected that temperatures in Africa will rise faster than the projected global average (Sanderson et al. 2011). Elshamy et al. (2012) anticipate a temperature increase between 2°C and 5°C until the year 2100 for the Blue Nile, and results reviewed by Conway and Schipper (2011) show that average temperature in Ethiopia will increase across all four seasons.

African ecosystems are already affected by a variable and changing climate, and climate models anticipate that the amplification of already existing water stress is a highly likely consequence of climate change (Niang et al. 2014). This is due to a number of factors, namely a spatial and timely shift in rainfall patterns, changing volumes of precipitation as well as evapotranspiration. These factors are likely to lead to changes in river runoff during the rainy and dry seasons (Milly et al. 2005), increased heavy precipitation events in East Africa, as well as intensity of droughts due to a reduction in precipitation and increased evapotranspiration in some seasons (Seneviratne et al. 2012). Climate change signals are ambiguous, however Williams and Funk (2011) observe that over three decades rainfall has decreased in East Africa in the rainy season between March and May, though climate models suggest that by 2100 precipitation will increase during the wet and dry seasons (Christensen et al. 2013).

Rainfall in East Africa is characterised by high spatial and temporal variability, thus changes in rainfall due to climate change will affect some Nile riparian countries more than others. Whereas rainfall in the already dry downstream part of the basin is predicted to decrease, precipitation in parts of the upstream Nile Basin are anticipated to increase in volume (Kizza et al. 2009; Niang et al. 2014). However, predictions of climatic changes and their impacts on precipitation, evapotranspiration and river runoff contain a high degree of uncertainty. Results of climate models project changes in precipitation over East Africa ranging from a 3% decrease to a 25% increase of precipitation volume (Christensen et al. 2007). Furthermore, there are crucial data gaps on hydrological flows, rainfall and temperature, which further increases the uncertainty of climate impacts (Niang et

al. 2014). The high uncertainty relating to climate change impacts makes planning and adapting to climate change a significant challenge in the basin.

Shortages of water are common characteristics of Nile River Basin riparian countries. Whereas some countries and areas in the Nile Basin are very dry (e.g. Egypt has 51mm rainfall a year, FAO 2012), and suffer from a physical scarcity of water, in most parts of the Nile Basin water shortages are due to economic water scarcity, caused among other factors by poor water supply or quality. According to the water scarcity map by Seckler et al. (1998) developed for the International Water Management Institute (IWMI), water is physically scarce when countries cannot meet their populations' demands even when accounting for a country's adaptive capacity, e.g. enhancing water efficiency and supply through infrastructure. If a country cannot meet water demands despite sufficient renewable resources due to a lack of water infrastructure, this is classified as economic water scarcity.

Water insecurity goes beyond a physical shortage of water due to limited rainfall or river runoff. The concept of water security aims to include additional aspects that revolve around water and thus is more comprehensive than the water scarcity concept. Water security encompasses an acceptable availability of water, which meets human needs and is sustainable over time, as well as to protect people from water related hazards (Cook and Bakker 2012). To achieve and sustain water security water governance considerations become more important than just physical water availability, such as adequate supply-demand management; sufficient institutional frameworks; access rights to water; sufficient water infrastructure, and water supply systems, among other factors. Thus water insecurity, or in other words the 'water crisis' is 'mainly a governance crisis' (OECD 2014).

Governance 'encompasses the activities of governments, but also includes the many other channels through which "commands" flow' (Rosenau 1995: 14). In the international donor community the absence of 'good governance' –a set of principles that emphasise the rule of law, transparency and market-based competition – is associated with political instability and weak states and institutions (Chhotray and Stoker 2009). According to the Berteslmann Transformation Index, all of the Nile Basin riparian states are classified as weak, failing or failed states (Risse 2011), and adequate governance systems for water

and other resources are not guaranteed. As political instability, weak states and political institutions often mean water poverty and food shortages the Nile Basin is a hotspot for water insecurity (Allan 2009). Water insecurity is the insufficient availability and supply of fresh water and can lead to the securitisation of the water resource, making water an issue of national security (Brauch 2009; Buznan et al. 1998). In the context of political instability, water scarcity and security issues – which are likely to be exacerbated by climate change – understanding the various channels through which commands flow enables seeing beyond the failure of states and shifts the focus to policy processes involving state and non-state actors.

Environmental policymaking takes place through the negotiation and renegotiation of the subject matter between different actors involved in the policy process. Underlying structures such as the unequal distribution of agency among the actors play an important role in the outcome of policy processes. Analysing policy discourses is a strategy for uncovering these social structures and shedding light on the dynamics behind policy processes (Hajer and Versteeg 2005). Policy discourse signifies the struggle over the meaning of

a specific ensemble of ideas, concepts, and categorizations that are produced, reproduced, and transformed in a particular set of practices through which meaning is given to physical and social realities. (Hajer 1995: 44)

The framing of a policy issue is inherent to the political process. Actors may try to influence a discourse and shape it to suit their own interests. Analysing the discursive framing of policy discourses makes it possible to ‘explore underlying interests or ideologies’ and ‘to identify textual mismatches that may later have strong implications for outcomes’ (Molle 2008: 149). Policy entrepreneurs, either as individuals or as a collective, can play a crucial role in bringing about policy change (or hindering change) (Meijerink and Huitema 2009). Strategies used by policy entrepreneurs include shaping policy discourses and creating discursive coalitions with other actors to enhance their agency for influencing policy implementations and outcomes. Perceptions of policy makers are also shaped by existing policy discourses thus making the influencing of policy discourses one important strategic instrument among others to influence policy.

This research applies a governance lens to the processes, dynamics, outcomes and consequences of political interactions across multiple policy levels as part of

the transboundary water management in the Nile Basin. This study analyses multilevel water governance in the context of climate change and water security in the Nile Basin. To examine these processes in depth, the study focuses on the Equatorial Nile Basin (EQNB), a sub-basin of the Nile River, and uses the Mara River Basin as an embedded case study (figure 1.1). The Mara River Basin is one of three transboundary basins in the EQNB, which gives the basin political relevance and thus receives heightened attention from policy makers. Therefore, water governance in the Mara River Basin is shaped by interactions across multiple policy levels. Due to its political relevance and its relative small size, focussing on the Mara River Basin made the in-depth analysis of the dynamic policy discourse around Water Resources Management (WRM) and its influence on policy making more manageable. The overarching aim of this research is to understand the impact of policy discourses on multilevel water governance in the EQNB. In addressing this question the study examines the implications of policy discourses for water governance implementation and outcomes in the context of climate change and water security, taking the EQNB as a case study.

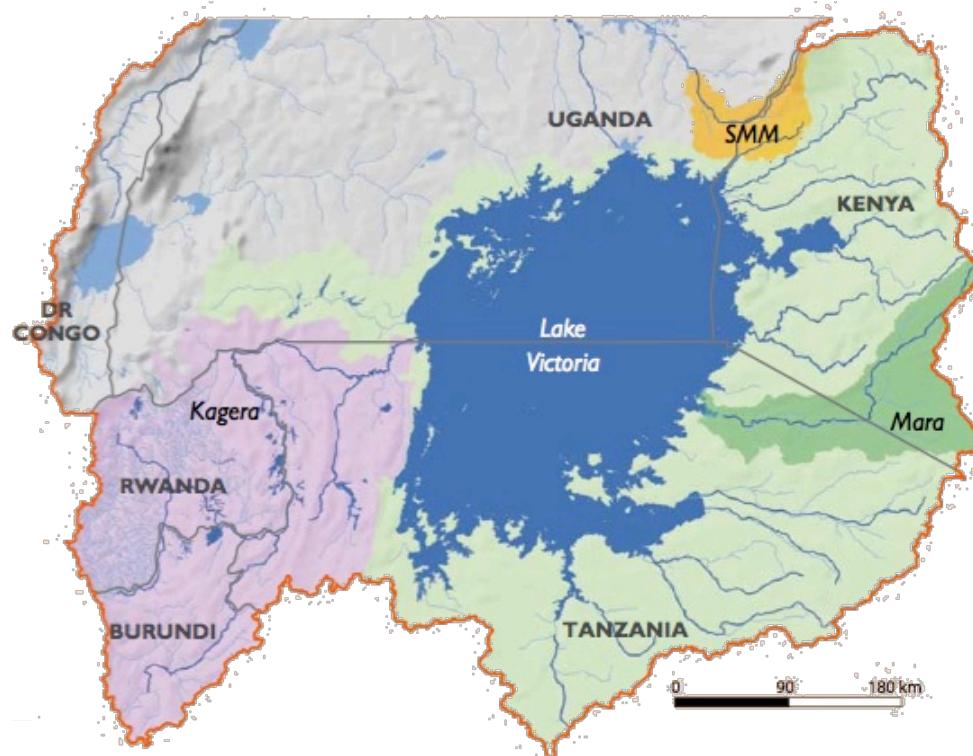


Figure 1.1: Equatorial Nile Basin, composed of the Lake Victoria Basin and its transboundary sub-basins, the Mara, Kagera, and Sio-Malaba-Malakisi (SMM) Basins, NBI (2012a)

1.1. Research Questions

The thesis aims to contribute empirical evidence to theoretical debates on multilevel environmental governance and the impact of policy discourses on governance implementation and outcomes. It seeks to shed light on recent developments in the EQNB in the context of transboundary cooperation and climate change adaptation, scrutinising the influence of emerging topics such as water security and climate change, their role in policy discourse on water resources management and their overall impact on water governance.

The main research question and four sub-research questions (Q1-Q4) are:

What is the impact of policy discourses around water resource management on multilevel water governance in the Equatorial Nile Basin (EQNB)?

The following four sub-questions build on one another and thus allow answering the main research interest.

Multilevel Water Governance (Governance Architecture) – Q1: How does multilevel water governance function in the EQNB?

This question seeks to identify the key actors in multilevel water governance in the Equatorial Nile/Mara River Basin and their interaction with other actors (see Chapter 4). The particular focus is on how actors interact across policy levels and sectors. Unravelling the governance architecture is also important to comprehend how policy decisions are made in order to assess how these might be influenced through policy discourses. Uncovering how key actors interact with each other provides important data that informs the discourse analysis and potentially identifies discursive coalitions. This research hypothesises that governance processes rely heavily on policy networks because governments' authority in the EQNB is relatively weak. To answer this question, data was collected through semi-structured interviews with policymakers and a focus group with a water resource users' association, and then triangulated with document analysis (see Chapter 3).

Discourse Analysis (Content and Structure) – Q2: How is the policy discourse around WRM framed, and what is the relevance of framing climate change and water security?

This study hypothesises that emerging discursive frames around climate change and water security influence the discourse on WRM. To answer this question (see Chapter 5), first the content and structure of WRM discourse are analysed to identify the main discursive frames. In a second step, the extent to which climate change and water security are already part of the discourse, how the two frames are constructed, and how they have changed the overall discourse are examined. To answer this question relevant policy documents were analysed and triangulated with interview data from semi-structured interviews with policymakers and technical experts (see Chapter 3).

Discourse Analysis (Production and Reproduction) – Q3: How do policymakers perceive climate change and water security in the context of WRM in the EQNB?

Chapter 6 examines the perceptions of individual policymakers regarding WRM/water security and climate change impact/adaptation options for WRM. As discussed in section 2.2, discourses and their frames provide guidelines for policymakers in complex decision-making processes. Discursive frames present certain policy options as desirable solutions while constructing alternative options as less beneficial. This research hypothesises that individual technical experts and policymakers' perceptions of a discourse influence the policy choices that they make. Data on individual perceptions of the discursive framings of climate change, water security and WRM were collected through a Q Methodology study (Chapter 3). The data from the Q study was also integrated into the discourse analysis results.

Impact – Q4: To what extent are discursive framings and policy practice connected in the Equatorial Nile Basin, and what are the implications for water governance?

The analysis of the impacts of policy discourses on policy practice and their implications for water governance synthesises the results of the previous three research questions. In Chapter 7 the insights into the governance architecture,

the construction of discursive frames around water resources management, climate change and water security, and policymakers' individual perceptions are used to answer the research question. As an example of the link between discursive frames and policy practice the chapter explores the role of the climate change and water security frames for policy practice and outcomes of governance processes. This chapter also reflects on the relationship between policy actors, policy design and policy practice and discusses the role of policy networks in this context.

1.2. Scope of the Study and Policy Relevance

As mentioned above, this study analyses multilevel governance processes in the EQNB with particular attention to the Mara River Basin. This thesis contributes empirical evidence to theoretical debates on water governance in the context of weak institutional structures and developing countries. By applying a multilevel governance framework in combination with discourse analysis it also enhances understanding of the influence of policy discourses on policy implementation and outcomes in transboundary river basins. In particular, the thesis pays attention to discursive framings around climate change and water security. The research results are therefore relevant for policymakers concerned with the institutional architecture of water governance in the context of climate change adaption and resilience. Knowing how policy discourses influence governance outcomes is useful for governance actors revisiting their own framings of water issues.

The scope of this study is geographically limited to the riparian countries of the Mara River Basin and the EQNB, recognising the wider implications for other Nile Basin riparian countries. The study presents an in-depth analysis of multilevel governance processes in the Mara River Basin which is mainly relevant for Kenya and Tanzania, although the study findings also have reverberations for the Equatorial Nile and Nile Basin.

The research period was limited to policy processes occurring between the years 2000 and 2013. This time frame relates to the political water policy reform processes of the late 1990s and early 2000s in the Nile Basin. The millennium marked the emergence of new transboundary cooperation in the Basin through the establishment of new multilateral institutions, namely the Nile Basin Initiative (NBI) and the Lake Victoria Basin Commission (LVBC) shortly after. These two

initiatives still significantly shape transboundary water resources management in the Nile Basin today. In addition, most countries in the EQNB undertook a reform of their water sector in the late 1990s and early 2000s, integrating principles of Integrated Water Resources Management (IWRM) which are strongly reflected in today's water policies in the Basin, particularly in Kenya and Tanzania.

Further limitations of this research include the potential bias of interviewees. The results of the primary data collection strongly relied on information given by interviewee participants, which included a range of representatives from government departments, international donor agencies, the Nile Basin Initiative and Lake Victoria Basin Commission, INGOs and Water Users Associations. Since most individuals, which participated in this study were involved in water governance processes in the EQNB or Mara River Basin, objectivity of information could not be guaranteed. This study attempted to reduce the bias through triangulating interview data with other information, gathered through a review of policy documents and other types of literature (for more details on data collection methods refer to Chapter 3).

1.3. Overview of the Thesis

The thesis is divided into eight chapters. Chapter 2 introduces the key theoretical concepts and maps out the theoretical framework of this study. The research design, case study selection and data collection methods are presented in Chapter 3. Chapters 4, 5, and 6 present the empirical results of the research on governance architecture in the EQNB, the discursive framing of the water resources management discourse, and individual policymakers' perceptions of water resources management, water security and climate change. Chapter 7 synthesises the results and discusses the implications of discursive frames for governance outcomes. Chapter 8 summarises the conclusions of this research and suggests future areas for study and policy recommendations. Below, the chapters are outlined in more detail.

Chapter 2 gives an overview of the two theoretical key concepts of the research, namely multilevel environmental governance and discourse analysis, and relates them to the thematic area of study: water resources management, water security and climate change. It presents the relevant academic literature on these topics and identifies knowledge gaps in the research.

Chapter 3 outlines the research design, the case study selection and the research methodology. It explains the rationale for choosing an embedded case study design with a focus on the EQNB and the Mara River Basin, presents essential background information about the case study and outlines the methods of data collection applied to answering each research question.

Chapter 4 analyses the multilevel governance architecture of the Equatorial Nile/Mara River Basin across the international, regional, national and sub-national policy levels, finding that multilevel water governance in the Mara River Basin takes place via two competing policy networks. The chapter compares the characteristics of each policy network and analyses their role in water governance in the Basin. The results are discussed in the context of preventing conflict over water and enhancing institutional resilience to climate change.

Chapter 5 scrutinises the discursive framing of policy discourse on water resources management (WRM) in the EQNB. On the basis of document analysis and interviews with policymakers, it identifies three generic discursive frames on environmental risk, improved governance and infrastructure development. The chapter shows how the structure of the generic frames is transferred to the issue-specific framing of climate change and water security in the policy discourse and concludes that the political interests of the actors are reflected in the framing of the policy discourse, particularly in their application of the climate change frame to circumvent the political tension that exists in the discussion on water security in the Nile Basin.

Chapter 6 examines individual policymakers' perceptions of the WRM, climate change and water security discourses. It presents the quantitative results of a Q methodological study looking at WRM from the perspective of individual policymakers which show that most participants shared similar views on WRM, climate change and water security that mirrored the dominant framing of the policy discourse. However, subtle but meaningful differences were revealed such as perceptions of transboundary cooperation and climate change adaptation that were not reflected in the dominant discourse.

Chapter 7 synthesises the empirical results of Chapters 4, 5, and 6 and explores the relevance of the results to water policy practice and its outcomes. For the example of the climate change and water security framings (as identified in

Chapter 5) the chapter investigates the relationship between discourse and policy practice and outcomes. Policy practice and governance processes are then linked to the policy networks, as identified in Chapter 4, and their role in water policymaking is discussed. The chapter concludes by discussing the link between discursive framing and policy design, practice and outcomes.

Chapter 8 summarises the results and presents the overall conclusions of this research. It discusses the implications of discursive framings for transboundary water policy and specifically for the Mara River Basin as well as for wider Nile Basin cooperation. It highlights the main contribution to research and to filling the knowledge gaps identified in Chapter 2, points towards future areas of research and concludes by reflecting on the contributions of this research.

2. Governance, Policy Discourses and Water Resources Management

This chapter reviews the relevant literature in the fields of governance and discourse analysis in the context of water resources management and presents the current knowledge in the field as well as identifying knowledge gaps. The review also serves to develop the conceptual framework for this study, which combines a multilevel governance approach with policy discourse analysis, drawing on insights from the literature on governance in areas of limited statehood, public policy networks and conflict theories.

The following chapter starts by defining the term 'governance' (2.1.1.) and gives an overview of the many variations of governance centring on multilevel governance, 'governance without government', governance through policy networks and decentralization approaches (2.1.2-2.1.5.). The chapter continues by discussing the theoretical literature on discourse analysis (2.2.1.-2.2.2.) with regard to environmental policymaking (2.2.3.). In particular, section 2.2. reflects on literature concerning discursive frames and how these impact policy negotiations and decision-making processes. The last section assesses the literature on policy discourses within Water Resources Management (WRM) with an emphasis on discursive frames around Integrated Water Resources Management (IWRM), water security and climate change (2.3.1.-2.3.3.). The last section (2.4.) summarises the conceptual framework and reviews the knowledge gaps and research questions.

2.1. Governance

Governance is 'as old as human history' (Weiss 2000: 795). In academia, the concept generally refers to a combination of structures and processes which regulate public and private life (Weiss 2000). This 'encompasses the activities of governments, but also includes the many other channels through which "commands" flow' (Rosenau 1995: 14). Attention to governance, as opposed to government, has increased throughout the 1980s and 1990s with the growing recognition that classical theories of international relations did not encapsulate the many non-state actors who also shape the regulatory frameworks of societies. Throughout the intellectual debate, different types of governance have developed,

such as global environmental governance, multilevel governance, 'good governance' and 'governance without government'. Commonly concepts like environmental governance are applied as an analytical lens to understand how governance structures and processes work and draw attention to the involvement of non-state actors in these processes. However, 'good governance', a widespread term in the discourse on international development, often reflects a 'research agenda or other activities funded by public and private banks and bilateral donors' that is used for 'contemporary problem solving' (Weiss 2000: 796). The following sections discuss the different definitions of governance with a focus on multilevel environmental governance in a developing country context.

2.1.1. Definitions and Types of Governance

Lemos and Agrawal (2006) define governance in the context of environmental policy as

the set of regulatory processes, mechanisms and organizations through which political actors influence environmental actions and outcomes. (Lemos and Agrawal 2006: 298)

Governance as a theoretical concept emerged from theories on international environmental cooperation and organisations, international environmental regimes, and their creation, maintenance and effectiveness (P. M. Haas 1989; Krasner 1983; Ostrom 1990; Young 1989). Biermann (2006) distinguishes between two broad categories within the environmental governance literature. On the one hand the governance concept aims to provide a more accurate theoretical lens to describe, observe and analyse the reality of policymaking than state-centric theories of International Relations. As a result of globalisation, governance scholars increasingly see interconnections between states on all policy levels (international, national and sub-national), and parallel to this, the emergence of powerful non-state actors such as private firms, international NGOs, etc. In this case the concept enables analysis of these processes and dynamics, compared to previous International Relations theories which take a state-centric perspective and thus often ignore the influence of non-state actors on governance.² Governance is positioned opposite government:

² A useful overview of international relations (IR) theory is presented in Biermann (2006). In particular, realist and liberalist theories of IR have a strong state-centric view of

A key reason for the recent popularity of this concept [i.e. governance] is its capacity – unlike that of a narrower term ‘government’ – to cover the whole range of institutions and relationships involved in the process of governing. (Pierre and Peters 2000: 1)

The governance perspective provides a contrast to the traditional understanding of rule-making within states, i.e. rule-making through a hierarchical command-and-control approach (Hooghe and Marks 2003). According to state centric theories, rules were made and implemented through state actors only according to a clear hierarchical structure within the state. Orders came from the top and were executed by the lower levels of the state hierarchy. Whereas the core of a state administration still functions in this way, the governance approach underlines interlinkages between state and non-state actors across policy levels that form networks which shape policy outcomes (Rosenau 1995). Focussing more on non-state actors than on previous state-centric theories, the governance concept has received the criticism that it underemphasises the role of the state in policymaking as well as often ignoring power struggles and differences between the different governance actors. Furthermore, under the banner of ‘good governance’ powerful actors have advocated governance reform by introducing democracy in many developing countries. In this context the governance concept has been critiqued as making political matters seem apolitical (Chhotray and Stoker 2009).

On the other hand, governance constitutes a normative political programme (‘good governance’) which is promoted by large international organisations and donor agencies such as UNDP and the World Bank, etc. ‘Good governance’ refers to a set of principles which emphasise democratic values such as the rule of law, transparency and market-based competition, whose implementation was used as a condition for developing countries to receive aid from the donor community (The World Bank 1997). ‘Good governance’ has been criticised by many non-state actors such as INGOs as an agenda on the part of a few powerful states to dominate weaker states (Biermann 2006; Weiss 2000).

governance which ignores the political influence of relevant non-state actors at the international level. Both theories were developed after the end of the Second World War in order to reflect IR during the Cold War. However, with the end of the Cold War at the beginning of 1990 new forms of IR emerged, including a wider range of actors and interlinkages, thus limiting the explanatory power of former IR theories.

The governance concept is applied as an analytical lens in a number of research areas such as political science, international relations and earth system science. A number of environmental governance research areas are of particular relevance to this study, among others multilevel environmental governance and governance in areas of limited statehood. The former draws attention to governance processes across various policy levels regarding environmental issues such as the governance of biodiversity, climate change or natural resources management. The latter revolves around analytical questions of statehood, the changing role of the state and service provision by state and non-state actors, e.g. providing security.

2.1.2. Multilevel Environmental Governance

This research seeks to gain a better understanding of water governance in transboundary river basins, in this case the Equatorial Nile Basin (Chapter 3, section 3.2). In a transboundary context, all policy levels – international, national and sub-national – are important for the governance of the resource. Thus this research applies a multilevel governance lens to analyse water governance processes.

Cash et al. (2006) distinguish 'scales' from 'levels' (Figure 2.1.), defining

scale as the spatial, temporal, quantitative, or analytical dimensions used to measure and study any phenomenon, and 'levels' as the units of analysis that are located at different positions on a scale. (Cash et al. 2006: 2)

Issues concerning multilevel environmental governance often span a range of spatial, temporal and jurisdictional scales, creating highly complex problems. Cash et al. (2006) identify three core challenges for environmental governance that relate to multi-scale and multilevel problems:

- ignorance of cross-scale and cross-level interactions, for example 'short-term solutions, that aggregate into long-term problems' (Cash et al. 2006: 4);
- mismatch between human (e.g. political, social, economic) responses to environmental problems and what is needed from an ecological perspective, due to (among others) political limitations of jurisdictions and their inability to address transboundary, environmental problems;

- inability to recognise the plurality of solutions to environmental challenges rather than assuming that there is one best response that applies to all actors across all levels and scales.

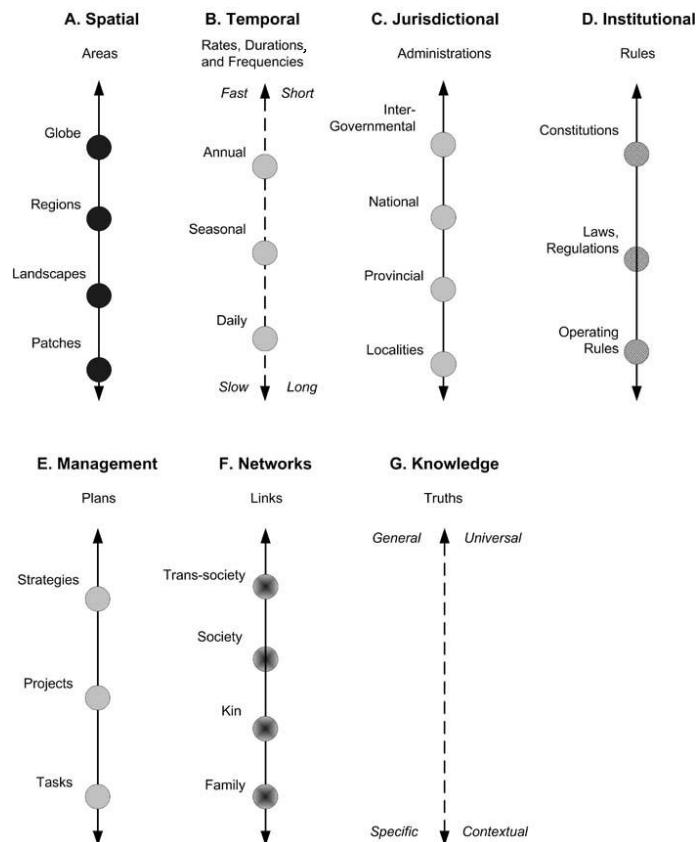


Figure 2.1: The different types of analytical scale and the levels placed on each scale, Cash et al. (2006)

The authors propose improved responses in the management of cross-scale, cross-level environmental problems, such as enhanced institutional interplay across jurisdictional levels, co-management strategies that depend on different levels of power- and responsibility-sharing between government authorities and civil society, and 'boundary institutions' which mediate between institutions on different levels and link these more effectively.

Multilevel environmental governance combines governance processes across multiple jurisdictional, institutional and spatial scales with a focus on environmental issues. The literature on multilevel environmental governance often combines different aspects of these scales, i.e. levels of jurisdiction, actors on different spatial levels and the relevance of various institutions such as regulation, into policy levels (international, national, sub-national). A considerable number of

studies on multilevel governance centre on the European Union (EU), presenting it as a unique example because of the addition of a supranational component to the subnational, national and international levels (Bache 1998; Bache and Flinders 2004; Hooghe and Marks 2001). There is a strong emphasis within the multilevel governance literature on environmental policy (Fairbrass and Jordan 2002; Jordan et al. 2003; Nilsson and Persson 2012; Wurzel et al. 2003) as well as climate change policy (Adger et al. 2009b; Forsyth 2010; Jordan et al. 2010; Nilsson and Persson 2012) in the European context. These environmental issues present areas in which multiple actors across policy levels have to interact and coordinate, and thus illustrate the usefulness of a governance lens for analysing the role of state and non-state actors, as opposed to a traditional, state-centric perspective.

Apart from their use in analysing governance processes within the EU, multilevel environmental governance approaches are often applied within the context of global environmental regimes (Busch et al. 2005; P. M. Haas 1989; Mitchell 2003; Young 1989, 1997). Parallel to processes within the EU, powerful non-state actors have emerged side by side with states as key players in the negotiation of global environmental regimes at the international level (Bauer et al. 2012; Betsill and Corell 2008).

As shown above, there is a vast body of literature offering theoretical explorations of multilevel environmental governance (Gupta and Lebel 2010; Pahl-Wostl et al. 2008a) or with an empirical focus on the European or the global context. However, multilevel environmental governance is also applied in fragile political contexts and developing countries, e.g. in analysing environmental issues in sub-Saharan Africa, the Middle East and Southeast Asia (Adger et al. 2003; Bisaro et al. 2010; Lebel et al. 2009; Perret et al. 2006; Sowers et al. 2011). For example, taking the example of three multilevel governance regimes for climate adaptation, water and biodiversity management in Lesotho, Bisaro et al (2010) evaluate the structural features of the policies and the outcomes they produce with regard to adaptive management. The authors find that decentralised decision-making, equal access to information and the inclusion of multiple interests result in improved governance outcomes on adaptation to climate change.

Focussing on the Mekong River Basin, Lebel et al. (2005) analyse agency in water governance and discuss the limits of the 'politics-of-scale' metaphor. The

authors demonstrate how actors use specific scalar dynamics or certain policy levels to serve their own interests (see also Swyngedouw 1997). Actors' interests and their relationships with each other often do not fit the hierarchical order of common spatial scales, i.e. from low (local) to high politics (national, international). Instead, their interests are complex and include a range of factors other than just space, i.e. political and economic considerations.

Looking at developing countries more broadly, Adger et al (2003) argue that climate change is likely to exacerbate existing social and economic challenges in developing countries and reflect specific risks and vulnerabilities. The authors conclude that in order to enhance climate change adaptation and sustainable development, developing countries need to enhance their adaptive capacity for natural resources management at the local level and through international policy agreements. Even though there is a range of studies exploring diverse environmental governance issues in different developing countries, more empirical research is required to deepen knowledge about the applicability of the multilevel environmental governance framework.

2.1.3. Governance in Development Studies

To enhance the conceptual framework for the empirical analysis of multilevel environmental governance (Chapters 4-7), this study draws on governance literature from the development studies discipline, from which governance has emerged as a popular concept; in particular, 'good governance' has gained much attention from the development community (Chhotray and Stoker 2009). Chhotray and Stoker (2009) review the main contested topics in the governance literature such as the conditionality imposed between good governance and aid, the role of democracy in achieving good governance, and the role of state vis-à-vis non-state actors in implementing governance.

Apart from debates about good governance, development studies also engages with governance on fragile political contexts and service provision by state and non-state actors, i.e. the provision of security, water or health. Hence for its conceptual framework this research draws on insights from studies of 'limited statehood'.

Risse (2011) defines areas of limited statehood as areas, which

still belong to internationally recognised states [...], it is their domestic sovereignty that is everly circumscribed. Areas of limited statehood concern those parts of a country in which central authorities (governments) lack the ability to implement and enforce rule and decisions or in which the legitimate monopoly over the means of violence is lacking, at least temporarily. (Risse 2011: 4)

According to the Berteslmann transformation index, which assesses countries according to the quality of governance, all Nile Basin riparian countries are classified as failed states (DR Congo), fragile states (Sudan, Ethiopia, Kenya, Burundi), or states with areas of limited statehood (Egypt, Uganda, Rwanda, Tanzania) (Risse 2011: 7).³ Hence literature on areas of limited statehood can offer deeper insight into governance processes in Nile riparian countries.

Research on areas of limited statehood links to studies of failed and failing states and post-conflict societies, and mainly focuses on security and service provision by state and non-state actors (Brinkerhoff 2005; Krasner and Risse 2014). In this context, governance provides an analytical perspective from which to look beyond the failure of governments, according to the conceptualisation of Max Weber, to hold a 'monopoly of the legitimate use of physical force within a given territory' (Weber 1980 [1922]: 822, §2). As Risse (2011) observes,

limited statehood does not equal the absence of governance, let alone political, social, or economic order. State weakness does not simply translate to the absence of political order, rule making or the provision of basic services. (Risse 2011: 9)

Draude (2007) argues that the functions relevant to governance should be at the centre of analysis rather than concentrating on whether or not state actors provide these functions. The author calls for a modified research approach regarding areas of limited statehood – instead of focussing solely on the state/society dichotomy the processes behind governance provision, such as how governance is exercised and achieved in fragile political contexts, should be examined.

Even though the body of literature around limited statehood and weak states centres on security and service provisions, its approach and insights are relevant

³ For the sake of simplicity, in the following the term 'areas of limited statehood' is used interchangeably with 'developing countries'. Whereas 'areas of limited statehood' may not exist just in developing countries, but may also be present in emerging or industrialized economies (e.g. low-income areas in large cities, for example), in the present case study of the Nile Basin and Equatorial Nile Basin the two concepts overlap.

to multilevel environmental governance. Firstly, both research areas are concerned with the provision and governance of public goods such as security, health care, the environment and water resources. Secondly, while both bodies of literature are concerned with varied thematic interests (the first with statehood, the latter with governing the environment), both are part of a larger research area on governance. Both demonstrate, in different research areas (environmental/peace and conflict studies), that to shed light on governance processes it is necessary to examine the role of state and non-state actors alike. However, while environmental governance analysis mainly centres on environmental politics and decision-making in the EU or formation of the global environmental regime, the literature on areas of limited statehood recognises the diverse challenges that developing countries face. Therefore literature on limited statehood provides additional insights in the context of this conceptual framework, regarding the complexities of governance challenges for developing countries. The literature is also relevant for improving the understanding of contextual factors that Nile riparian states face. Even though the study is concerned with multilevel water governance, as argued in the literature review environmental governance ranges across many scales and levels and thus cannot be entirely separated from its context. This conceptual framework draws on insights from studies of environmental governance, development studies and research on areas of limited statehood to gain a deeper understanding of water governance processes in the Equatorial Nile Basin (EQNB).

2.1.4. Governance Through Policy Networks

Theories on policy networks within the public policy and administration literature are closely linked to ideas around governance. The public policy literature conceptualizes policy networks as 'a cluster or complex of organizations connected to one another by resource dependencies' (Rhodes 1997: 37). Networks are based on the exchange of either material and immaterial resources or of similar values and interests such as professional networks or epistemic communities (P. M. Haas 1992; Marsh and Rhodes 1992). Interpersonal relationships between members play a key role in the cohesion of the network over time (Grant et al. 1988; Wilks and Wright 1987). Börzel's encompassing

definition of policy networks includes these characteristics. The author defines policy networks as

a set of relatively stable relationships which are of non-hierarchical and interdependent nature linking a variety of actors, who share common interests with regard to a policy and who exchange resources to pursue these shared interests acknowledging that co-operation is the best way to achieve common goals. (Börzel 1998: 254)

The classic literature on public policy classifies policy networks as a form of relationship between interest groups and the state in a given issue area, focussing on the analysis of sectoral policymaking within a state (Börzel 1998: 258). Empirical studies examine policy networks within governments (Marsh and Rhodes 1992) and between different sectors or industry and government (Wilks and Wright 1987), as well as intergovernmental relations (Rhodes 1997). More recently the governance literature has developed the conceptualisation of policy networks, perceiving them as a third type of governance alongside hierarchy (i.e. hierarchies within a state) and markets. Hierarchy presents a traditional form of governance in which the state makes rules and regulations through its administration, which in turn is characterised by strong hierarchies and a top-down chain of command. Markets and their mechanisms are seen as the opposite to state hierarchies, as according to the theory they are regulated through demand and supply. Whereas actors within the state administration are embedded within strong hierarchical structures, markets are conceptualised as free of hierarchies, based instead on voluntary interaction between actors. Governance theory understands policy networks not just as a type of interaction between state and non-state actors, as public policy literature understands them, but instead as constituting an additional form of governance. The 'governance school' views policy networks as

a specific form of governance, as a mechanism of mobilizing political resources in situations where these resources are widely dispersed between public and private actors. (Börzel 1998: 255)

They are interpreted as a manifestation of public-private relations that combine aspects of markets such as the 'plurality of autonomous agents' (Börzel 1998: 268), with features of hierarchy, defined as 'the ability to pursue chosen goals through coordinated action' (ibid.).

In the context of developing countries, where governments often lack fundamental resources and capacity, policy networks as conceptualised by the ‘governance school’ seem to present an advantage in explaining the distribution of public goods. Instead of simply referring to policy networks as a form of interaction and communication between state and non-state actors, policy networks are thus seen as a governance mechanism themselves. As Chapters 4 and 7 demonstrate, this conceptualisation of policy networks is highly relevant to analysing multilevel water governance in the EQNB.

Empirical studies of policy networks mainly focus on European countries or other industrialised countries such as the United States; for example analysing the role of policy networks within states and across sectors (Marsh and Rhodes 1992; Wilks and Wright 1987), comparing the role of policy networks in different countries (Bressers et al. 1994; Pappi and Knoke 1991) or explaining sectoral policymaking through network analysis within the EU, e.g. on technology exchange and the control of chemicals (Schneider 1988; Schneider et al. 1994). More recently, studies on policy networks in the context of environmental governance have analysed the role of transnational European municipality networks for environmental sustainability (Bulkeley 2005), the agency of advocacy networks in international climate change negotiations (Keck and Sikkink 1998), and the influence of policy and expert networks on WRM (Bressers et al. 1994; Conca 2006a). For example, Conca (2006) shows how a global network of experts has promoted ideas around IWRM and substantially contributed to its becoming the dominant international paradigm for water managers. These studies fit into the governance school approach and show that the involvement of non-state actors in environmental governance through policy networks presents a new type of institutionalised governance.

There is an emerging recognition of governance through policy networks in development studies. Using the example of Madagascar’s Environmental Action Plan, Brinkerhoff (1996) discusses the importance of implementation networks. Brinkerhoff argues that policy implementation through networks that include non-state actors enhances its efficiency. Instead of solely relying on the state for problem-solving and the provision of services, Brinkerhoff argues, involving a range of different actors from all sectors improved the performance of policy implementation of the Madagascan Environmental Action Plan. More recently,

Benecke (2011) has demonstrated how, in the renewable energy sector in India, multi-stakeholder networks can foster or hinder the development of wind energy to mitigate and adapt to climate change. The author argues that network analysis presents an important tool for better understanding the agency of actors in influencing governance processes and outcomes, as 'relations and interactions between stakeholders [are] embedded in multilevel networks' (Benecke 2011: 39). What differentiates the two studies is the rationale behind the policy networks. Madagascar's Environmental Action Plan was initiated by the World Bank which, together with other donors, was the driving force behind 'extending the implementation network beyond the public sector' (Brinkerhoff 1996: 1499) despite the Madagascan government's reluctance to let go of its authority. Whereas in this case the network was formed to improve policy implementation, in the case of the Indian wind sector stakeholder networks emerged as a result of the dominance of the Indian government in the traditional energy sector and investment opportunities for private actors in renewable energies. The Indian government made a deliberate effort to decentralise the renewable energy sector and to improve technical capacities on a local scale. As shown in Chapters 5 and 7, this change in policy from formerly state-centred steering to a decentralised approach involving multiple stakeholders across different policy levels and sectors has had an important influence on multilevel water governance in the EQNB.

2.1.5. Decentralisation, Co-management and Stakeholder Participation

As the previous sections have discussed, multilevel governance draws attention to the interlinkages between state and non-state actors and their role in the governance of resources. Here governance presents an alternative model to traditional state hierarchies through policy networks, implying the dispersion of authority across different policy levels, sectors and actors. Multilevel governance implicitly links to notions of decentralisation, co-management approaches and stakeholder participation. This sub-section reviews the relevant literature on these three related concepts.

The decentralisation of government authority is a key concept in the context of multilevel environmental governance. Since the 1990s influential international actors such as the World Bank have embraced decentralisation as its agenda for

governance reform across most of the developing world (Bradhan 2002). The aim of decentralisation is

to create the most efficient and accountable form of government possible. (White 2011: 3)

Benefits associated with decentralisation include the improvement of governance through the creation of additional ‘checks and balances’ to limit government authority, enhance the efficiency and responsiveness of government, achieve better provision and supply of public services (e.g. water supply), and diffuse political tension in multi-ethnic societies by providing political representation and levels of autonomy to communities at a local level (Bradhan 2002). Decentralisation is commonly divided into three levels along a continuum of disbursement of authority (White 2011): *Deconcentration*, the lowest level of decentralisation, which merely includes establishing central government field offices without delegating authority; *delegation*, where the central government transfers aspects of decision-making and administration to local government although local governments are still accountable to central government; and *devolution*, where the central government entrusts local authorities with decision-making power, including in the management of finances and administration, thus establishing semi-autonomous local government units.

In order to manage natural resources in a multilevel system, the decentralisation of authority *downward* to local government units is often combined with the transfer of decision-making power *outward* to civil society and the private sector. There are multiple terms that all refer to the inclusion of non-state actors in the political process, e.g. ‘collaborative management’ or ‘co-management’, ‘stakeholder participation’, ‘multi-stakeholder platforms’, ‘community management’. These concepts share the normative assumption that including non-state actors in the decision-making process enhances democratic legitimacy and thus makes environmental governance more sustainable (Enserink et al. 2007; Pahl-Wostl et al. 2008b). Berkes et al. (1991) define co-management as

the sharing of power and responsibility between the government and local resource users. (Berkes et al. 1991: 12)

Definitions of co-management refer implicitly or explicitly to decentralised decision-making (Singleton 1998; The World Bank 1999). Degrees of co-

management stretch along a continuum ranging from 'nearly self-management to nearly total state management' (Pinkerton 1994, cited in Carlsson and Berkes 2005: 66). Approaches to the co-management of water resources include multi-stakeholder platforms, institutionalised fora where stakeholders from various policy levels meet and discuss relevant concerns (Warner 2007), and local resource user groups – geographically confined groups that govern and manage the water resource locally (i.e. water users' associations). The objective of water users' associations is to improve local water management, enhance environmental sustainability and prevent and resolve conflicts between groups over the resource (Kiteme and Gikonyo 2002; Narain 2003; Warner 2007). Co-management approaches such as water users' associations are an essential part of integrated IWRM, as discussed in section 3 of this chapter.

Inherent in co-management is the concept of stakeholder participation, which Enserink et al. define as

the involvement of individuals and groups that are positively or negatively affected by or are interested in a proposed intervention. (Enserink et al. 2007: 24)

Similar to co-management, stakeholder participation yields important benefits for the governance of natural resources such as enabling access to decision-making to increase the democratic legitimacy of the process, reduce the costs of decision-making, improve policy outcomes, create a sense of ownership and enhance the social capital of the various stakeholders included in the process (Rydin and Pennington 2000; von Korff et al. 2010). However, von Korff et al. (2010) point out that participatory approaches do not automatically create these benefits as they are often poorly designed and do not reach the stated aims. Stakeholder participation thus faces common challenges, including 'weak participant interest, control-focused leaders, or highly complex social relationships' (von Korff et al. 2010).

2.1.6. Summary

This section has reviewed the multilevel environmental governance literature with reference to WRM in a developing country context. The discussion has shown that the governance framework offers advantages for understanding processes around WRM compared to purely state-centric approaches. This study also draws on insights from development studies and governance processes in 'areas of

limited statehood' to contribute another viewpoint to the Eurocentric perspective of most governance literature. The governance literature emphasises the role of non-state actors vis-à-vis traditional governments, with the former increasingly becoming more important for the governance, access and allocation of resources in developing countries. Policy networks present a new form of governance among these different policy actors. This section has also reviewed other new forms of resource governance which go beyond the centralised state as the sole custodian of the resource, i.e. decentralisation, collaborative resources management and stakeholder participation.

2.2. Policy Discourses

2.2.1. Terminology of Discourse, Narratives and Discursive Frames

To understand how actors influence multilevel environmental governance, this study applies a discourse analysis perspective. Discourses are 'language in use relative to social, political and cultural formations' (Jaworski and Coupland 2006: 3). The study of discourses originates from two fields of inquiry, namely linguistics and critical social sciences. While the former focuses on the linguistic structure of a discourse, the grammar, its semantics and the words used, the latter gives discourse analysis its purpose, i.e. to 'expos[e] or deconstruc[t] the social practices that constitute 'social structure' [...] '(Jaworski and Coupland 2006: 5). A discourse encompasses varying opinions, or *discursive frames*, regarding a specific issue, e.g. water resources management. Discursive frames, also referred to as policy frames, are 'ever-changing 'scripts' for organising and understanding the social and political world' (Dayton 2000: 72-73) and consist of

fluid processes of issue conceptualisation, which are transmitted via language and are constructed through social interaction, reaction, and adjustment. (ibid.)

A policy discourse is a combination of a number of discursive frames, for example the discourse on WRM integrates frames around environmental risk, transboundary cooperation and sustainable resources management (see Chapter 5). Actors use discursive frames as reference points 'from which to interpret and respond to policy controversies' (Dayton 2000: 73).

This study distinguishes discourses from *narratives*. Narratives are defined as personal accounts of certain events, mostly through oral speech-acts, and are often described as 'story-telling' (Jaworski and Coupland 2006). Narratives share characteristics with discourses such as an inherently subjective viewpoint which relates to a personal construction of reality rather than a objective mirror image.

Narratives allow storytellers to be certain about what is essentially uncertain.
(Warner 2011: 25)

Hence narrative analysis is situated within the tradition of discourse analysis.

2.2.2. Approaches to Discourse Analysis

In order to gain a better comprehension of multilevel environmental governance processes, this study combines a governance framework with elements of Michel Foucault's work on discourse analysis and critical discourse analysis (CDA). Foucault significantly shaped the investigation of discourse by critically questioning the rules behind what meaning is given to discursive practices, the limitations to what can be said and the rules that apply to knowledge generation (Foucault and Sheridan 1972)⁴. Foucault's theory places particular emphasis on power. According to Foucault, power is not held by one agent or institution alone but rather manifests itself through a system of social practices (Jørgensen and Phillips 2002). Through questioning the construction of knowledge, discourse analysis helps to uncover power structures. Whereas Foucault's work presents the theoretical foundation for discourse analysis, this research applies CDA as an analytical lens. Central to CDA is the notion that a discourse is a

form of social practice which both reproduces and changes knowledge, identities and social relations including power relations, and at the same time is also shaped by other social practices and structures. (Jørgensen and Phillips 2002: 65)

⁴ Michel Foucault's work laid the groundwork for the study of discourses. Most contemporary theories of discourse analysis relate to his work, building on his ideas, that discourses present a set of statements based on rules about what can and cannot be said, and that truth is created through discursive practice. Important works by Foucault include the analysis of discourses around sexuality and penal law (Daddow 2009). For more information on the influence of Foucault on discourse analysis and the study of power see Jørgensen and Phillips (2002).

Thus CDA applies a constructionist view that sees relationships between social structures and agents as reciprocal, mutually shaping and influencing each other.⁵ CDA also challenges the notion of objectivity and is interested in deconstructing 'practices that produce apparent objectivity, normality and factuality' (Jaworski and Coupland 2006: 27). The aim of CDA, as described by Fairclough (1995) is to 'denaturalise' common notions that are rooted in ideological belief systems. He suggests that in order to denaturalise such beliefs it is important to apply a critical stance towards commonly-held notions which constitute a discourse, and unravel the social structures. Actors such as individuals or organisations produce policy discourses which in turn reproduce the existing social structure (Fairclough 1995). For example, Dryzek (2013) reflects on the changes in the meanings and values connected to concepts such as 'nature' or 'environment' over time. He unpicks the terms 'nature' and 'environment' and demonstrates that their meanings are socially constructed rather than constituting an 'objective reality' and observes that each discourse is based on belief systems which make assumptions about what constitutes 'natural'. Inherent to discourses are expectations about actors and their motives to behave in a certain way. Thus discourses affect a great range of actors and institutions and can become incorporated in an actor's or an institution's identity.

When this happens, discourses constitute the informal understandings that provide the context for social interaction, on par with formal institutional rules. (Dryzek 2013: 20)

When analysing multilevel environmental governance from a discourse perspective it becomes apparent that powerful actors and institutions are able to influence policy discourses, and at the same time are a product of other discourses themselves (Hajer and Versteeg 2005). These actors produce discourses which then are then reproduced by other actors, leading to the forming of discursive policy coalitions. This research hypothesises that because environmental policymaking is reliant on a limited number of technical experts, key individuals play an important role in creating and promoting certain discourses.

⁵ Chapter 3 discusses the relevance of constructionism in this research in more detail.

2.2.3. The Role of Policy Discourses in Environmental Governance

In the context of environmental discourse analysis, Hager defines discourse as

a specific ensemble of ideas concepts, and categorizations that are produced, reproduced, and transformed in a particular set of practices through which meaning is given to physical and social realities. (Hager 1995: 44)

Hager (1995) characterises environmental discourses as the struggle over the meaning of phrases. The author traces the evolution of environmental discourse over the 1990s and demonstrates that the framing of environmental problems is inherently political. He finds that while environmental policy is based on scientific findings, the selection of priority issues and the preferred response measures are an outcome of political decision-making. Dryzek (2013) comes to the same conclusion and demonstrates, in an elaborate analysis, how discourses change over time. Giving various examples, he shows how the connotations and meaning linked to a specific term have changed dramatically over time. He discusses how the meaning of terms like 'environment', 'nature', and 'climate', among others, have been modified over time, which in turn has had fundamental implications for policy design and outcomes. Furthermore, Dryzek (2013) shows that while there are competing discourses over topics like 'sustainability' or 'green growth', these discursive framings are influenced by other discourses such as neoliberal discourses on markets.

Environmental policymaking consists of a plurality of discourses, resulting in discursive struggles about the definition of a problem (Hager and Versteeg 2005). Hager and Versteeg (2005) discuss the contribution of discourse analysis to environmental politics. The authors argue that discourse analysis is useful for uncovering underlying processes within environmental governance because it

- helps to reveal the role and use of language in politics,
- unravels the norms and meanings linked to terms used, and
- uncovers the political struggle behind the definition of the 'real' problem.

By revealing the political contest over the meaning of phrases related to environmental governance such as 'sustainable development', discourse analysis appreciates 'nature as a contested notion' (Hager and Versteeg 2005: 178).

The discursive struggle in environmental policy has been studied via a number of examples. Prominent studies in the field of environmental discourse analysis have examined the alteration in attitudes and opinions within international discourse on ozone depletion (Litfin 1994), traced the development of policy discourses on acid rain in the UK and the Netherlands over the 1980s and 1990s (Hajer 1995), and reflected on the plurality of competing and complementing international environmental discourses and their connection to the industrialisation paradigm over time (Dryzek 2013). In combination, these empirical studies demonstrate that discourses are constructed through social relations; they shape social and political decision-making and limit the choices for policy outcomes. This relates to Giddens's theory of structuration, in which he argues that the institutional structure inherits a 'duality', being enabling and constraining at the same time (Giddens 1984). While some powerful actors are enabled through the institutional structure and thus manage to shape and influence the discourse, the discursive structure presents a constraint for others, limiting the discourse to certain perspectives and views.

Discourses imply prohibitions since they make it impossible to raise certain questions or argue certain cases; they imply exclusionary systems because they authorize certain people to participate in a discourse; [...]. (Hajer 1995: 49)

Powerful actors may try to influence a discourse and shape it to match their interests; thus analysing policy discourses can help to reveal hidden interests and political power struggles. Discourse analysis is an important tool

not only for the sake of exploring underlying interests or ideologies, or engaging in discursive struggles, but also to identify textual mismatches that may later have strong implications for outcomes. (Molle 2008: 149)

Chapters 5 and 7 relate to Molle's notion and analyse the influence of the discursive, textual framing on policy outcomes, for example in WRM discourse on the Equatorial Nile/Mara River Basin. The following section reviews the literature on discourses related to WRM and climate change more specifically, and identifies further research gaps.

2.2.4. Summary

In sum, this section has reviewed the literature on environmental discourses with reference to policymaking. Discourse analysis reveals the underlying political

struggle behind the framing of what appears to be ‘natural’. Through discourse analysis, commonly-held ideas and notions can be challenged and deconstructed, providing insight into the political interests that hide behind discursive framings. Discursive frames constitute important guidelines that can inform policymakers’ decisions while also limiting political options for alternatives. Hence policy discourses play an important part in the analysis of policymaking and have implications for multilevel governance processes.

2.3. Discourses on Water Resources Management in the Context of Multilevel Water Governance

Whereas there is a vast body of literature examining the different aspects and challenges of water resources management such as the availability of, access to water and its allocation (e.g. Bielefeldt 2006; Cascao 2009a; Falkenmark 1989; Mukheibir 2010; Rijsberman 2004), transboundary conflict and cooperation (e.g. Gleditsch et al. 2006; Gleick 1993; Wolf 1998; Zeitoun and Mirumachi 2008), or evaluating alternative forms of resources management, such as stakeholder participation and collaborative resources management (von Korff et al. 2010; von Korff et al. 2012; Warner 2007), there is less research on the discourses behind these concepts. A few studies focussing on the discourses behind water governance (Conca 2006b) and on flood planning in the context of water security (Warner 2011; Wesselink and Warner 2010) partially fill this gap.

To identify further knowledge gaps with regard to the impact of policy discourses on multilevel water governance, this section introduces some of the literature on transboundary WRM and then reviews the literature on discourses relevant to WRM in the context of this study, namely discourses on IWRM, water security and climate change.

2.3.1. Transboundary Water Resources Management

This research was informed by the literature on transboundary water resources management, which examines themes around conflict and cooperation over water. The first research strand looks at potential ‘water wars’ and centres around the hypothesis that water scarcity is a cause of violent conflict (Baechler 1999; Gleick 1993). Homer-Dixon, a leading author in the ‘water wars’ literature, asserts that tension is particularly high when the upstream-downstream constellation between

riparians involves (a) a downstream riparian highly dependent on river water, (b) an upstream riparian with the ability to seriously reduce water discharge towards the downstream riparian, (c) bilateral relations are tense and (d) the downstream riparian is militarily superior (Homer-Dixon 1994). Homer-Dixon (ibid) specifically mentions the Eastern Nile Basin as a potential region for water wars(Homer-Dixon 1994). Among others, Cooley et al. (2009) provide more recent evidence of disputes over water allocation which could lead to conflict across local borders or ethnic boundaries or between economic groups, as well as international conflict. The authors also state that climate change will have an inevitable effect on water resources and aggravate already existing tensions. Some of the literature is more critical about what causes environmental conflict and consider that other political contextual factors are more important than just scarcity in triggering conflict (Gleditsch 2001; Lowi 1993).

Despite the potential for *interstate* wars over water, most of the literature on transboundary water conflicts sees a high potential for *intrastate* conflict between different water users. A complex network of socio-political relationships is understood to lead to violent conflict within the state. Often the triggers for such conflicts are not mono-causal but interact with other factors, increasing the pressure on a group/population within the state so that violence erupts (Baechler and et. al. 1996). When international environmental disputes arise they occur 'especially between nations mutually dependent upon the cooperative use of international river basins.' (Baechler 1998: 25).

A second strand of research on transboundary water management assumes that water scarcity leads to international cooperation. For example, Wolf argues that it is not rational for states to start wars over water resources and concludes that 'shared interests along a waterway seem to overwhelm water's conflict-inducing characteristics.' (Wolf 1998: 261) This literature underlines how the institutional capacity and relationship between countries is more important in conflict or cooperation over water than the physical availability of water (Wolf et al. 2003). Environmental and water management can even be used as a bridge to foster new dialogue between parties and to bring conflicting parties together over less politically-sensitive issues such as environmental management (Carius 2006; Dabelko 2008).

Zeitoun and Mirumachi (2008) scrutinise the conflict-cooperation dichotomy and find that rather than being polar opposites, as is often suggested in the literature (e.g. Yoffe et al. 2003), the two can co-exist. The authors critically assess the values behind conflict ('bad') and cooperation ('good') and discuss different examples of inter-riparian relations in transboundary river basins where cooperation is not always positive (and conflict not always negative) and in some cases contributes to conflict management rather than conflict resolution.

The literature on water conflict and cooperation is relevant when examining hydropolitics and its discourses in the Nile Basin (Chapter 4-7), specifically as cooperation and environmental conflict/risk appear as discursive frames in the policy debate (Chapter 5). However, this thesis does not specifically apply transboundary water management theory, as it often centres around states and their relations with other states. Instead, I am interested in the many interactions that shape water governance/management at different policy levels, which requires looking beyond states and their agency. While this research links to literature on transboundary water management, a governance lens is more appropriate for the analysis of the behaviour and interactions between state and non-state actors as part of multilevel water governance. The following sections specifically review the literature on discourse analysis regarding transboundary water management, water security and climate change.

2.3.2. IWRM Discourse

Since the early 1990s, IWRM has emerged as the dominant international paradigm (Molle 2008) and the 'holy grail' (Biswas 2004) for water resources management. IWRM is most commonly referred to as

a process which promotes the coordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems. (GWP 2000b: 22)

Based on the Dublin Principles (ICWE 1992), IWRM frames water as a resource which needs to be managed in an integrated manner because it is finite, vulnerable and essential. Integrated management

- includes all sectors (public, private, civil society) in the approach

- ensures the representation of all stakeholders
- considers all physical aspects of water resources
- manages water in a sustainable manner, giving consideration to the environment (Savenije and Van der Zaag 2008)

The IWRM approach also underlines the fact that water has an economic value and should be recognised as an economic good, taking into account affordability and equity criteria. The approach strongly supports the participation of all stakeholders in the management of the resource, embracing the subsidiarity principle of making decisions at the lowest possible policy level. This definition of IWRM links to related concepts such as decentralisation, participation and co-management approaches (section 1.5).

A vast amount of literature exists on IWRM. International actors such as the Global Water Partnership (GWP) and UN agencies promote IWRM as a practical tool for efficient and successful water management (e.g. GWP 2000b, 2009; UNEP 2012; UNESCO-IHP 2009). For example, UNEP advocates its implementation through river basin organisations in Sudan, one of the Nile basin riparians (Jaspers 2014).

The scientific literature is more critical of IWRM. Saravanan et al. (2009) assert that the discourse on IWRM is polarised, with one side praising it as 'the holy grail' while the other rejects the concept altogether. The scientific literature on IWRM can be broadly divided into that which generally accepts the concept but seeks to improve its applicability and make its processes and outcomes more sustainable (Fischhendler 2008; Keur et al. 2008; Savenije and Van der Zaag 2008; Timmerman et al. 2008) and the critics who question the basic assumptions behind the concept of IWRM (Biswas 2004; Molle 2008; Mollinga et al. 2007). IWRM has been criticised, among other things, for being difficult to implement, for its overreliance on a regulatory regime, and because its approach was developed for use in industrialised country contexts (Lankford and Hepworth 2010). The reasons for its unsuccessful implementation range from low financial capacity, to insufficient design of projects and to a lack of political will to adopt IWM on the part of policymakers (Jonker 2007).

Studies that examine the influence of the IWRM discourse on policymaking are situated in the critical IWRM literature camp. For example, Allan (2006) shows

that while IWRM is inherently political the discourse is often depoliticised, thus appearing to be purely technical. This notion is confirmed by Feitelson (2002) through his scrutiny of the discursive framing of water management in Israeli-Palestinian negotiations over water resources. Feitelson critically examines the competing discourses over WRM and outlines the formation of opposing discourse coalitions that share the same interests and thus interpretation of water management. The author concludes that discourses and the framing of a subject potentially play a vital role in the outcome of negotiations, i.e. the achievement or non-achievement of an agreement between two parties. Jägerskog (2003) specifies that domestic discourses within Israel and Palestine are crucial to explaining negotiation outcomes.

Molle (2008) further unravels the structure, content and political implications of the discourse around IWRM, coining the term 'nirvana concepts'. Nirvana concepts are overarching frameworks which underpin and promote particular discourses (or, in Molle's terms, 'narratives').

Nirvana concepts are concepts that embody an ideal image of what the world should tend to. They represent a vision of a 'horizon' that individuals and societies should strive to reach. (Molle 2008: 132)

In addition to his critical view of IWRM's achievability, Molle's analysis finds that the discourse around IWRM makes promises that it cannot keep; i.e. IWRM explicitly emphasises stakeholder participation, which suggests the inclusion of many different actors in decision-making, while the concept is intrinsically state-centric. Through the dominant rhetoric of the discourse IWRM is depoliticised and the state appears as the natural entity to steer and guide water management (Molle 2008).

The IWRM discourse relates to other discourses associated with WRM such as those on river basin organisations (RBOs), water privatisation, decentralisation, stakeholder participation, transboundary cooperation, and more generally sustainable development. Here, studies place IWRM within the discourse on RBOs and examine the role of global knowledge networks in the promotion and maintenance of the discourse (Mukhtarov and Gerlak 2013), illustrate how the discourse around water privatisation links to the transfer of responsibility from the state to transnational corporations and its negative implications for water supply to poor communities in developing countries (Robbins 2003), and discuss the

struggle between the centralisation and decentralisation of the water sector in Mexico (Scott and Banister 2008).

Policy discourses on WRM such as IWRM fit into what Adger et al. (2001) call 'global environmental management' (GEM) discourses. Adger et al. (2001) compare multiple environmental discourses on, for instance, climate change and desertification, and find that most of them link to GEM discourses. GEM discourses perceive 'the environmental problem as a crisis' and conclude that these physical changes in the natural environment will have 'severe social, economic and political ramifications' (Adger et al. 2001: 703). They embrace a neoliberal ideology emphasising the role of the market in resources management. As discussed earlier, the IWRM discourse also has these characteristics; water is understood as a scarce and vulnerable resource, and foresees a crisis as water scarcity will inevitably lead to negative social, economic and political consequences. Thus, according to the logic of the IWRM discourse, water needs to be managed and the state is the 'natural' entity to steer water management while emphasising the economic value of water. Adger et al. (2001) consider that GEM discourses present four solutions to the environmental crisis which are also found in the IWRM discourse and its related concepts, namely:

- knowledge and technology transfer from industrialised countries to developing countries;
- financial investment, transfers, compensation and incentives to adopt environmental friendly and sustainable management practices;
- institutional reform, which includes the decentralisation of resources management and an emphasis on market mechanisms;
- The pivotal position of international agreements and regulations in the mitigation and resolution of environmental problems.

One of the key assumptions of GEM discourse is that solutions need to be developed internationally and adopted globally. The authors find that such developed 'best practices' often do not match local realities. This notion is particularly important in the context of multilevel water governance, since policy discourses related to IWRM are produced and reproduced at the international and national level but implemented at the local level.

2.3.3. Water Security Discourse

Parallel to IWRM, water security has emerged as another concept within the water management sector (Lankford et al. 2013). Since the early 2000s water security has increasingly received attention from policymakers and the academic community alike (Cook and Bakker 2012). Similar to IWRM, water security as a concept is promoted by influential actors within the field of water management such as the GWP and the African Ministers' Council on Water (AMCOW) (AMCOW and GWP 2012; GWP 2000a). In this context water security presents a vision to be achieved through integrated water management. The GWP (2000) defines water security as follows:

Water security, at any level from the household to the global, means that every person has access to enough safe water at affordable cost to lead a clean, healthy and productive life, while ensuring that the natural environment is protected and enhanced. Those using and sharing river basins and aquifers must manage their water sustainably, balancing water use for human development with protection of vital eco-systems and the ecological services they provide. (GWP 2000a: 12)

The GWP was one of the first institutions to refer to water security, and the concept has since evolved and developed. A popular definition of water security is that of Grey and Sadoff, who understand it as

the availability of an acceptable quantity and quality of water for health, livelihoods, ecosystems and production, coupled with an acceptable level of water-related risks to people, environments and economies. (Grey and Sadoff 2007: 545)

Whereas there is substantial overlap with the GWP's definition, the authors have added the idea of being safe from water-related hazards to the concept of water security. This relates directly to notions of human security, i.e. it focuses on the security of the individual rather than that of the state. Others link water security with other popular concepts such as IWRM. Cook and Bakker (2012) discuss the overlap between IWRM and water security, identifying the four elements of water security – water availability, human vulnerability, human needs and sustainability – which all relate to the definition of IWRM. However, the authors argue that IWRM and water security differ in their foci. While IWRM aims to reform the

process of water management, water security presents a ‘vision’ (Cook and Bakker 2012) of water management and thus an end goal.

As Cook and Bakker (2012) demonstrate in their extensive literature review on water security, there are four central framings within the water security literature:

- water quantity and quality issues
- water-related hazards and vulnerability issues
- framing water security as a subcomponent of food security
- water security in the context of sustainability concerns.

These framings of water security link the concept not only to IWRM but also to other related notions such as human security (water hazards and vulnerability issues; meeting water quality and quantity), the water-energy-food nexus (water security as a subcomponent of food security) and sustainable development. In the context of water security, ‘security’ relates to ideas of human security (being safe from harm) rather than the military interpretation of security (protecting a country from an outside threat). There is a growing body of literature on ‘water wars’ (Gleditsch et al. 2006; Gleick 1993; Homer-Dixon 1994; Toset et al. 2000) and the idea that water can be ‘securitised’ (Buzan et al. 1998; Lankford et al. 2013; Stetter et al. 2011; Warner 2011; Zeitoun and Warner 2006); however this is still an emerging field in the water security literature (Cook and Bakker 2012).

One example of this emerging debate regarding water as a securitised resource is Warner’s study of water security as a discursive frame for flood management policy (Warner 2011). The author examines the politics of flood planning from a theoretical and empirical perspective and shows that political actors frame flood planning as a matter of survival, which is then reinterpreted as an issue of national security. Warner traces the discursive argumentation of flood planning in six cases spanning different regulatory regimes (from top-down governance to network governance), diverse attitudes to river and flood management (‘taming the river’ and ‘living with the river’), several geographical regions (the Middle East, Asia, Europe), as well as a diverse range of river basins (dry and wet, transboundary and national). The author reminds the reader that while discursive framings are relevant to policy and decision-making, the ‘hard’ side of flood management, i.e. the technology implemented and used by policy actors, creates

realities that cannot be ignored. Warner starts by scrutinising how policy actors securitise water resources and use this framing to legitimise specific flood-planning schemes. While the theory suggests that securitising an environmental issue (i.e. framing it as relevant to national security) can move it from 'low' to 'high' politics, Warner does not find empirical evidence for this hypothesis. Instead, he concludes that the 'window of opportunity for securitisation never lasts very long in practice' (Warner 2011: 297), irrespective of the political context in which flood management takes place. Thus securitisation or desecuritisation has very little impact on the actual implementation of infrastructure development. As water security is still an emerging concept in literature and practice, studies with a focus on water security are limited, and in particular there is a gap in knowledge on the discourse on and framing of water security.

2.3.4. Climate Change Discourse

Climate change has become an important crosscutting issue in the field of environmental governance and resources management. Climate change refers to

a change in the state of the climate that can be identified (e.g. using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. [This] refers to any change in climate over time, whether due to natural variability or as a result of human activity. (IPCC 2007: 30)

Climate change is attributed to human activities which have a long-term effect on the composition of the atmosphere, and is differentiated from climate variability attributed to natural causes. Water resources will be strongly impacted by climate change; for instance, a change in rainfall patterns might increase the risk of drought and flooding leading to changes in water availability and demand (Wright et al. 2010), and melting glaciers and changes in precipitation volume and timing will change river runoff (IPCC 2013).

Climate change is a political and contested issue (Hulme 2009). With a focus on the global political discourse, Adger et al. (2001) identify two main discursive arguments within which climate change is framed; a managerial and a profligacy argument. The first associates institutional failure with population growth as the main source of climate change and proposes concerted global political action as the solution. The latter explanation sees the root of climate change in the over-

consumption of resources and advocates the mitigation of climate change through reducing such consumption. Whereas the managerial frame is built on the scientific debate and evidence and argues for the management or 'governance' of climate change, the profligacy argument relates to discussions around a neoliberal paradigm and presents a critique of resources exploitation.

Reusswig (2010) maps the dynamic of the global climate change discourse over time, arguing that the 'old' climate change discourse of the late 1980s to early 2000s was mainly concerned with the question of to 'what degree human activities did cause observed recent climate change' (Reusswig 2010: 160). More recently, there has been a shift in the policy debate focussing on the question of what to do about climate change (i.e. mitigation and adaptation) rather than questioning whether or not it is anthropogenic (Reusswig 2010). Adger et al. (2009a) point out two foci within the 'new' climate change discourse. The first is concerned with the design and implementation of adaptation to climate change, and the second seeks to understand the limits of adaptation and thus to identify thresholds for climate change mitigation⁶. The authors find that the discourse on the limits of adaptation centres around three factors: ecological, physical and economic limits. The defined thresholds lie beyond mere scientific findings and relate to values, i.e. to what is considered important by decision-makers. For example, Reusswig and Lass (2010) illustrate that the dying of coral reefs as a result of climate change is seen as negative by policymakers as it will have adverse impacts on biodiversity and thus the livelihoods of fishermen, as well as the tourist industry. Hence the policy discourse defines important thresholds for mitigation and delimits the potential of societies to adapt to climate change.

With a focus on climate change discourse in the developing country context, studies scrutinise the UK media discourse on climate change and development (Doulton and Brown 2009), and examine adaptation and mitigation discourses in the context of deforestation (Somorin et al. 2012). Doulton and Brown (2009) demonstrate that while there are competing frames within the media discourse, the dominant messages portrayed by the media in the UK reinforce common notions of climate change as a threat and the inability of the 'vulnerable poor' in

⁶ The dominant policy discourse revolves around the threshold of a 2°C of average global temperature rise, beyond which climate change is considered 'dangerous' Foucault (1977, 1979).

developing countries to cope with this threat. Somorin et al. (2012) study policy discourses on adaptation and mitigation in the Democratic Republic of Congo through the example of reducing emissions resulting from deforestation and forest degradation (REDD+). The authors find that among three competing views (mitigation policy only, separate mitigation and adaptation policies, integrated mitigation and adaptation policy) on the focus of climate change policy, the dominant discourse places an emphasis on mitigation. Somorin et al. show that mitigation discourse serves the interests of the most powerful actors, among others the government, since, particularly in the case of REDD, it is associated with a development agenda.

A second strand of the research on climate change discourses relates climate change to the environmental security debate. There is a wide range of literature linking climate change, among other factors, to violent conflict over resources (e.g. Barnett 2003; Barnett and Adger 2007; Dabelko 2009; Raleigh and Urdal 2007; Smith and Vivekananda 2007), and climate migration and refugees (Hartmann 2010; Reuveny 2007). Detraz and Betsill (2009) examine the extent to which discourses around environmental security inform the international climate change debate. Whereas they assert that a new discursive framing recently emerged linking climate change directly to violent conflict, a general connection between climate change and environmental security concerns such as negative impacts on human well-being through environmental degradation has been a common notion within the wider discourse.

Trombetta (2008) discusses the extent to which the climate change discourse has become securitised by reinterpreting climate change as an issue of national or international security. Securitisation can be used as a discursive strategy to give an issue more importance in the policy arena (Buzan et al. 1998). For example, framing environmental degradation as a threat to humans means that its negative implications for the social and economic development are then reinterpreted as a threat to national security. Tracing the debate around environmental and climate security, Trombetta argues that the definition of security is dynamic and changes depending on the context in which it is used.⁷ This shows that the framing of what

⁷ Compare the literature on the concept of 'human security' for example, which stands in contrast to realist understandings of security that are more concerned with military aspects than with human safety, e.g. (Anderson and Bows 2011; Lenton 2011).

constitutes security or insecurity is a political process, as discussed earlier with regard to discursive frames and discourse construction (see sections 2.2-2.3).

2.4. Conceptual Framework

The above discussion has reviewed the relevant literature on multilevel environmental governance, policy discourse analysis and transboundary water management. The chapter has discussed these theoretical concepts in the light of water governance processes in the EQNB. Most of the literature discussed has a strong focus on the EU and other industrialised countries, and global environmental regime formation, and there is little relevant research in the developing country context. Hence this study also draws on insights from the literature on development studies and areas of limited statehood to acknowledge the additional challenges that developing countries face such as weak governments, low service provision and limited financial, technical and human capacity. Further, this chapter has discussed the role of policy networks within multilevel governance to connect multiple policy levels.

In order to examine water resources management in the Equatorial Nile Basin in the context of climate change and water security, this study combines a multilevel environmental governance approach with critical discourse analysis. First, I draw on theories of multilevel environmental governance, which provide a useful analytical lens through which to look beyond the state and include non-state actors such as the private sector and civil society in the analysis. Particularly in the political context of the riparian states of the Equatorial Nile Basin, where statehood and the authority of governments is limited (Risse 2011) other political actors fill important governance functions. Here, I draw on Lemos and Agrawal (2006) and Pierre and Peters (2000)'s understanding of governance, which focus on governance as a process and interaction between all governance actors, and include formal and informal processes, which influence governance outcomes. Such a broad conceptualization of governance is of advantage for this empirical study, as it does not exclude *a priori* potentially relevant governance processes. Whereas there is danger of not being narrow enough for a sufficiently rigorous analysis, this shortcoming will be mediated later by choosing a narrow, embedded case-study approach (Chapter 3) with a focus on the Mara River Basin.

This study understands governance processes as taking place in the exchange between governance actors, whose actions are either limited or enabled by the governance architecture. Architecture is defined as systems of institutions and governance mechanisms, including norms, principles, regimes and other institutions (Biermann et al. 2009). This theoretical framework relates to Giddens's idea of structuration (Giddens 1984), which recognizes the duality in governance processes between agency of governance actors and the limiting or enabling quality of governance architecture. In particular this understanding informed the analysis of the governance architecture, as discussed in Chapter 5, which shows how two competing policy networks influence and shape water governance processes in the Mara River Basin.

Because of the dual nature of governance processes, this study focuses on the interaction between agents and architecture (or structure). Examining the mechanisms of the interplay between agents and structure can help to reveal power dynamics, which are crucial for influencing the outcomes of water governance processes and thus policy implementation. The interaction among governance actors, which is framed by the governance architecture, determine which topics are set on the agenda, and which discourses of water governance become dominant, and are translated into policy implementation. In order to uncover these hidden power dynamics and understand how these mechanisms work, I draw on Hager's work on analysing environmental discourses.

Hager's 'argumentative approach' interprets governance as the struggle between actors over 'discursive hegemony', i.e. gaining the power to define reality, within an existing institutional structure (Hager 1995). In his theoretical approach Hager gives the discoursing subjects a central role. According to Hager, a discourse evolves through interaction between various actors and thus the discourse's intrinsic logic is created. A discourse or specific discursive frames are seen as representing the interests of dominant actors. However, Hager views discourses as dynamic, which transform and adjust over time, during which they reinvent social arrangements. Actors' interests are also part of such reinvented social arrangements. 'Interests are intersubjectively constituted through discourse' (Hager 1995: 59). According to Hager actors' interests are not fixed *a priori*, but are created during the interplay with other actors, within the boundaries of the governance architecture.

Based on these mechanisms, discursive story-lines develop. Hager defines a story-line as a narrative, which helps to 'give meaning to specific physical and or social phenomena' (Hager 1995: 56). Such story-lines are important for governance actors as they help actors to bring a discursive structure to the matter at stake. Via story-lines, actors can make sense of the world and place emphasis on a specific topic, legitimize action (or non-action) or discard issues as irrelevant. Further, story-lines also create a social and moral order in a given domain, and construct possible 'victims', 'winners' and 'losers', and attribute responsibilities for certain behaviours or outcomes. When story-lines become established, they become routine and are institutionalized. At this stage a discourse can be seen as dominant or hegemonic, as it is translated into concrete policies, or becomes part of institutional arrangements such as policy documents, regulations or institutional structures. The institutionalization of a discourse further cements its hegemony, which proves a powerful mechanism through which actors can influence governance over long timeframes.

This study uses Hager's conceptual framework to analyse discourses relevant for water governance in the Mara River Basin, with particular attention to the climate change and water security discourses. In this context, dominant discursive frames are seen as a reflection of the interests of governance actors, as well as a mechanism to exert and further establish the political power of these. During the discursive struggle discourse coalitions emerge and play an important role for a discourse to become dominant (or be discarded). Discourse coalitions are 'an ensemble of a set of story-lines, the actors who utter these story-lines, and the practices in which this discursive activity is based' (Hager 1995, p. 65). Discourse coalitions differ from political coalitions as they are much broader, have an emphasis on a linguistic basis, as they share the story-lines but not necessarily the same interests. Linguistic ambiguity is constitutive and a prerequisite for the emergence of discourse coalitions. Because actors do not share the same interests, multi-interpretability of a story-line enhances the chance for a discourse to become hegemonic. Such ambiguity provides actors within a discourse coalition with the necessary rhetoric flexibility to adapt and interpret the story-line to advocate their own interests (Hager 1995).

Discourses are linked to governance/ policy implementation through translating actors' interests into governance projects. To conceptualize this link this

theoretical framework adopts insights from development anthropology on development organizations and bureaucracies. Mosse and Lewis (2006) observe how development organizations act as governance brokers and translate governance processes into policy implementation – namely via establishing and maintaining interpretations of reality, or in other words creating and sustaining discourses.

As argued above, actors define and sustain interpretations of reality via creating and shaping policy discourses. When a discourse becomes dominant and is consequently institutionalized, these interpretations are translated into policies and development projects and thus the implementation of such projects directly constitute policy implementation and outcomes. However, the successful translation of interests into development projects and their implementation does not only depend on the project's design. Rather this is subject to the interaction between actors and the fit between their interpretation of reality and the implementation of development projects. Mosse and Lewis pointedly comment: 'power lies in the narrative...' (Mosse and Lewis 2006).

Drawing on Lewis and Mosse (2006), who emphasise the role of organisations as brokers in development and translators of interests, this study combines this notion with ideas on informal policy networks (section 2.1.4). As demonstrated above, policy networks manage to connect actors from different policy levels with each other. In this regard, they act as translators between the different actors and their interests, as well as brokers to generate collaboration and partnerships, which are necessary for the successful implementation of development projects. Therefore, policy networks, on the one hand, form or are part of discourse coalitions, as defined by Hager, and on the other hand act as interpreters of the discourse and thus policy brokers within the policy and project implementation process. Furthermore, Hager's notion of hegemonic discourses is extended through insights by Mosse on how a discourse (and thus a policy/ governance model) becomes hegemonic.

'... governance brought by development schemes cannot be imposed, it requires collaboration and compromise. [...] Since success is fragile and failure a political problem, hegemony has to be worked out not imposed; it is a "terrain of struggle"' (Mosse 2004: 7)

The success of a development initiative thus becomes a political judgement, and it mainly depends on the stabilization of a particular interpretation of reality. Policy networks, which are successful brokers and translators of such interests, have influence in defining and maintaining such interpretations, and thus are becomes more successful than other actors – and therefore are able to shape the hegemonic discourse.

To conclude, the study's conceptual framework combines the governance approach with critical discourse analysis drawing on Hager's argumentative approach. Policy discourses influence multilevel environmental governance and policymaking by providing frames of reference for decision-makers (Dayton 2000). As this chapter has demonstrated, the production and reproduction of discourses is inherently political, and discourses and their frames are the outcome of such political struggles (Hager 1995). Here, policy networks play an important role in promoting certain discursive frames by forming discourse coalitions, as well as act as brokers and translators of interests during the political struggle (Mosse and Lewis 2006). Discourse analysis can help in uncovering underlying political interests by critically examining the construction of what appears to be 'natural' (Dryzek 2013). This study seeks to apply such an approach to the analysis of multilevel water governance in the Equatorial Nile Basin.

While some publications attempt to deconstruct environmental discourses (Dryzek 2013; Hager 1995), analyse new forms of governance for environmental issues in developing countries (Biermann and Dingwerth 2004; Wurzel et al. 2003), and critically discuss discursive water resource management paradigms (Molle 2008; Saravanan et al. 2009), there is a lack of studies that empirically examine the influence of policy discourse on multilevel water governance in a developing country context.

In sum, a number of knowledge gaps are highlighted in this chapter which could be filled by a study examining

- the architecture of multilevel environmental governance and its policy processes in developing countries and emerging economies;
- the role of policy networks in multilevel environmental governance in developing countries;

- emerging discourses on climate change and water security and their influence on water resources management;
- the role of individuals and organisations in the production and reproduction of policy discourses on water management in developing countries;
- the implications of discursive framing for policy implementation and the outcomes of multilevel water governance.

This study aims to fill these knowledge gaps and deepen understanding of the influence of policy discourses on WRM through a multilevel water governance lens. The study will investigate the multilevel water governance architecture in the EQNB and the influence of newly-emerging discursive frames on climate change and water security and their implications for the implementation and outcomes of water resources management. As argued above, an analysis of the discursive frames in combination with examining the governance architecture will assist in uncovering power structures as well as reveal the information about the interests of dominant actors. The next chapter describes the methodology and methods of this research and presents important information about the case study.

3. Research Design, Case Study Selection and Methodology

This study aims to contribute empirical and analytical knowledge to understanding the impacts of policy discourses on multilevel water governance and policy outcomes. To shed light on the research questions derived from the literature review in the previous chapter, an in-depth analysis of governance processes across various policy levels and discursive framings is required. Accordingly, this study applies multiple research methods, modified to fit the policy level and context to which the research questions apply. The chapter provides an outline of the research design and background information on the case study, and explains the methods of data analysis and collection.

The main research question and the four sub-research questions which guide this enquiry are as follows:

What is the impact of policy discourses on water resource management on multilevel water governance in the EQNB?

Q1: How does multilevel water governance function in the EQNB?

Q2: How is the policy discourse around WRM framed, and what is the relevance of framings of climate change and water security?

Q3: How do policymakers perceive climate change and water security in the context of WRM in the EQNB?

Q4: To what extent are discursive framings and policy practice connected in the Equatorial Nile Basin, and what are the implications for water governance?

3.1. Research Design

To answer the research questions the following empirical areas of study were analysed:

- examination of the interactions between key actors in multilevel water governance in the EQNB using semi-structured interviews, observation and triangulation with policy documents;

- a discourse analysis of the policy discourse around WRM, using policy reports and documents and triangulating these with qualitative interview data;
- a Q study of the perceptions of individual policymakers and experts regarding WRM, climate change and water security in the EQNB;
- the reflection on discursive framings of water governance outcomes and policy and their implications for climate change adaptation of water resources management in the Basin, synthesising the results of the three empirical chapters through an exploratory analysis of the role of the climate change and water security frames, supplemented with primary data from a focus group of local stakeholders.

An embedded case study design was selected as the methodological approach to answer the research question. The study applies mixed methods combining qualitative (interviews, focus group) with quantitative methods (Q study), adjusting the method of data collection to the context of each policy level. Thus the semi-structured interviews and Q study were aimed at policymakers at the international and national level, whereas the focus group was tailored to representatives of sub-national water users' associations. A multilevel governance framework combined with critical discourse analysis forms the basis of the analysis of this study. The following sections reflect on the study's ontological and epistemological position, outline the embedded case study approach and present details of the case study selection (1.1-1.3). The chapter then introduces the background to the case study (2.1-2.3) and explains in detail the research methods and their application (3.1-3.4).

3.1.1. Ontological and Epistemological Considerations

This study aims to gain a deeper understanding of how policy discourses influence water governance processes and their outcomes in the context of water resource management and climate change. Since the understanding and causal explanation of actors' behaviour and decisions are at the centre of this research endeavour, the research questions implicitly relate to an interpretivist epistemology (Bryman 2004). Interpretivism denotes an alternative research epistemology to positivism and has the

objective of elucidating the meaning that events and situations have for the people who experience them. (Gomm 2009: 178)

To complement the interpretivist approach of this research the study is informed by an constructionist ontology. Constructionism interprets the social world as 'produced through social interaction', which is 'in a constant state of revision.' (Bryman 2004: 17). This research assumes that the construction of discourses is intrinsically political and thus happens through interactions among the various relevant state and non-state actors. The discursive frames are understood as dynamic and subject to constant revision over time. The constructionist ontology is reflected in the research design and thus discourses are understood to be created through social interaction, and in turn influence social and political structures (i.e. governance) and their policy outcomes. Actors' perceptions of water governance and climate change are understood as components that shape the policy discourse and thus water management decisions. The perception of a policy issue may be subject to change over time, and thus discursive framings are seen as dynamic, too.

This research is based on abductive reasoning while also encompassing deductive and inductive elements alike. Abduction refers to finding the best explanation for a phenomenon, while deduction is concerned with theory testing and induction with theory development (Gomm 2009). Whereas the research design is informed by social science theories, as outlined in Chapter 2, and represents the deductive component (theory testing), the approach to the data analysis was mainly inductive. In particular, an exploratory research strategy was employed during a first scoping trip (June-July 2011). Here, induction was applied to analyse the primary data collected through semi-structured interviews with policymakers (section 3.3). The rationale was to minimise bias in the research design by selecting a research focus that was relevant to water governance in the EQNB. In the scoping study an inductive approach was used to include a wide range of possible factors rather than limiting the scope of the research to a potentially narrow but artificially selected area of study.

The scoping study improved the research design; the research questions, the scope of the study and the theoretical concepts were modified. During the main fieldwork period (February-September 2012) an abductive approach to the

qualitative data was selected while the quantitative data analysis was based on deduction.

3.1.2. Case Study Approach

A case study approach was selected to enable an in-depth examination of water governance. The strength of this methodology is that it can test and develop theories about complex processes as well as identify and test the importance of specific conditions for these processes and events to take place (Evra 1997).

Yin defines a case study as follows:

A case study is an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident. (Yin 2003: 13)

As this research's objective is to shed light on water governance processes in the Equatorial Nile and Mara River Basin, the 'real-life context' as stated by Yin was an important consideration in selecting a case study approach. Yin (2009) discusses the various applications of the case study method and other research designs such as surveys, experiments and archival analysis. In particular, case study research is suited to answering 'how' and 'why' questions in a contemporary setting. These questions aim to *explain* rather than explore or describe a phenomenon. For instance, this study seeks to explain how policy discourses influence water governance, using the example of the EQNB.

As Yin (2009) shows, there is an overlap in research methodologies: not only case study design can answer 'how' or 'why' questions. Historical analysis and experiments are also geared towards answering the same type of questions. However, whereas historical analysis examines phenomena in the past, experiments require situations in which the researcher can exercise control over the behaviour of the study object. For example, in psychological research the opinions and perceptions of research participants can be influenced through information provided or omitted by the researcher. Since the study of water governance in the EQNB is not a purely historic event, and control over the behaviour of the research subject could not be exercised, a case study design seemed to be the best fit for this study.

There are a number of different case study designs such as single, cross or comparative. Yin (2003) distinguishes between 'holistic' and 'embedded' case studies. Both can involve a single or multiple cases. Whereas *holistic case studies* just have one unit of analysis, e.g. the structure of an international organisation or multiple organisations, *embedded case studies* have multiple units of analysis (Figure 3.1).

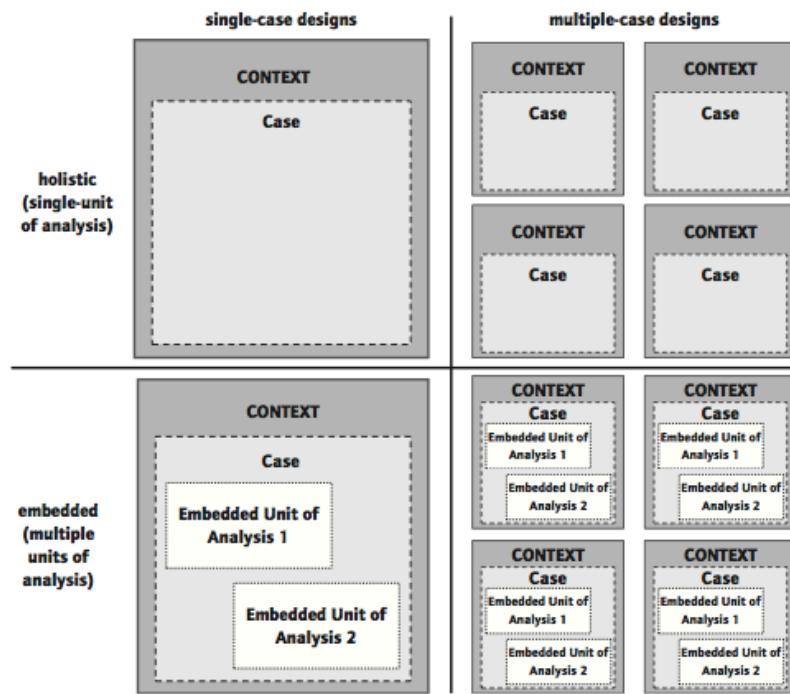


Figure 3.1: Single and multiple case study designs with single and multiple units of analysis. Source Yin (2003)

In this research the EQNB is the main unit of analysis. Adopting Yin's typology, an embedded single case-study design was selected with the Mara River Basin as its embedded sub-unit of analysis as illustrated by figure 3.2. This approach enables in-depth research on governance processes within and across governance levels while including a wide range of actors. In addition, mixed methods of data collection are applied to increase the validity of the research findings (see section 3.3. for details).

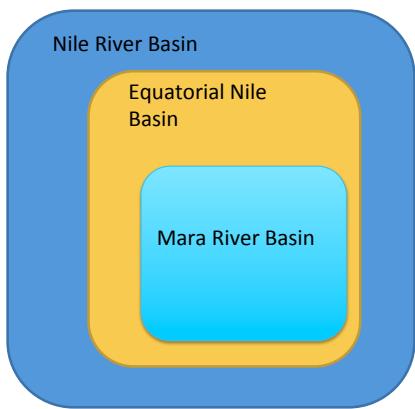


Figure 3.2: Applying Yin's embedded case study design to the Equatorial Nile and the Mara River Basin.

Multiple and single case study designs inherit different rationales. Both have important advantages and disadvantages. Based on Yin (2009), the rationale for selecting a *single case study* design includes the study of

- a *critical* case, i.e. a case that meets all the conditions for testing a specific theory in order to confirm, challenge or extend the theory
- an *extreme or unique* case which seldom occurs and thus can be used for theory testing.
- a *representative or typical* case, i.e. a scenario which commonly occurs and thus can produce transferrable results for other cases.
- a *revelatory* case which observes a new or previously inaccessible phenomenon to inform theory building and identify further research areas.
- a *longitudinal* case, i.e. which refers to the same case at two different points in time in order to assess or explain changes over time.

Each case study design can be holistic or embedded. While a holistic case study is preferable when analysing the general relevance of a study subject, e.g. the global relevance of a large organisation, or 'when no logical subunits can be identified' (Yin 2009: 50), common pitfalls of holistic single case studies are an overly abstract level which lacks depth, and the fact that circumstances might change throughout the research process rendering the research question inadequate. Embedded single case study design can help to increase the depth of

the study as well as helping to detect early on if a research context might change dramatically, making it possible to adjust the research questions in time.

Whereas Yin (2009) prefers a multiple over a single case study design, the author nevertheless points out that in some cases good reasons for a single case study design prevail. For example, the design of a case study strongly depends on the type and objective of the research as well as important practical considerations such as financial resources and the time-frame of the study. In addition, single case study design makes it possible to study unique cases in depth and thus explore new aspects, which would be difficult in a multiple, comparative case study design.

The following section explains the rationale of the case selection and links it to the theoretical framework presented in Chapter 2.

3.1.3. Case Study Selection

As this study investigates how policy discourses influence multilevel water governance, the case study selection criteria included the following considerations:

Politicisation of WRM: The case had to have a strong focus on water governance/WRM, i.e. a river basin where these topics are of political importance and are not consensual. Preference was given to river basins in water-scarce environments, based on the assumption that a scarcity of water makes the resource more politically important, as actors/stakeholders need to negotiate over its best use. It was assumed that this is less the case in river basins with an abundance of water. However, this research acknowledges that the quality, quantity and distribution of water can also be a contested issue in river basins that are not classified as water-scarce.

WRM discourse: The case was selected according to a strong policy discourse on water governance/WRM. As explained in Chapter 2, discourses are dynamic and develop over contested issues. This relates to the first criterion for the case selection, namely the politicisation of WRM.

Multilevel and transboundary WRM: Given the interest in multilevel water governance, the case selection only included examples where multiple policy levels were relevant to water governance. In order to maximise the number of

policy levels only transboundary basins were considered, as they have a minimum of three – international, national and sub-national.

Embedded case study: Further considerations included the existence of transboundary tributaries to the basin, to be used as sub-units of analysis in the embedded case study design. This enabled greater in-depth analysis of multilevel governance taking a multitude of factors, actors and processes on various policy levels into account. Additionally, this research is interested in water governance in a developing country context, hence only river basins in such a context were considered.

As identified by Wolf et al. (1999) there are 261 river basins in the world that cross one or more international boundary (figure 3.1). Of these 261 international river basins, 151 are outside Europe and North America and thus most are in developing countries.

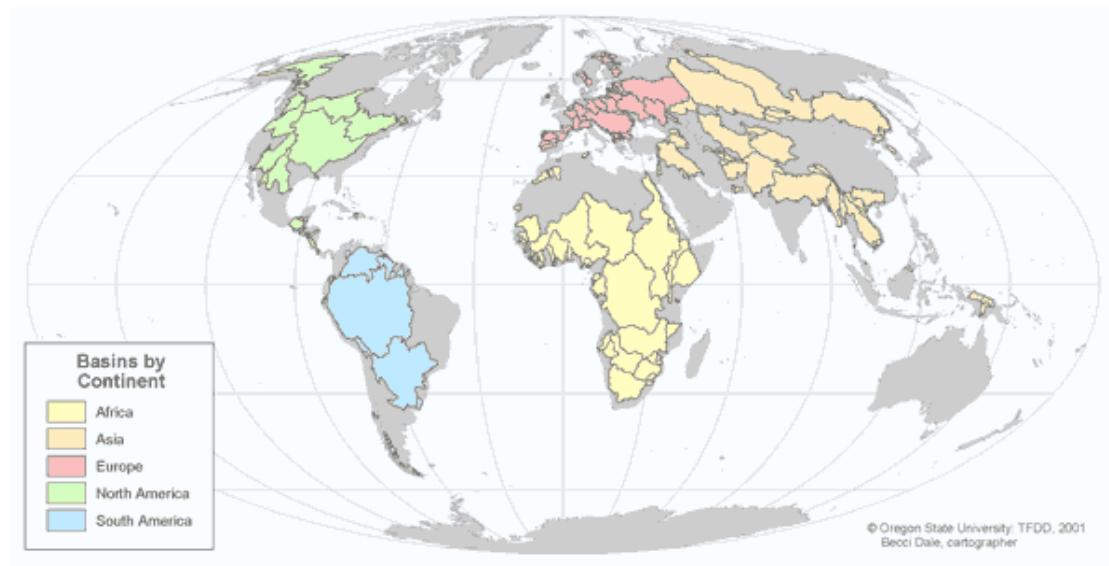


Figure 3.1. : International River Basins by Continent. Source: (Wolf et al. 1999, updated 2001)

River basins that experience physical water scarcity are mainly found in Asia and Africa, though some are also located in North America and Australia (figure 3.2).

While physical water scarcity is not a determinant of the politicisation of WRM, it was assumed that in areas where water is scarce, actors need to negotiate over the use of the resources and thus water management is more likely to be politicised. In addition, it was assumed that a larger number of riparian states

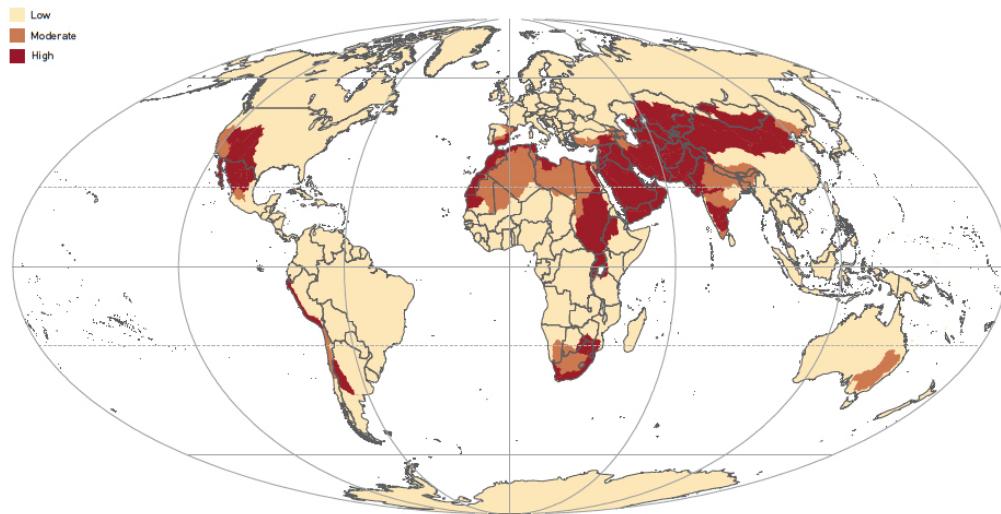


Figure 3.2: Global Distribution of Physical Water Scarcity by Major River Basins
Source FAO (2011)

increases the range of different interests in WRM and thus make it more complex and contested.

On the basis of these considerations the Nile River Basin, with a particular focus on the EQNB, was selected as a case study. The Nile River Basin has one of the largest numbers of riparians compared to other river basins (Wolf et al. 1999) (eleven countries since 2011: Egypt, Sudan, South Sudan, Ethiopia, Eritrea, Uganda, Kenya, Tanzania, Rwanda, DR Congo, Burundi), and has medium to high physical water scarcity levels in large parts of the basin (see figure 3.2). With the recent political events regarding WRM in the basin (section 3.2), WRM and its governance is a highly politicised and contested issue in the basin. Therefore two crucial conditions are met:

- WRM is a politicised issue and thus there is an observable, strong and dynamic WRM discourse.
- Due to the complex transboundary nature of the basin, actors across multiple policy levels are relevant to the water governance of the basin.

The case study focuses on the EQNB (Uganda, Kenya, Tanzania, Rwanda, Burundi, DR Congo; see map 3.3). A research gap was identified here as most studies on WRM in the Nile Basin centre on the Eastern Nile Basin (Egypt, Sudan,

South Sudan, Ethiopia) and largely ignore the Equatorial Nile riparians.⁸ Due to recent political developments in the basin, transboundary WRM has been tense and stalling in the Eastern Nile Basin (Nicol and Cascao 2011) while the Equatorial Nile riparians have demonstrated enhanced cooperation over WRM under the auspices of two transboundary institutions, the Nile Basin Initiative and the Lake Victoria Basin Commission. Whereas at the time of the research a political deadlock prevailed in the Eastern Nile which fostered unilateral action by Eastern Nile riparians, the Equatorial Nile showed signs of joint multilevel water governance and was therefore selected as a focus for this study (see section 3.2).

This study benefits from focussing on the EQNB, as this enables more in-depth analysis of multilevel water governance processes. Each political level was examined closely, including the key actors, the institutions and their interactions across the levels. The political discourses in the EQNB hold relevance for the wider Nile River Basin; whereas there are differences in policy debates and perspectives according to the position in the basin (upstream versus downstream) as well as the political interests of a riparian, the same discourses and emerging topics could be observed in the Equatorial Nile as in the greater Nile Basin. this further influenced the selection of the EQNB as a case study.

The Mara River Basin was selected as a unit of analysis embedded within the EQNB. Parallel to the EQNB, the Mara River is in a transboundary river basin shared between Kenya and Tanzania and is one of the three largest tributaries to the Equatorial Nile (see more section 3.2.). It was selected due to its political relevance to WRM in the EQNB. Whereas at the time of the research the Kagera River Basin contributed more water to the EQNB, the Mara River Basin was receiving more political attention from a diverse range of actors in the basin, through a more advanced institutional setup than that in the Kagera River Basin, and a greater number of policy projects and their implementation. Therefore it was easier to observe water governance in the Mara River Basin as well as to link the policy discourses prevalent in the EQNB to concrete project implementation and outcomes there. At the time of the research this was not the case for any other

⁸ Since South Sudan has been part of Sudan and has only recently emerged as an independent country, it is for now still counted as an Eastern Nile riparian. Eritrea is technically also part of the Eastern Nile, although it is omitted from the riparian states as it has very little significance hydrologically and politically for WRM in the Nile Basin.

transboundary tributary to the EQNB. This further influenced the selection of the Mara River Basin as an embedded case study.

Given the location and characteristics of the Mara River Basin (section 3.2) and the heightened political attention, the Mara River also represents a typical case for the EQNB (see Yin's case selection rationales from the previous section). Many common EQNB water management issues can be found in the Mara such as environmental degradation, pollution, water scarcity, high population growth, agricultural production, etc. Based on Yin's case study typology, the Nile River Basin/EQNB was selected as a unique case due to its great number of riparian states, water scarcity levels and political complexity, and the Mara River Basin as an embedded unit of analysis presents a representative case for WRM issues in the EQNB. The following section provides some background information on the case study.

3.2. Water Resources Management in the Nile River Basin and its Sub-basins

This section presents details of the hydrological, climatic and socio-economic conditions in the Nile River Basin, with a focus on the Equatorial Nile. The political context of WRM in the basin is also discussed. The section also introduces the sub-basin of the Mara River which this study uses as embedded case study. The hydrology and the socio-economic context of the Mara River Basin are discussed.

3.2.1. Hydrological and Climatic Conditions in the Nile River Basin

The EQNB encompasses 650 000 km² and ranges from central Burundi to central South Sudan, including the Lake Victoria region with its tributaries (figure 3.3, NBI 2012a). It has seven riparian countries, namely Uganda, Kenya, Tanzania, Rwanda, Burundi, DR Congo and South Sudan.

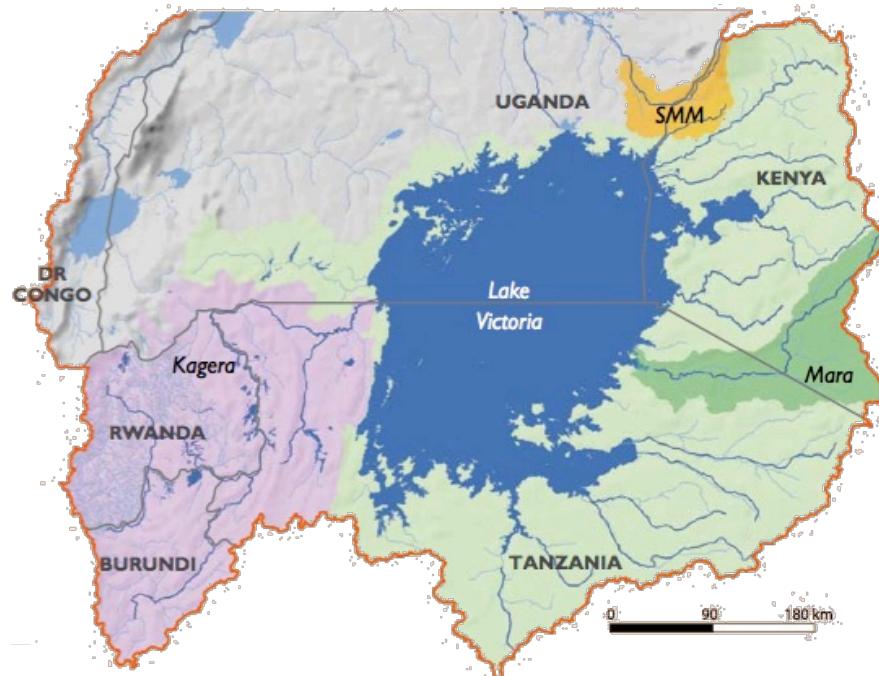


Figure 3.3: Main parts of the EQNB with the transboundary Mara, Kagera and Sio-Malaba-Malakisi (SMM) sub-basins (NBI 2012a)

Together with the Eastern Nile Basin (which is shared between Egypt, Sudan, Ethiopia and Eritrea), the EQNB is part of the Nile River Basin. At 6695 km long, the Nile is the world's longest river, extending through 11 riparian countries with a drainage basin of 3 176 543 km² (NBI 2014) and covering approximately 10% of the African continent (Di Baldassare et al. 2011). The Nile's main tributaries are the Blue Nile, the White Nile, the Atbara-Tekeze and the Baro-Akobo-Sobat rivers. According to the season, 86%-95% of the Nile's total river runoff originates from the Ethiopian highlands; the other 14% is contributed by the White Nile rising from Lake Victoria in Uganda (Swain 2002: 294). The Blue and the White Nile meet in Khartoum, Sudan and continue through Egypt to the Mediterranean Sea. North of the Egyptian border no further tributaries nurture the Nile.

The EQNB contributes about 14% to the overall Nile River flow via the White Nile. Its main water source is Lake Victoria, which gains more than 80% of its water from rainfall (Di Baldassare et al. 2011, figure 3.3) and thus its level are highly sensitive to interannual and interdecadal variability in rainfall (Conway 2005). The Lake's level have steadily decreased since 1964 due to climatic factors, e.g. shifts in rainfall patterns, and socio-economic factors, e.g. increase in demand and water abstraction from the lake (Conway 2005). The other 20% of the lake's waters are recharged from its tributaries, among others the Kagera and Mara Rivers.

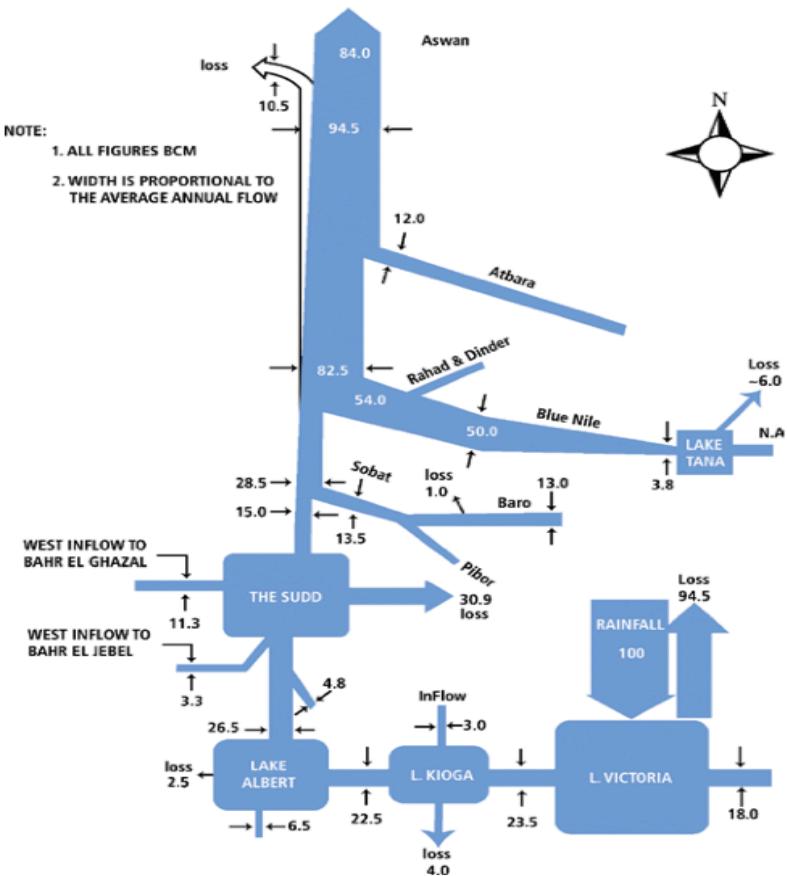


Figure 3.4: Inflows, evaporative losses and total flow of the Nile system at different points in the basin. Source Blackmore and Whittington (2008)

The climate in the Nile Basin ranges from semi-arid to arid between tropical and sub-tropical zones. Rainfall patterns across the basin are characterised by high seasonality and climate variability and are strongly influenced by the El Niño-Southern Oscillation (ENSO), which especially influence extreme climate events like floods and droughts (Beyene et al. 2010). Renewable water resources across the basin vary greatly, in particular the surface water, which is recharged by rainfall. Precipitation across the Nile Basin ranges from 1800 mm per annum in parts of the Lake Victoria region to under 300 mm in most of Egypt and Sudan (NBI 2012a). In addition, evapotranspiration is high, especially in the two arid downstream riparians, Egypt and Sudan. The water resources in the Nile Basin are already exposed to a highly variable climate, and this variability is expected to increase as a consequence of climate change. There is evidence that rainfall patterns in the Lake Victoria region/EQNB have changed since 1960. An increase in overall rainfall in the basin has been observed, with more precipitation during

the short rainy period (Kizza et al. 2009). The onset of the short and the long rains seem to be shifting and becoming less predictable. Different rainfall patterns and volumes are expected to have a strong impact on the level of Lake Victoria, which is already highly sensitive to rainfall variability (Conway 2005). There is great uncertainty, though, about the impacts of climate change on rainfall and river runoff. For example, Christensen et al. (2007) analyse different climate models to show that predictions point towards a 7% increase in rainfall in East Africa, although the models' results vary between a decrease of 3% to an increase of 25%, making such predictions highly uncertain and difficult for policymakers and water managers to apply. In addition, due to a complex system of connected lakes and wetlands, White Nile flows are less sensible to perturbations in precipitations than Blue Nile flows and thus it is still unclear how these changes might affect overall Nile flows (figure 3.4).

Climatic conditions are an important factor in the context of hydropolitics and water allocation in the Nile Basin (Elhance 1999: 57). There are many examples of transboundary African rivers and lakes where climate variability has compromised water management and competing national water needs, as the declining level of Lake Victoria shows (Goulden and Conway 2008). Riparian countries may use rainfall data as well as predicted climate change impacts on rainfall to negotiate water distribution in their river basin (Goulden et al. 2009). Therefore in river basins where water management is already politically sensitive, climate change is likely to complicate matters further.

3.2.2. Political Context of Water Management in the Equatorial Nile Basin

The main hydropolitical negotiations in the Nile River Basin revolve around transboundary water allocation. The last colonial treaty, signed in 1959 by Egypt and the Sudan, remains in place today and officially apportions Nile waters⁹. Based on the estimated annual total Nile discharge of 84 bm^3 (billion cubic meters), Egypt secured the largest share with 55.5 bm^3 and the Sudan was assigned 18.5 bm^3 ; 10 bm^3 were expected to evaporate over Lake Nasser behind

⁹ The independence of South Sudan has further complicated water allocation in the Nile Basin. Although the South Sudanese government has declared that any water abstraction would be within the Sudan's quota of 18.5 bm^3 , it is unclear yet how much South Sudan abstracts and whether or not South Sudan has signed or is planning to sign the CFA. (Barnett and Adger 2007; Dabelko 2009; Scheffran 2008)

the Aswan Dam (Nicol and Cascao 2011). According to the treaty, the Nile's total flow is divided between Egypt and Sudan for their use. This leaves the upstream riparians (Ethiopia, Eritrea, Uganda, Kenya, Tanzania, Rwanda, Burundi, DR Congo) without a legal share of the common resource. Over the last decade upstream countries have been able to invest in unilateral hydraulic projects to harness the resource, increasing the pressure on Egypt and Sudan (Cascao 2009b).

Supported by the international community, and the World Bank in particular, the Nile Basin Initiative (NBI) was established in 1999 (NBI 2011b) with the aim of enhancing basin-wide cooperation over water resources. Although the NBI was not the first attempt to create a sense of partnership among Nile states and implement a basin-focused resource management approach, it certainly has been the most significant. With the exception of Eritrea, all Nile riparians are official members of the NBI. Compared to previous cooperation initiatives in the Nile Basin such as Hydromet, Undugu and TeccoNile, which focused only on technical cooperation, the NBI moved one step further and included legal aspects of allocation rights (Cascao 2008a). This led to a two-track process: the first track sees the NBI supporting collaboration between riparians on technical issues such as the improvement of infrastructure, is called the Subsidiary Action Program and includes two regional programmes, one for the Eastern Nile Basin (ENTRO) and one for the Equatorial Nile (NELSAP). The second track, of Nile cooperation centres on establishing a new legal framework for a Nile River Basin Commission through the Cooperative Framework Agreement (CFA). The draft CFA maps out the principles for Nile basin cooperation and the role of a potential Nile River Basin Commission. The CFA incorporates common principles from the UN Watercourse Convention, such as causing other riparians no harm, and allocating water equitably (United Nations 1997). Upstream riparians use the notion of 'equitable allocation' to challenge current water allocation based on the 1959 Agreement and support a renegotiation of water allocation quotas. Instead, Egypt (and to a lesser extend Sudan) emphasise that 'no harm' should be caused to any riparians, and argue that a reallocation of Nile waters would cause substantial harm to the Egyptian and Sudanese people, since they both rely on Nile waters. The stalling negotiations have caused political deadlock over the renegotiation of water allocation.

In 2010, the slow political process resulted in a de-facto bloc formation. On the one side are the downstream countries, Egypt and Sudan, which oppose any new

regulation, and on the other side the upstream countries (Ethiopia, Uganda, Kenya, Tanzania, Rwanda and Burundi), which have all recently signed the CFA and thus prepared the way for a new treaty. What is striking about this process is that the long-time regional hegemon, Egypt, has seemingly lost some of its power and was not able to prevent the CFA from gaining the six signatures necessary for ratification (Nicol and Cascao 2011). The developments in the negotiations over the CFA provide a topical and interesting context to this research, with the political focus shifting south towards the Lake Victoria region.

The regional integration process in the EQNB stands in contrast to the enhanced tensions and unilateral development in the Eastern Nile Basin and particularly the increasing political competition between Egypt and Ethiopia (Cascao 2008b). While the Eastern Nile riparians (Egypt, Sudan and Ethiopia) have planned and partially implemented large hydraulic projects such as the Ethiopian Grand Renaissance Dam (Waldyes 2011; Whittington et al. forthcoming) and the Egyptian large-scale irrigation 'Toshka-Project' (Collins 2008; Waterbury and Whittington 1998) without the consent of their neighbours, Equatorial Nile riparians are making an effort to develop their water resources jointly. Countries around Lake Victoria (all Equatorial Nile riparians except DR Congo) have in the last two decades undergone a process of political and economic integration. A number of regional institutions such as the East African Community (EAC), the Lake Victoria Basin Commission (LVBC) and the Nile Basin Initiative (NBI) foster interaction between the East African states and aim to reduce trade barriers, adopt common legal frameworks and provide sustainable development in the region (EAC 2011c; LVBC 2011b). The joint development of shared water resources (Cascao 2009b), as the transboundary NBI-NELSAP projects around Lake Victoria show, is considered a key point of future cooperation. The three transboundary catchments of the Lake Victoria Basin, the Mara River Basin (shared by Kenya and Tanzania), the Kagera River Basin (between Burundi, Rwanda, Tanzania and Uganda) and the Sio-Malaba-Malakisi catchment (shared by Kenya and Uganda) have recently received heightened attention from the Equatorial Nile riparians. As part of the basin-wide cooperation process, feasibility studies have been undertaken analysing the potential for infrastructure and socio-economic development in the three sub-basins (COWI Uganda 2009; NIRÁS 2011; WREM 2008a).

The establishment of regional water management institutions as well as the improvement of hydrological infrastructure and expansion of irrigated agriculture

are the main focus of transboundary cooperation in the EQNB (NELSAP 2011). As these developments suggest, the riparian countries seem very interested in the benefits that these projects fostering further regional integration would generate. However, despite the very low impact of upstream water abstraction on overall Nile flows towards Sudan and Egypt (figure 3.3), increased upstream water abstraction is a highly sensitive and politically issue in Egypt. Such convergent riparian interests present a very difficult political context in which to renegotiate water allocation in the basin.

Notwithstanding achievements already accomplished, these integration processes, such as jointly developing transboundary water resources, take place within a very unstable, non-democratic and fragile political and institutional environment (Rice and Patrick 2008). This is true on the transboundary (and hence regional) level and at the national scale; however, transboundary organisations are not the only relevant ac

tors influencing water management decisions, which are formed through the interaction of national governments, transboundary organisations and other actors such as NGOs, experts, the private sector and international organisations and investors. This intricate web of various actors, partially competing or overlapping institutional structures (transboundary vs. national vs. sub-national) within a volatile political environment creates a complex decision-making process regarding water resources (see Chapter 4).

The Mara River Basin is embedded within the hydrological as well as the institutional structure of the Nile River Basin. The wider political landscape of the Nile River Basin strongly influences water resources management in the Mara, as developments at the international policy level of the Nile Basin reverberate at the national and subnational levels of Nile Basin riparian countries.

3.2.3. Geophysical and Socio-economic Features of the Mara River Basin

The Mara River Basin is an interesting case for studying decision-making since it involves important national stakeholders, such as large farmers in Kenya and the tourism industry in Kenya and Tanzania, in a transboundary setting. Because of physical and man-made water scarcity, and given the transboundary context and the integration into the EQNB water, security is a potential issue. The basin is already vulnerable to high variability in precipitation. Climate change will potentially have a severe impact on future river run-offs. Therefore the case could

shed light on the dynamics of the climate change discourse in water management decision-making.

The Mara River Basin is a sub-basin of the Equatorial Nile and one of the main tributaries leading into Lake Victoria. With a mean annual discharge of 1.18 billion m³ (WRMA 2009a), it contributes 5% of the overall water balance of Lake Victoria (Hoffman et al. 2011). The river is 400km long and its basin covers an area of approximately 13 750 km², 65% of which is on Kenyan territory and the remaining 35% in Tanzania. The Mara originates in the highlands of the Mau Escarpment in Kenya and continues flowing southward through the Masai Mara National Reserve, where it crosses the border to Tanzania. Here the river continues through the Serengeti National Park and reaches Lake Victoria at Musoma. The Mara River is one of the few perennial water sources in the region and is the only perennial water source sustaining the Masai Mara/Serengeti ecosystem. Key tributaries to the Mara River are the Amala, the Nyangores, the Talek and the Sand Rivers, predominantly charged by rainfall which is characterised by a short and a long rainy season from September to December and mid-March to June respectively. Rainfall patterns show a very strong seasonality. The variation of precipitation in the region has a substantial effect on river run-off, which can fluctuate from 13.38 m³/s in February to 62.10 m³/s in May (WRMA 2009).

There is a range of diverse livelihoods and water and land uses in the Mara River Basin. The upstream section is characterised by the woodlands of the Mau Escarpment which lie beside agricultural land. Here, livelihoods predominantly include large- and small-scale irrigation farming, e.g. tea plantations. This is followed by open savannah grassland which forms part of the Masai Mara Reserve and the Serengeti National Park. The grasslands are used by Masai pastoralists for their cattle as well as providing the main food source for wildlife. Tourism in the national parks is an important income source for the local population and provides important revenues to the Kenyan and Tanzanian governments. Towards the mouth of the river the Mara River Basin comprises the large Masura wetlands and flood plains and the river discharges into Lake Victoria close to Musoma, Tanzania. Downstream from the Serengeti National Park, small-scale mining is one of the key sources of income.

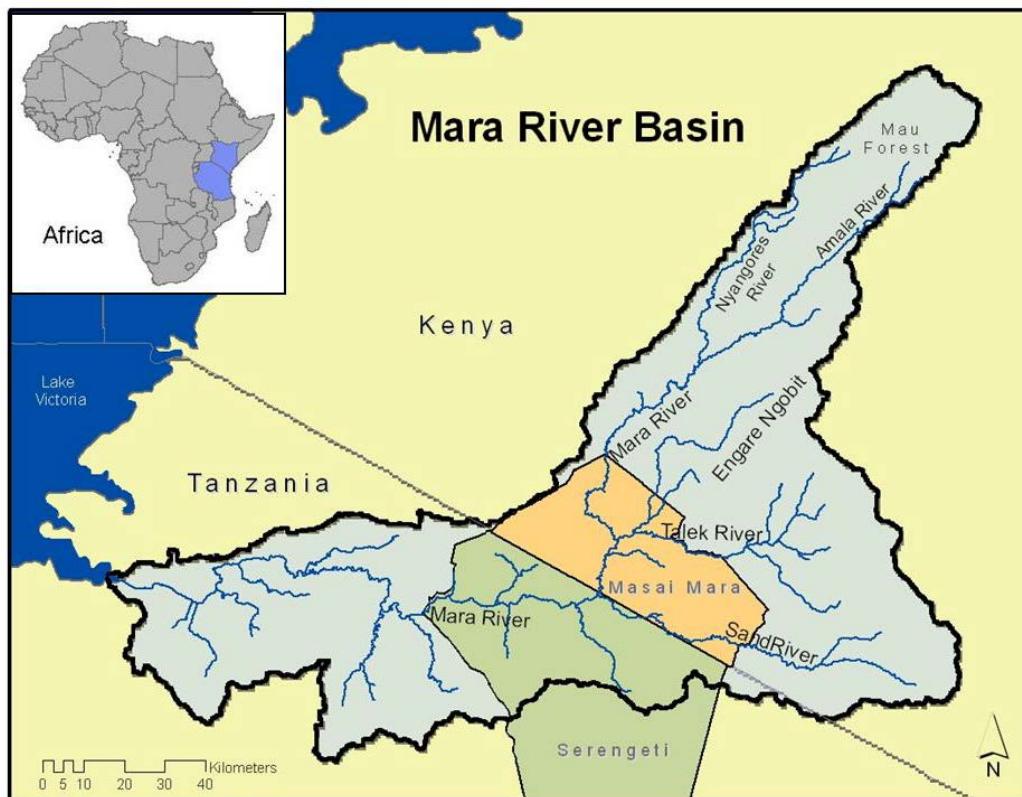


Figure 3.5: The Mara River Basin with its tributaries and political boundaries, Source Hoffman (2007)

The population of the Mara River Basin faces increasing problems of water quality and quantity and the environmental degradation of water resources (NIRÁS 2011). These are a consequence of resource degradation caused by deforestation, changing land-use patterns, high population growth and poor management of water abstraction and wastewater treatment (Hoffman et al. 2011). Currently water quality issues due to agrochemical pollution and lack of infrastructure for wastewater treatment are dominating over water quantity issues. Whereas there is enough water in the Mara River Basin to meet water needs during mean flow, in low-flow periods water demand exceeds availability (Hoffman et al. 2011).

3.2.4. National Policies Regulating Water Management in the Mara River Basin

Whereas the wider political context of the EQNB (explained above) has important implications for the Mara River Basin, water management is first and foremost regulated through national policies in each of the two riparian states, namely Kenya and Tanzania. This section provides a brief introduction to water sector reform in Kenya and Tanzania and the institutional composition of the two

national water sectors. Chapters 4 and 5 build on this background information, adding further detail and reflections on the institutional structure and framing of national water policies.

3.2.4.1. National water policies: Kenya

In the late 1990s the Kenyan government started a reform process which led to the decentralisation of the water sector through a new water policy implemented in 2002. The National Water Master Plan Study (1992) identified the major constraint to the development of Kenyan water resources – inadequate financial funds – as the result of the lack of a comprehensive institutional framework (Nyaoro 2008). Previous to the new Water Act the national government, represented through the Ministry of Water, was responsible for developing water policies, implementing and monitoring water regulations, and providing funds for the water sector and water services to water users (Sattler 2010). On the basis of the Water Act 2002 the water sector was decentralised. This included the separation of policy formulation, regulation and service provision, as well as of WRM from water and sewerage services. New parastatal agencies were created and the Ministries' responsibilities were reallocated (figure 3.6). New agencies include the Water Resources Management Agency (WRMA), which is responsible for managing and protecting water resources, for example through issuing permits to water users, and the Water Services Regulatory Board (WSRB), which separated WRM from water service delivery and sanitation. The water sector derives its financial support from the Water Services Trust Fund (WSTF), another new body within the institutional setup of the Kenyan water sector.

In addition to the separation of functions, the decentralisation approach included the subsidiarity principle, namely the transfer of the authority for managing water services to the lowest appropriate level (Nyaoro 2008). For example, this led to the establishment of water resources users' associations (WRUA) and catchment area advisory committees (CAAC) to manage water resources at the local level. The role of the Ministry of Water and Irrigation (MoWI) was reduced to formulating policy and the general coordination and oversight of the water sector.

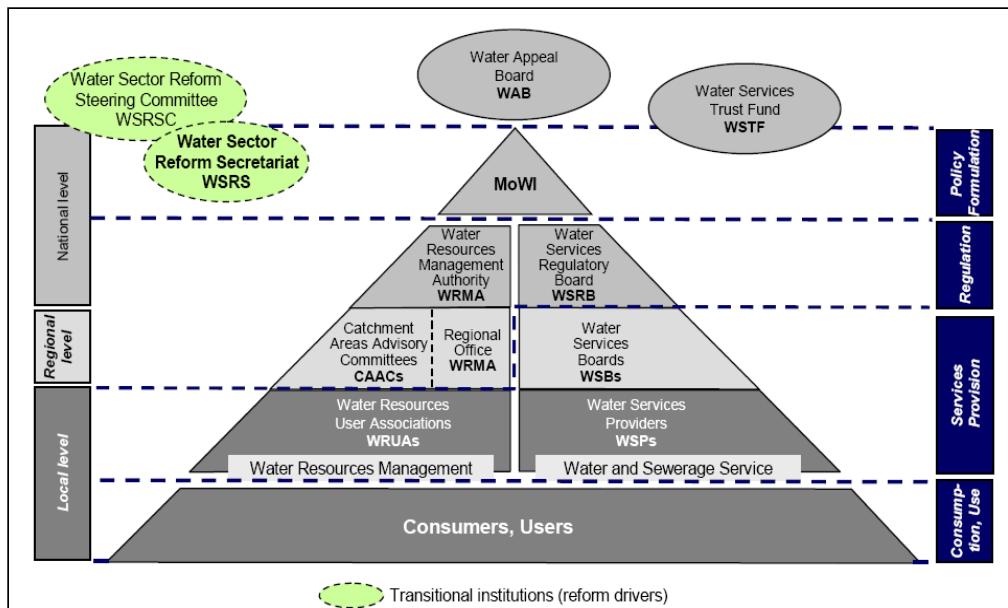


Figure 3.6: Institutional setup of the Kenyan Water Sector according to the Water Act 2002

3.2.4.2. National water policies: Tanzania

Similar to the policy processes in Kenya, Tanzania also reformed and decentralised its water sector. Previous to the first wave of reform in 1992, Tanzanian water policies focussed mainly on water supply issues. However, after a long process which lasted from 1991-2002 the state revised its national water policy to include an integrated approach to water management, resulting in the National Water Policy (NAWAPO) in 2002. NAWAPO was an attempt to bring together three subsectors under one comprehensive policy framework, namely rural water supply, urban water supply and sewerage and water resources management (Sattler 2010). The new policy framework was designed in line with Agenda 21 of the United Nations Environment meeting to decentralise the water sector and include (like the Kenyan water policies) the subsidiarity principle (Doering 2005). As part of the sector reform and in addition to NAWAPO, the Tanzanian government also implemented the Water Resources Management Act (2009) and a new Water Supply and Sanitation Act (2009). The Water Resources Management Act applies a catchment management approach, dividing Tanzania into nine national basins, one of which is the Mara River Basin. Each basin is managed by a basin water board (figure 3.7) which supervises the catchment and sub-catchment committees. Water users' associations are designed to manage

the water resources at the local level. Chapter 5 and 7 reflect on the implementation and outcomes of the water sector reform.

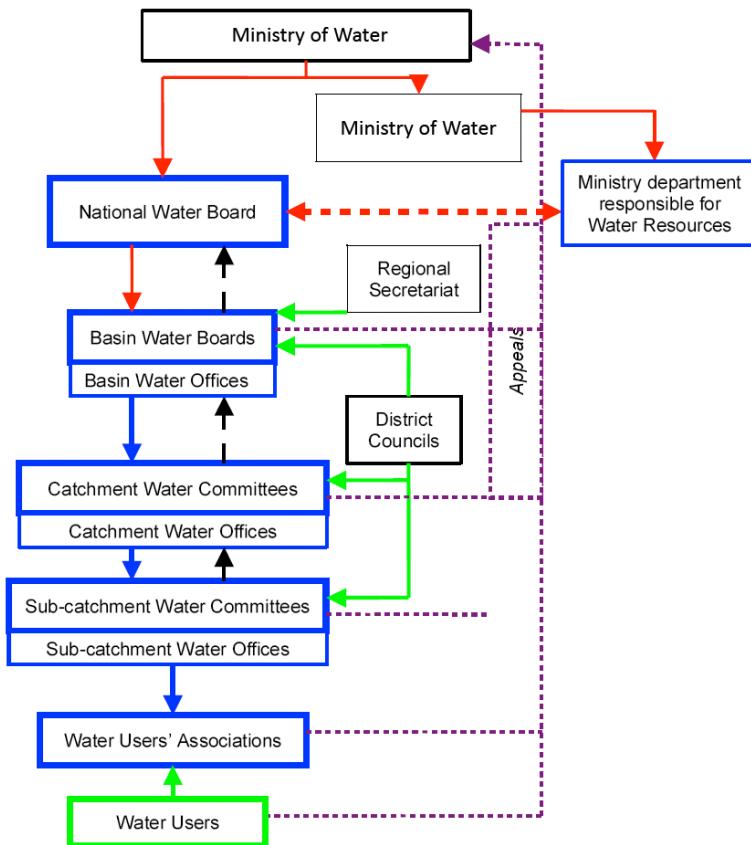


Figure 3.7: Institutional framework of the Tanzanian Water Sector under the Water Resources Management Act (2009)

This section has introduced the background to the case study including information on hydrological, climate, political and socio-economic factors in the Nile River Basins and its sub-basins, the Equatorial Nile and the Mara River. The next section reviews the methods of data collection used in this research.

3.3. Methods of Data Collection

This study applies a mixed methods approach combining qualitative and quantitative methods of data collection. Data collection methods were selected according to the type of research question and the data each required. Table 3.1. links the type of data and the respective data collection method to each research question (see below).

The following sections discuss each research question in detail, outlining the type of data, participant selection and data collection methods. Following this chapter, one empirical chapter is dedicated to explaining the data collection and analysis approach applied to each research question.

	Chapter 4	Chapter 5	Chapter 6	Chapter 7
Research Questions	Q1: How does multilevel water governance function in the EQNB?	Q2: How is the policy discourse around WRM framed, and what is the relevance of framings of climate change and water security?	Q3: How do policymakers perceive climate change and water security in the context of WRM in the EQNB?	Q4: What are the impacts of policy discourses on water policy implementation in the EQNB, and what are their implications for water governance?
Data source	Semi-structured interviews with key actors			
	Focus Group			
		Discourse Analysis		
			Q Methodology	
				Chapter 4
				Chapter 5
				Chapter 6

Table 3.1: Research questions and methods of data collection by chapters

3.3.1. Data Collection on Multilevel Water Governance

Chapter 4 traces multilevel water governance processes and identifies which actors interact on what policy level and how. The analysis of governance processes uses qualitative data on the following issue areas:

- Governance processes: How do multilevel water governance processes take place? What decisions are made, and at what level? How does this relate to policymaking (and implementation) at different policy levels?
- The ‘formal’ institutional structure: Which institutions/actors are relevant? What do they do? How do they interact?
- The ‘informal’ institutional structure: Which important actors are not represented in the formal institutional structure? How do they influence decision-making processes? How do they interact with the ‘formally’ important actors?

The research question targeted actors on three policy levels and across sectors. To understand how actors and institutions from different policy levels interact, with whom they interact and on which issues, semi-structured interviews were conducted with representatives from the following institutions according to policy level (see Appendix 2).

3.3.1.1. International level

On the international level, multilateral organisations, i.e. the Nile Basin Initiative (and in particular its sub-programme for the Equatorial Lakes region, NELSAP) and the Lake Victoria Basin Commission (sub-body of the East African Community, EAC), were identified as the key actors together with international bilateral and multilateral donor agencies. Representatives of donor agencies interviewed for this study, with particular importance for multilevel water governance in the EQNB and the Mara River Basin, were the Swedish International Development Agency (SIDA), German International Cooperation (GIZ) and the U.S. Agency for International Development (USAID) (for more details on relevant policy actors see table xx, Chapter 4). No representatives of the World Bank or United Nations Environmental Programme (UNEP) were available for an interview; to fill the data gap, policy documents and reports from these institutions were analysed and triangulated with the interview data from the other participants. In addition, policy reports and documents from other important regional actors with no direct responsibility for WRM in the EQNB such as the Global Water Partnership (GWP) were also taken into consideration.

3.3.1.2. National level

At the national level, policymakers and technical experts from the ministries of water and irrigation were interviewed using semi-structured interviews. In accordance with the case study selection and the embedded case study design, representatives of riparian countries of the Mara River Basin were interviewed, i.e. the Kenyan and Tanzanian governments. Due to the decentralised structure of the Kenyan water sector, on the Kenyan side, this included government officials from the Ministry of Water and Irrigation, the parastatal Water Resources Management Authority and local Water Users Associations. Even though Tanzania has officially also decentralised its water sector, at the time of the research (2011-2012) implementation of the reform was not very advanced and the main control of water resources and their management and governance was still held by the national ministry department. Therefore the data were collected from representatives at the Ministries of Water rather than the sub-national institutions, such as the Basin Water Boards.

At the national (and subnational) level international NGOs were strongly involved in water governance issues in the Mara River Basin. Specifically, the World Wildlife Fund (WWF) and CARE International were identified as crucial actors during an initial scoping trip (June 2011). Semi-structured interviews were conducted with representatives operating at the national and subnational levels of both organisations.

3.3.1.3. Subnational level

Whereas the relevant actors at the international and national level are mainly similar in type, i.e. they are international or national policymakers and technical experts, actors at the subnational level are more varied. At the subnational level, important stakeholders influencing or affected by water governance in the Mara River Basin include local government actors, civil society representatives, the private sector (agriculture, tourism and hotels, mining companies), community representatives and academic experts. Based on data collected previously during a scoping trip, semi-structured interviews with policymakers, and information from document analysis, the following subnational actors were identified as relevant to the study and were interviewed: large- and medium-scale farmers, as representatives of the private sector; subnational representatives of international

NGOs (WWF and CARE International); a representative of a regional NGO, the Nile Discourse Forum; one researcher from Kisumu University; representatives of the Mara Umbrella WRUA, and representatives of three sub-WRUAs in the Mara River Basin. The representatives of the different WRUAs were all interviewed as a focus group. Semi-structured interviews were conducted with all other subnational actors.

3.3.1.4. Semi-structured interviews

The purpose of conducting semi-structured interviews was to:

- collect data on the multilevel governance architecture, including formal and informal interactions between actors;
- gain a deeper insight into policy processes relating to water management, water security and climate change adaptation;
- learn about the perceptions and opinions of policymakers regarding the importance of climate change adaptation and improving water security.

The questions for the semi-structured interviews were developed based on these three interest points. However, given the broad range of the research participants' levels of seniority, job descriptions, professional interests and types of knowledge, the interview questions were adapted for each individual, although they still related to all three themes (for an example of the interview questions see Appendix 3). The prepared questions were used as a starting point for the conversation and follow-up questions were derived throughout the interview process where appropriate. There were one to two rounds of interviews with each participant. The second round often included the Q study (section 4) as well as a follow-up interview to clarify issues raised in the first round.

Interviews were recorded through an audio device or detailed note-taking. The audio files were then transcribed verbally and the notes were enhanced through personal reflection and comments from me immediately after each interview. Both the transcripts and the notes were then imported into NVivo software for qualitative data analysis and coded into themes. The qualitative data from the Q study (section 4) was also imported into NVivo, applying the coding themes used for the semi-structured interviews. Themes were developed throughout the coding process with the three interest points in mind (governance architecture, policy

processes and perceptions regarding WRM, climate change and water security). During the coding process themes were revised and merged in order to reduce redundancy in coding. In addition, new themes and interests emerged through the data analysis which were then included in the coding structure.

3.3.1.5. Focus group

A focus group was conducted with representatives of WRUAs in the Mara River Basin, the purpose of which was two-fold:

- to collect data on water governance at the sub-national level;
- to improve the understanding of policy outcomes and their implementation at the local level and collect information on improvements and the challenges that WRUAs face.

Focus group interviews are a useful method of collecting data on the attitudes and opinions of research participants in a supportive environment (Gomm 2009). Often focus group interviews resemble everyday conversations and the participants interact with each other as well as influencing one another's behaviour (Krueger and Casey 2000). The interaction between focus group participants can be limiting (Gomm 2009) as well as providing constructive feedback as they challenge each other's views, thus revealing a more holistic perspective of a situation than can be gained from individual interviews (Bryman 2012). Common criticism of the focus group method include participant bias or lack of representation of the social populations, as well as power dynamics between the participants which might lead to an unequal representation of viewpoints (Kitzinger 1994; Krueger and Casey 2000; Wilkinson 1998). These limitations to the data are acknowledged in the data analysis and the results.

Participants in the focus group were selected according to their membership of either the Mara Umbrella or sub-WRUAs. Due to practical limitations such as accessibility of transport and lengthy journey for WRUA members from Tanzania, there was over-representation of WRUA members from the Kenyan side of the Mara River Basin. The chairman of the Mara Umbrella WRUA represented the Tanzanian sub-WRUAs. In total 11 participants attended the focus group from the following Mara sub-WRUAs:

Mara sub-WRUAs by catchment	Number of participants
Amala River WRUA	3
Nyangores River WRUA	3
Issey River WRUA	3
Mara Umbrella WRUA	2

Table 3.2: Focus group participants by WRUA affiliation

A recommended size for a focus group is six to eight participants (Bryman 2012). Due to the high number of participants (N=11) the groups were split into two for the activities. The focus group interview was integrated into a one-day workshop. During the first session participants were given five photographs illustrating different uses of water and common problems related to water, e.g. household use such as washing, water for livestock, river pollution, drought (Appendix 4). The themes of these images were based on issues identified through earlier semi-structured interviews with policymakers and analysis of documents such as policy reports. In their two focus groups the participants were first asked to interpret the meaning of each activity in the photographs. In the second step they were asked to rank the images according to their importance. The purpose of this exercise was to gather data on what local water users perceive as pressing issues and common challenges in their communities for later comparison with the views of the policymakers (Chapters 5-7). In the second half of the workshop participants were presented with four scenarios of climate change impacts on water resources (Appendix 4). As a group, they were asked to discuss these four scenarios with the objective of understanding their ideas and perceptions relating to climate change and its impacts on water users. Again, this data was collected with the intention of comparing it to the understandings and perceptions of policymakers to discover how far discourses vary at different policy levels.

3.3.2. Discourse Analysis of Water Resources Management, Climate Change and Water Security

Chapter 5 seeks to unravel the discursive framing behind the dominant policy discourse on WRM in the EQNB, with a focus on framings on climate change and water security. The discourse analysis uses qualitative data to address the following concerns:

- Framing of the WRM discourse: what are the main frames? How are they constructed? What are competing/alternative frames?
- Climate change and water security: To what extent do the two frames occur? How are they constructed? How are they linked to the other frames in the discourse?

As a first step, a document analysis was undertaken. For this purpose relevant policy documents and other WRM technical documents in the EQNB were identified (table 3.3) and the framing of WRM was analysed. Based on Potter and Wetherell (1994), the discourse analysis included the three following features:

- the content and form of the document;
- the action, construction and variability of the document, i.e. actions that people perform through their writing which in turn construct a discourse, but which vary depending on the actor (different actors will give a subject different meaning);
- the rhetorical and argumentative organisation of a text or speech act in order to uncover how the discourse is framed to compete with alternative framings.

The discourse analysis was then complemented with data from the semi-structured interviews (see section 3.4.1.). Given the vast number of policy documents and technical reports referring to water-related issues, documents were selected according to their technical and geographical relevance; those with international relevance had to have a clear focus on the EQNB. Policy documents and reports, which focused on water management at the national or subnational level, had to have either a focus on the Kenyan or Tanzanian national water sectors or the Mara River Basin to be included in the analysis. The following documents were analysed for the discourse analysis.

Type of Actor	Organization/ Actor	Document Title	Type of Document/ Date
Multilateral regional actors	East African Community (EAC)	Second Development Strategy, 2001-2005	Strategic document, 2001
		Third Development Strategy, 2006-2010	Strategic document, 2006
		Fourth Development Strategy, 2011/12-2015/16	Strategic document, 2011
		Protocol for	Legal framework,

		Sustainable Development of Lake Victoria Basin	2003
	East African Community (EAC) in collaboration with WWF, GLOWS, USAID	Biodiversity Strategy and Action Plan for Sustainable Management of the Mara River Basin	Strategic document, 2010
	Lake Victoria Basin Commission (LVBC)	Strategic Action Plan for the Lake Victoria Basin	Strategic document, 2007
		Strategic Plan 2011-2016	Strategic document, 2011
	Nile Basin Initiative (NBI)	Climate Change and its Implications for Sustainable Development and Cooperation in the Nile Basin	Nile Basin Discourse Forum Conference proceedings, 2011
		Overarching Strategic Plan, 2012-2016	Strategic document, 2012
		The Nile Basin Sustainability Framework	Policy framework, 2011
		The State of the River Nile Basin	Report, 2012
	Nile Equatorial Lakes Subsidiary Action Program (NELSAP)	Mara River Basin Policy, Legal, and Institutional Cooperative Framework	Policy report, 2008
		Strategic Plan, 2012-2016	Strategic document, 2012
National level Kenya	Government of Kenya (GoK)	Water Act, 2002	Policy document, 2002
		Water Act (Draft), 2012	Policy document, 2012
	Ministry of Water and Irrigation, Kenya	Annual Water Sector Review, 2011-2012	Review document, 2012
	National Environment Management Authority (NEMA), Kenya	Revised Strategic Plan, 2010-2013	Strategic document, 2010
	Water Resources Management Authority (WRMA), Kenya	Strategic Plan, 2009-2012	Strategic document, 2009
National level Tanzania	The United Republic of Tanzania/ Government of Tanzania (GoT)	The Water Resources Management Act, 2009	Policy document, 2009
	Ministry of Water and Irrigation, Tanzania	National Water Sector Development Strategy, 2006-1015	Strategic document, 2006
	Ministry of Water and Livestock Development, Tanzania	National Water Policy, 2002	Policy document, 2002
Multilateral and	United States Agency	Water and	Strategic document,

bilateral donors	International Development (USAID)	Development Strategy, 2013-2018	2013
	United Nations Environment Program (UNEP)	Water Policy and Strategy, 2007-2012	Policy document, 2007
	World Bank	Water Resources Sector Strategy	Strategic document, 2004
		Toward a Green, Clean, and Resilient World for all. Environmental Strategy 2012-2022	Strategic document, 2012
Civil society	Mara River Water Resources Users' Association	Strategic Plan 2011-2013	Strategic document, 2011

Table 3.3: Policy documents included in the discourse analysis on WRM, climate change and water security showing the authors (actors), type of actor (policy level) and title, type and year of publication of the document.

3.3.3. Q Methodology Study on Perceptions of WRM, Climate Change and Water Security

Chapter 6 explores the individual perceptions of selected policymakers and technical experts in WRM, climate change and water security using Q Methodology. The Q study relates to the third sub-research question:

How do policymakers perceive climate change and water security in the context of WRM in the EQNB?

It was assumed that individuals, such as technical experts are important in the production and reproduction of policy discourses. Therefore, the Q study was designed to explore and compare similarities and differences between discursive framings of individuals and the policy discourse on WRM. The aim of the Q study was also to enhance the validity of the discourse analysis by using a quantitative method to explore the policy discourse on WRM from a different perspective. Q Methodology generates data on individual perceptions about a specified subject area and thus contributes to the depth of the data when triangulated with the results of the discourse analysis. Section 3.4 provides a more detailed explanation of Q Methodology, the methods of analysis of the data collected and

an outline of the Q study's design including the selection of participants and the item sample.

3.3.4. Implications for Multilevel Water Governance

Chapter 7 synthesises the results from chapters 4-6 and explores three concrete policy examples of the extent to which discursive framings matter for the outcomes and implementation of policy. Chapter 7 addresses the following questions:

- What is the connection between discursive framings and policy implementation?
- How do discursive framings employed by policy actors and policy networks shape policy outcomes?
- What are the implications of multilevel water governance?

As a result of the discourse analysis (see Chapter 5), three discursive frames and sub-frames were selected that showed a connection with EQNB policy processes. Firstly the discursive framing of participation in combination with decentralisation was scrutinised, using the example of implementing Water Resources Users Associations (WRUAs) in the Mara River Basin. Secondly, the cooperation frame was analysed against the backdrop of establishing a new transboundary River Basin Commission in the Mara River Basin. Thirdly, the framing of climate change and water security were linked to the hydropolitical context in the Nile Basin to seek alternative explanations for negotiation outcomes over the Cooperative Framework Agreement (CFA).

The chapter also reflects on the roles of the two competing policy networks that are uncovered in Chapter 4. In particular, with the example of framing transboundary cooperation around the need to establish a new river basin organisation in the Mara, Chapter 7 describes the links between discursive framing, competition between the two policy networks and policy outcomes. The chapter presents a critical reflection on policy outcomes and implementation and discusses the extent to which the policy discourse represents the reality of policymaking or if, instead, it circumscribes an ideal.

3.3.5. Ethical Considerations

There were a number of ethical considerations, which required attention during the research process. Prior to the interviews, Q study and focus group discussion, informed consent was sought from all research participants (see Appendix 1). I explained my research and research objective to all participants, and tried to give further explanations were there questions remaining. Where participants declined interviews, I respected their decisions. Throughout the research process, I aimed to be considerate to all research participants and treated everyone with respect and politeness. Especially during the focus group discussion I tried to be inclusive and make every participant feel their opinions and views are valued. Furthermore, any information that was offered to me 'off the record' was not replicated in this thesis. Participants were given a choice in the consent form how they would like to be identified in the research thesis, which I respected in the following document. All research participants' anonymity was kept throughout the written research thesis.

3.4. Q Methodology

The following section explains the use and application of Q Methodology in the context of this study. This research aims to reach an interdisciplinary audience while applying a mix of qualitative and quantitative methods to strengthen the findings. The following section has an interdisciplinary reader in mind who is not familiar with Q Methodology as a research method used in the social sciences. To fully appreciate the interpretation of the Q study presented in Chapter 6, reading the following section closely is recommended as it explains the rationale of Q Methodology, its application, and data analysis through factor analysis.

3.4.1. Rationale and Purpose of Q Methodology

This research applied Q Methodology to observe the participants' perceptions and views of WRM, climate change and water security. Q Methodology, developed by William Stephenson (1953), is a statistical method for studying people's subjectivity and individual perceptions. The methodology was designed to 'gain scientific access to subjective viewpoints' (Stenner et al. 2003: 2162). The focus is on the respondents' subjectivity. Simply put, subjectivity is 'the sum of behavioural activity that constitutes a person's current viewpoint.' (Watts and

Stenner 2012: 44) Viewpoints are seen as dynamic and are subject to constant change. However, Q Methodology understands subjectivity not merely as a state of mind but rather as an activity which has an impact on the individual's environment and is reciprocally shaped by contextual factors. In this respect Q Methodology shares a similar ontology and epistemology with discourse analysis with regard to its constructionist and interpretivist perspective (see Chapter 2).

Q methodology enables researchers to empirically observe and compare participants' viewpoints on a specific issue. Q Methodology emphasises the similarities in the participants' perceptions rather than the differences between their opinions. The method is usually applied in studies with a small number of participants and is suited to exploratory, theory-generating purposes (Fairweather and Swaffield 2001). This Q study aims to gain an in-depth and nuanced understanding of perceptions related to climate change impacts and adaptation in the context of transboundary water management and water security. The research was designed to investigate how water managers in the EQNB frame climate change, its impacts and adaptation mechanisms, and water security. Recently, Q Methodology has been applied in the context of environmental policymaking (Addams and Proops 2000), the global climate change discourse (Dayton 2000), attitudes and perceptions about climate change in the context of ecological citizenship (Wolf et al. 2009). Further, work by Niemeyer et al. (2005), and the study by Lorenzoni et al. (2007) on climate change perceptions has used imagery and climate scenarios as a basis for Q studies.

3.4.2. Basic Components of a Q Study

The implementation of a Q study is based on a number of simple steps. Firstly, a participant is presented with a research question and asked to answer it by arranging a number of statements ('item sample') on a Q sort (figure 3.5).¹⁰ Together with the question, the research participant receives sorting instructions which explain the research question further. For example, in the present Q study the participants were asked:

¹⁰ A Q sort has the shape of an inverted normal curve distribution. This is based on a theoretical assumption by Stephenson, as he believed that trait-measurements were coherent with 'a distribution fitting the normal curve of error'. (Whittington et al. forthcoming) Whereas there is disagreement about the theoretical assumptions behind the shape of a Q sort, it has become the 'house standard for Q methodologists'. (Burt and Stephenson 1939 cited in Watts and Stenner 2012: 17)

What are your perceptions of current practices with regard to water management and climate change in the EQNB? Please sort the provided items to best represent your view.

Participants were then presented with the item sample, which was to be placed on the Q sort. They were asked to sort the items according to their level of agreement or disagreement on a scale from 'I strongly agree' (+3) to 'I strongly disagree' (-3). The Q study was designed to interview policymakers and practitioners in the EQNB water sector. The participants (the 'P-set') were selected on the basis of their institutional affiliation and the position they held within the institution.

Q studies combine the openness of qualitative studies with the rigour of quantitative methods. They provide two components of data: quantitative and qualitative. Quantitative data is derived from participants' Q sorts (figure 3.5.), which are then analysed through by-person correlation and subsequent factor analysis. This process extracts the shared understandings by research participants of the concourse.¹¹ The qualitative data was collected in the form of interviews which were recorded while the participants were sorting the item sample on the Q sort. This qualitative data was useful for exploring the participants' reasoning in sorting each item.

3.4.3. Development of the Item Sample

The item sample (table 3.4) revolves around two study themes, namely 1) climate change, its impacts and adaptation opportunity, and 2) transboundary water resources management and water security. The item sample was developed by reviewing various types of literature on climate change, water management and water security including scientific literature, newspaper articles and grey literature such as the technical reports of international organisations and NGOs. The discursive framing and views that emerged from the literature were then paraphrased into items representing a variety of opinions. Additionally, primary data from three focus group interviews conducted for previous research on the

¹¹Q Methodology refers to a *concourse* rather than a discourse. A concourse describes the range of opinions prevalent in society on a given subject. Here the concourse is seen as an 'identifiable universe of statements' (Watts and Stenner, 2012: 45) which are then sampled in the Q set. In the following chapter, the term 'concourse' refers to individual perceptions on a topic, whereas the term 'discourse' describes issue framings of a group or society as reflected in policy discourses.

Nile Basin by Marisa Goulden were provided data on views of water policymakers and experts their perceptions of climate change. Direct quotes from the focus groups were included in the item sample.

The Q study inquires into the agreement or disagreement of respondents on different aspects of climate change impact, climate change policy, water management approaches and definitions of water security. The item sample combines two themes – climate change and water management/water security – which are much debated in water policy circles in the EQNB. One theme centres on climate change and its impacts, and mitigation or adaptation approaches. The other theme focuses on water management in the basin and related concerns such as water security and conflicts or cooperation over the resource.

To include the optimal range of water managers and key decision-makers' opinions, in the first step I derived a pool of 66 items from the literature and focus group interviews, coding the various sources into five themes: climate change impacts, adaptation to climate change, relationship between climate change and water management, water security and management, and environmental benefits. The set was then examined for redundancies, and statements were combined as well as rephrased to improve their clarity, reducing the overall number to 45 items. In the second step the items were mapped onto a 3x2 matrix (loosely inspired by the work of Lasswell and Kaplan (1950) and Barry and Proops (2000)) including three categories – meaning, impacts and responses – for each of the two themes, climate change and water security/water management. The exercise demonstrated that the number of items on climate change responses by far exceeded that in any other category. Statements were revised, combined and changed in order to for each category to be represented more evenly. In the third step I piloted the item sample with three rounds of testing. The first round included three participants, the second round, two participants, and the last round was carried out with a single participant. There was no overlap between the participants used for piloting and those later interviewed in the study. The respondents in the pilot tests included experts in water management and climate change in the Nile Basin. After each pilot run I revised the statements according to the feedback received. Comments by participants included the following:

- The majority of the participants found that they strongly agreed with most statements and strongly disagreed with only a few statements but could not place any in the middle section of the Q sort.
- Participants found some of the statements redundant, ambiguous or unclear in their phrasing and terminology.

As a result of this process, I derived the following 28 items, which present the final set of items:

	Climate change	Water Security
Meaning	1 Adaptation to climate change should not just be about survival but should improve the quality of life.	17 The greater the quantity of water available, the higher the water security.
	2 Adaptation to climate change means to respond to change in the environment.	18 To be water-secure means meeting all human (e.g. economic, social) and environmental needs for water.
	3 To create a better future for Africa, climate change adaptation should be the first priority.	19 Compared to other challenges (e.g. climate change) reducing high population growth is the most important factor when it comes to improving and guaranteeing sustainable water management.
		20 Protecting humans from water-related hazards (e.g. floods) should be the first concern when thinking about <i>water security</i> .
Impacts	4 Taking identical measures against climate change and environmental degradation is adequate, as both phenomena are similar.	21 Less water availability will bring countries and groups together to equitably share water resources.
	5 Climate change will have a positive effect on the social and economic development in East Africa through, for example, increasing crop productivity.	22 Because a physical lack of water is a constraint to economic development, a country should use all its available water resources to improve economic development despite the negative environmental impacts this might have.
Responses	6 Measures for climate change adaptation should be developed by the county governments and communities in order to meet their needs.	23 A River basin organisation should have a strong mandate and be able to punish riparians who violate agreements.

	7 It is important to limit emissions of CO ₂ and other green house gases even if it will harm economic growth.	24 Member countries should strengthen cooperation in the EAC over natural resources management even further, even though this will mean giving up part of their sovereignty.
	8 Adaptation efforts should focus on the most <i>frequent</i> climatic events.	25 Climate change adaptation funds should be open to any organisation or country which needs more finances to fund important development projects, regardless of their focus.
	9 It is important to increase adaptive capacity for climate change in order to solve other current problems, e.g. poverty.	26 Because water is such an important resource, water management should be an issue of national security.
	10 Climate change adaptation should be included in policy development to guarantee sustainable economic growth in the future.	27 A riparian country should be allowed to develop its water resources in its own interests without consulting other riparians.
	11 To adapt to climate change an integrated ecosystems approach and benefit sharing should be applied.	28 Downstream riparians only consider their own interests when demanding more water and don't see the sacrifices upstream riparians already make to protect shared resources.
	12 East African countries should focus on developing policies and practices to adapt to climate change, rather than trying to reduce CO ₂ emissions.	
	13 Because the impacts of climate change on the ground are too uncertain, policymakers should wait to address climate change adaptation until there is more information on specific impacts.	
	14 Impacts from climate change are not yet evident.	
	15 Africa should develop economically first before worrying about global warming.	
	16 The construction of large dams is a good solution to adapting to climate change impacts such as more frequent droughts and floods.	

Table 3.4: Final item sample of the Q study**3.4.4. Selection of Participants and Sorting Instructions**

Participants were identified by the institution and/or position held within their institution that was relevant to water governance in the Mara River Basin (see sections 1.2 and 1.3 for details on embedded case studies). A small number of participants were approached and, using the snowballing recruitment technique, these pointed out other individuals or institutions that had a stake in the governance of the Mara River Basin. The Q study contained a total of 11 participants (P-set = 11), among them representatives of key actors such as the Kenyan and Tanzanian governments, INGOs, bilateral donor agencies and regional transboundary water management institutions. The aim was to include representatives of a diverse range of actors that play an important role in water governance in the Mara River Basin.

Participants were given 28 items that represented a range of opinions related to climate change and/or water security or water management (table 3.4) and instructed to sort them onto the Q sort according to their level of agreement or disagreement on a scale from +3 ('I strongly agree') to -3 ('I strongly disagree'). The allocated scores (-3 to +3) refer to the factor arrays needed for factor interpretation (see section 3.4.6).

The participants were asked to first read through the 28 items and then sort the statements into three piles: those they agreed with, those they disagreed with and those they were unsure about or had no opinion on. Most participants, however, became slightly impatient during this exercise, leading to modification of the instructions. Participants were encouraged to read each statement out loud, asking for clarification if necessary, and sort it immediately. It was emphasised that they could adjust the Q sort by moving items around until they were satisfied with the outcome. Once the Q sort was finalised the item numbers were recorded by the researcher. The Q sort shape restricts the number of statements at each level of agreement/disagreement (figure 3.8). Some participants were irritated by these limitations and complained; however, after further and more detailed explanation of the purpose of the Q sort and analysis of the data all respondents agreed to participate in the study.

Strongly Disagree	Disagree	Somewhat Disagree	Not Sure	Somewhat Agree	Agree	Strongly Agree

Figure 3.8: Q sort with a scale from 'strongly disagree' to 'strongly agree'

The participants were asked to 'think out loud' while sorting the statements and to explain why they agreed or disagreed with an item. These parallel interviews were recorded and later transcribed and coded using NVivo. The participants had given their consent for these interviews to be recorded and for the interview data to be included in the Q sort analysis.

3.4.5. Analysing Q sorts through Factor Analysis

In the analysis of the quantitative data derived through the Q sorts three statistical procedures are relevant: correlation, factor analysis and the computing of factor scores (McKeown and Thomas 1988). First a correlation matrix is developed from the Q sorts to show how each Q sort relates to any other Q sort. Each Q sort represents the views and opinion of an individual.

The matrix shows the percentage of the correlation between each Q sort (figure 3.9). Correlations were statistically significant with a correlation $\geq 49\%$.

SORTS	1	2	3	4	5	6	7	8	9	10	11
1 KEGovb	100	44	71	40	49	45	51	58	63	72	64
2 Donora	44	100	31	38	36	36	23	24	42	31	33
3 TZGovb	71	31	100	49	41	45	53	56	62	60	54
4 TZGova	40	38	49	100	56	47	55	67	65	47	45
5 NBIA	49	36	41	56	100	59	49	63	50	53	47
6 NBIB	45	36	45	47	59	100	51	64	58	37	40
7 NBIC	51	23	53	55	49	51	100	72	62	46	49
8 NBID	58	24	56	67	63	64	72	100	65	45	56
9 Donor3	63	42	62	65	50	58	62	65	100	56	74
10 INGO1	72	31	60	47	53	37	46	45	56	100	69
11 KEGOVC	64	33	54	45	47	40	49	56	74	69	100

Figure 3.9: Intercorrelation Matrix between Q sorts

For example, the matrix highlights the correlation between Q sort 2 (Donor1a) and Q sort 8 (NBId). Q sort 8 correlates highly with sorts 1-7, with correlations far above 49%, except for Q sort 2 where the correlation is 24% and thus not statistically significant. This means that while Q sort 8 has a high degree of similarity with sorts 1, 3, 4, 5, 6 and 7, it differs greatly from Q sort 2. Q sort 2 stands out in the matrix as it does not correlate significantly with any of the other Q sorts; i.e. none of its correlations are above 49%. Instead, all the other Q sorts correlate significantly with at least one other Q sort.

In a second step, factors are extracted from the correlation matrix to create groups of similar Q sorts, i.e. Q sorts with a high correlation. A factor 'is derived on the basis of shared meaning and represents something held in common' (Watts and Stenner 2012: 98), reducing the complexity of analysing each Q sort individually. A factor loading is then attributed to each Q sort indicating how much an individual Q sort has in common with the factor. Q sorts can then be compared through their factor loadings, which measure the distance from each Q sort to the factor. Therefore, factor loadings provide a common point of reference and make Q sorts comparable.

PQMMethods, which is specifically designed for analysing Q sorts, was used to generate a correlation matrix and extrapolate the factors. The software automatically extracts eight factors, disregarding whether or not they are statistically significant. Watts and Stenner recommend extracting one factor per six to eight Q sorts, or one to two factors if the sample size is ≤ 12 (Watts and Stenner, 2012). Therefore since the number of factors in this case was 11, two factors were extracted from the correlation matrix (figure 3.9).

According to Watts and Stenner (2012) there are a number of steps to determine whether or not a factor is statistically significant. These include the eigenvalues, the number of Q sorts loading onto one factor, a scree test and parallel analysis. These steps are in a hierarchical order, starting with the eigenvalue criterion.¹² The factor's eigenvalue must be greater than 1.00; second, a minimum of two Q sorts must load significantly on one factor, i.e. with a correlation $\geq 49\%$. As displayed in the unrotated factor matrix (Fig. 3.10), only the first factor's eigenvalue of 5.74 exceeds 1.00. Factor 2, with an eigenvalue of 0.67, is not significant according to this rule. In addition, not a single Q sort loaded significantly onto Factor 2. Factor 2 is therefore not statistically significant. Hence the result of the factor analysis is a single factor. This indicates that most participants shared one dominant viewpoint while Q sort 2 stood out as the only sort that did not load significantly on factor one. This result is parallel to the observations made above on the basis of the correlation matrix.

SORTS	Factors	
	1	2
1 KEGovb	0.7820	0.3791
2 Donola	0.4559	0.0531
3 TZGovb	0.7277	0.1601
4 TZGova	0.7118	-0.1787
5 NBIA	0.6999	-0.2168
6 NBIB	0.6684	-0.2359
7 NBIC	0.7118	-0.1911
8 NBID	0.8064	-0.3930
9 Donor3	0.8497	0.0480
10 INGO1	0.7217	0.2934
11 KEGovc	0.7457	0.2897
Eigenvalues	5.7477	0.6701
% expl.Var.	52	6

Figure 3.10: Unrotated Factor Matrix

3.4.6. Approaches to Factor Interpretation and the Role of Factor Arrays

So far no homogenous method has been developed within Q Methodology to interpret the extracted factors. While there is much debate within the Q community about whether or not there should be a standard method for factor

¹² In total there are six criteria to determine the statistical significance of a factor. Because in the Q study presented in this theses, only two of the six criteria were needed to determine the factors' significance, only these two have been explained in detail. For more information on the other criteria see (Watts and Stenner 2012)

interpretation, Q experts agree that the aim of a successful interpretation should always be to present a holistic account of the whole viewpoint expressed through the factor (Watts and Stenner, 2012). The *factor arrays* help with the interpretation. 'A factor array is, in fact, no more or less than a single Q sort configured to represent the viewpoint of a particular factor' (Watts and Stenner, 2012: 140). Through the factor arrays PQMethod generates an example Q sort for each factor. The factor arrays correspond to the scores given to each item by the participants. For example, a participant ranks item 28 as 'strongly disagree', which allocates a score of -3 to the item. A factor array of -3 represents the same score, i.e. strong disagreement. Through the factor arrays an 'artificial' Q sort is generated with a factor loading of 1.00. By representing the viewpoint of a factor, the factor arrays thus illustrate the general viewpoint of the Q sorts, which loaded significantly on the factor. Therefore factor arrays form the basis of factor interpretation.

Based on Stephenson's work and as described in Watts and Stenner (2012), the first step in factor interpretation is to create a crib sheet (Appendix 5). The crib sheet starts with the items ranked highest (+3) and lowest (-3) according to their factor arrays. It then continues towards items ranked at (+2) and (-2) and so on until the items with a (0) ranking are reached. The crib sheet forces the researcher to engage with every item of each factor.

However, simply looking at the factor arrays is not enough for a holistic interpretation of the factor. It is important to 'look at the many clues' (Watts and Stenner, 2012: 149) that are represented in the factor arrays by linking them to the qualitative interview data. Factor interpretation is an abductive process that emphasises *why* items have been ranked in a certain order. Therefore combining the quantitative results in the form of factor arrays with the qualitative Q sort data was vital in order to present a holistic factor interpretation (Chapter 6).

3.4.7. Reflections on the Q Study Design

The following Q study combines items relating to climate change discourse and concepts of water security and management practices. Because both themes are part of a wider discourse on water governance in the EQNB they were combined into one item sample. To study the framing of the discourse and its impacts on water governance in depth, the Mara River Basin was selected as a sub-basin of the EQNB.

For the Q study I used a comparatively small item sample of 28 statements, although it is common for Q studies to contain between 40 and 80 statements (Watts and Stenner 2012: 67). From the pilot testing it emerged that it took participants about 45 minutes to an hour to sort the statements while being interviewed. Since the study was geared towards policymakers and professionals in the water sector, asking for a greater time commitment from my participants seemed unreasonable, and hence the item samples had to be small in number as well as broad in scope. In addition, given the professional and cultural context it was challenging convincing interviewees to participate in the Q study, a method unknown to all of my interviewees. By presenting participants with a rather small item sample which could be completed within a reasonable amount of time I hoped to increase their willingness to participate. Even though a small item sample reduces the depth and subtleties within the extracted factors, the data nevertheless describes the broad view held by participants and thus can be related to the dominant views on issues of climate change and water security within the sector.

3.5. Summary

This chapter has presented the research design, the case study selection and the methods of data collection. The research is based on an embedded case study approach analysing multilevel water governance in the EQNB and using the Mara River Basin as a sub-unit of analysis. It applies a mix of qualitative and quantitative methods of data collection using semi-structured interviews, a focus group and triangulation of the data with document analysis. A Q Methodological study was also conducted and the chapter has introduced the design and statistical analysis in detail (section 3.5). The following chapters (4-7) present the analysis of the data and the results of this research.

4. Multilevel Water Governance and Interactions between Actors in the Equatorial Nile Basin

The aim of this chapter is to examine the institutional architecture of multilevel governance in the Mara River Basin. Guiding the analysis is the first sub-question:

Q1: How does the interaction between actors across policy levels shape water governance in the Equatorial Nile Basin?

This chapter uses the example of the Mara River Basin to illustrate multilevel water governance in the EQNB. The chapter starts by introducing the key actors in EQNB water governance (4.1) and then analyses the formal and informal governance architecture across different policy levels (international, regional, national and sub-national). Multi-level water governance in the Mara River Basin occurs via competing policy networks which centre around two key institutions: the Lake Victoria Basin Commission (LVBC) and the Nile Basin Initiative (NBI) (4.2-4.3). As this chapter demonstrates, policy networks include governmental and non-governmental actors at each policy level. By building policy networks, actors pool and share their resources (financial and knowledge resources, technical capacity and professional networks) and in this way they are able to enhance their agency in water governance. This chapter shows that the two policy networks play similar roles in multilevel water governance in the Mara River Basin and thus compete for resources and political influence. This chapter discusses the implications of such competition for multilevel water governance in the context of conflict prevention and institutional resilience (4.4).

4.1. Multilevel Water Governance in the Mara River Basin through Informal Policy Networks

This section centres on multilevel water governance processes and the governance architecture in the Mara River Basin. It starts with an overview of the relevant actors in the Basin and identifies the two competing policy networks, which form the informal governance architecture: the LVBC and the NBI. By forming policy networks, actors combine their agency and thus manage to 'change the course of events or the outcome of processes' (Pattberg and Stripple

2008: 273-74). This section examines relationships within and between the networks in detail.

The two policy networks were identified based on interviews with policymakers and triangulation of the data with grey literature such as policy reports and other documents. The analysis followed an inductive-deductive approach drawing links between actors based on empirical data. The discussion of the empirical results is informed by theories about policy network formation and multilevel governance, and governance architecture. Actors were considered relevant based on their interest in water governance policy in the Mara River Basin and the material and non-material resources that they contributed to the formulation, decision or implementation of policy via links to other actors or direct exchange. Table 4.1 introduces the key actors according to policy level and describes their function in multilevel water governance. Four policy levels were taken into account: international, regional, national and sub-national. The international level encompasses actors and processes which are relevant beyond East Africa and operate globally. The regional level refers to the geographic region of East Africa, including the riparian states in the Equatorial Nile Basin. The national level looks at governance processes within a specific country, still through a macro lens. The sub-national level analyses actors and decision-making processes in a local context and combines government units such as counties and local government actors as well as non-state actors, e.g. civil society, NGOs and the private sector.¹³

Policy Level	Actors	Function
International	USAID (United States Agency for International Development)	Bilateral donor agency of the U.S. government Supports governments and other partners with technical expertise and knowledge Closely involved in supporting the Lake Victoria Basin Commission (LVBC) financially and giving professional advice

¹³ This research acknowledges that non-state actors are not only relevant at the sub-national level but also at the national, regional and international levels. Given the context of the Mara River Basin, however, the influence of non-state actors in water governance is predominantly visible at the sub-national level.

	SIDA (Swedish International Development Cooperation Agency)	Bilateral donor agency of the Swedish government Provides grants and loans for development projects Mainly supports the Nile Basin Initiative via the Nile Equatorial Lakes Subsidiary Action Program (NELSAP)
	GIZ (German International Development Cooperation)	Bilateral donor agency of the German government Provides grants and loans for development projects Supports through technical expertise and advice to partners Mainly supports the Nile Basin Initiative (NBI) as well as the national water sectors
	World Bank	Multilateral development bank Provides grants and loans for development projects Trustee of the Nile Basin Trust Fund, which was the main source of funding for the NBI and pooled funds from various other donors Supports national water sectors through funding, grants and policy advice.
	GLOWS (Global Waters for Sustainability Programme)	Research consortium led by Florida International University, including INGOs such as CARE International, WWF, World Vision and WaterAid Conducts applied research on water supply, sanitation and hygiene (WASH) as well as water resources management Implements water-related projects in the Mara River Basin Funded by USAID

Regional	EAC (East African Community)	Regional intergovernmental organisation comprising Burundi, Kenya, Rwanda, Tanzania and Uganda. Aims to deepen economic, political, social and cultural integration among the member states. Lake Victoria Basin Commission is a sub-body of the EAC
	LVBC (Lake Victoria Basin Commission)	Regional intergovernmental organisation of Lake Victoria riparians (Uganda, Kenya, Tanzania, Rwanda, Burundi) Integrated as part of the EAC's institutional structure Aims to facilitate cooperation and regional integration and to enhance sustainable development in the Lake Victoria region
	NBI (Nile Basin Initiative)	Regional intergovernmental organisation of Nile Basin riparians (Egypt, Sudan, South Sudan, Ethiopia, Uganda, Kenya, Tanzania, Rwanda, Burundi, DR Congo) Aims to improve cooperative water resources management and foster economic growth amongst riparians
	NELSAP (Nile Equatorial Lakes Subsidiary Action Programme)	Sub-programme of the Nile Basin Initiative Aims to eradicate poverty, enhance economic growth and reverse environmental degradation in the Nile Equatorial Lakes region
	Regional Steering Committee	Bilateral committee for water resources management between Kenya and Tanzania Aims to facilitate cooperation between the two countries and present a venue for negotiations over

		<p>water resources</p> <p>Strong encouragement from the NBI to create this institution</p>
National (Kenya)	MWI - Ministry of Water and Irrigation (MWI)	<p>Develops national water policies</p> <p>Guidelines on water resources management, water supply and sanitation</p> <p>Coordinates and supervises the Kenyan water sector</p>
	WRMA (Water Resources Management Authority)	<p>Parastatal agency supervised by the MWI</p> <p>Develops regulations according to national policies</p> <p>Implements regulations such as water permits</p> <p>Supports and implements WRUAs (water resources users' associations)</p> <p>Regional offices across Kenya</p>
	WWF (World Wildlife Fund)	<p>International nongovernmental organisation (INGO)</p> <p>Operates on a transboundary and sub-national scale in the Mara River Basin</p> <p>Provides financial and technical support to Kenyan WRUAs and the Mara Umbrella WRUA</p>
National (Tanzania)	Ministry of Water	<p>Develops national water policies</p> <p>Provides guidelines on water resources management, water supply and sanitation</p> <p>Coordinates and supervises the Tanzanian water sector</p>
	CARE International	<p>INGO</p> <p>Part of the GLOWS consortium</p> <p>Financial and technical support to Tanzanian water</p>

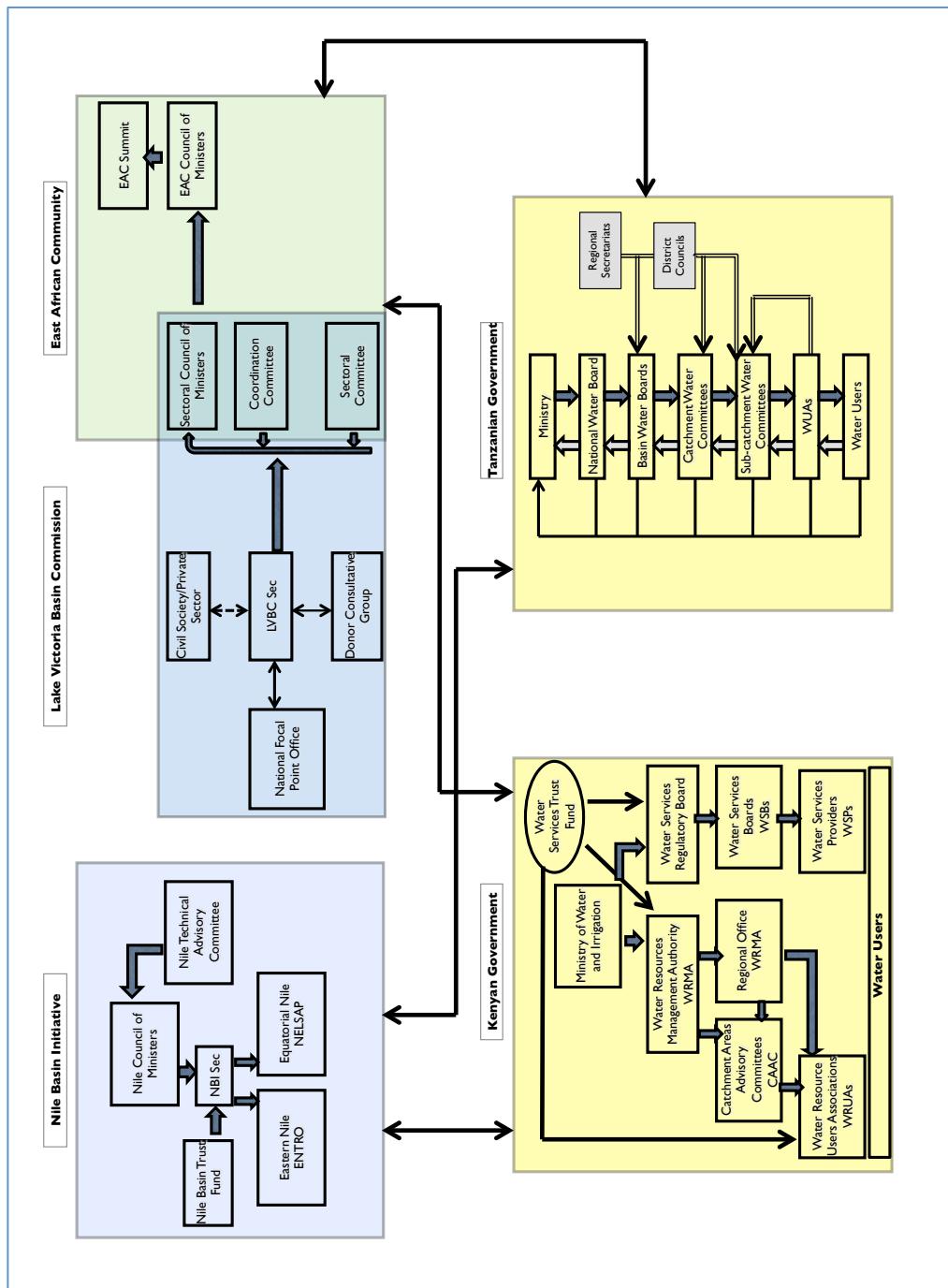
		users' associations (WUAs) for water supply and sanitation
Sub-national (transboundary)	Mara Umbrella WRUA	<p>Umbrella organisation of WRUAs/WUAs in the Mara River Basin</p> <p>Represents WRUAs/WUAs liaising with INGOs, government agencies and donors</p> <p>Coordinates activities between WRUAs/WUAs (with limitations)</p> <p>Financial and technical support from WWF and WRMA</p>
Sub-national (Kenya)	WRUA (Water Resources Users' Association)	<p>Local water resource user groups in Kenya</p> <p>Local catchment management</p> <p>Represented by Mara Umbrella WRUA</p> <p>Receive financial and technical support from WRMA and WWF</p>
Sub-national (Tanzania)	Basin Water Boards	<p>Sub-national basin committees for water management</p> <p>Tasks include coordinating various stakeholders, administering water permits, setting up WUAs</p>
	WUAs (Water Users' Associations)	<p>Local water resource user groups</p> <p>Represented in the Mara Umbrella WRUA</p> <p>Receive support from Basin Water Boards and CARE International</p>

Table 4.1: Key actors in water governance in the Mara River Basin and their main functions

Table 4.1 shows that there is a greater diversity of actors and institutions in basin governance than in the official institutional architecture. Figure 4.1, below, displays the formal institutional architecture of multilevel water governance in the Mara River Basin, as adopted from diagrams in national policy documents and

institutional mandates (EAC 2003; Government of Kenya 2002; Government of Tanzania 2008; NBI 2009). It depicts each institutional body (the NBI, LVBC/EAC, Kenyan government, Tanzanian government) as equally important in water governance and linked to each other institution, suggesting collaboration among the institutions. Within the institutions there are clear hierarchies that suggests a top-down nature to institutional policy processes in which different ministerial bodies develop national or regional policies and pass them down to national agencies for implementation, when they finally reach the water users.

Figure 4.1:
Formal institutional architecture of multilevel water governance in the Mara River Basin



While the formal institutional architecture is mainly composed of governmental institutions at the national and regional levels (e.g. national governments, parastatal agencies, regional transboundary institutions), donor agencies, INGOS and civil society actors are very active in shaping governance at the basin level.

The following sub-sections describe the interactions between key actors in each policy network. Figure 4.2 displays the two competing policy networks and illustrates the interactions and types of relationship among the different actors. The figure starts with the international level at the top and then displays the regional and national level, with the sub-national level at the bottom. The international actors consist various donor agencies; the regional actors in the basin are intergovernmental institutions such as the LVBC and the NBI; the national actors are the Kenyan and Tanzanian governments and government departments and parastatal agencies such as the WRMA. At the sub-national level the Mara umbrella WRUA and its sub-WRUAs/WUAs are the main actors, supported by WWF and CARE International. Relationships between the actors are classified into four types: financial support; knowledge creation and dissemination; institutional linkages and hierarchies; and democratic representation/stakeholder participation. The direction of the arrow indicates the direction of the relationship (e.g. financial support from USAID to LVBC; the width of the arrows the strength of the relationship (the wider the arrow, the stronger the relationship); the colour represents the type of relationship. Sometimes actors are linked by more than one type of relationship, in which case the arrow has multiple colours according (e.g. red and green represent financial support and knowledge dissemination). The figure presents a personal interpretation of the data from the perspective of an external researcher. Further research is necessary to strengthen its inherent claims about water governance processes. The study would benefit from the key actors' perceptions of the figure and their views on the policy networks and their own agency within the network.

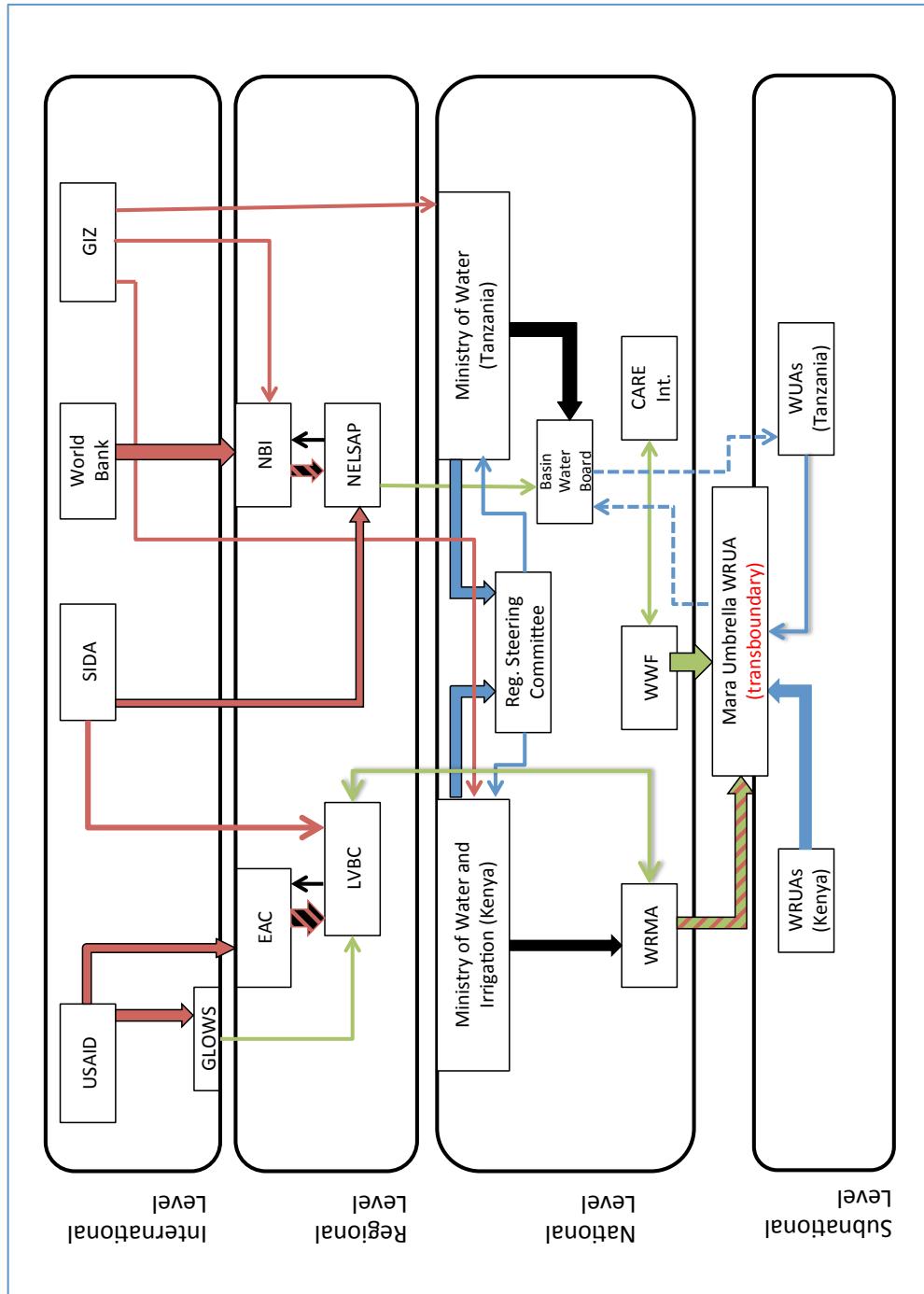


Figure 4.2: Informal water governance architecture in the Mara River Basin

4 types of Interactions:

- Financial support (red)
- Knowledge creation and dissemination (green)
- Institutional hierarchies and linkages (black)
- Democratic representation and stakeholder participation (blue).

4.2. The LVBC-Network

The policy network around the LVBC consists of the following actors: USAID, GLOWS, LVBC, WRMA, WWF and the Mara Umbrella WRUA (see table 4.1, above, for details of these actors). The network includes and connects actors at each policy level – international, regional, national and sub-national.

Each actor has a distinct function within the network. They complement one another in their roles and create relationships based on the exchange of material and non-material resources. Whereas some actors mainly provide financial support to other network members, others focus on knowledge creation and dissemination. Some actors are formally bound to each other through institutional mandates and hierarchies, thus providing useful institutional linkages to important actors outside the network, e.g. water ministries. Four different types of relationships can be observed between the actors based on financial support; knowledge creation and dissemination; institutional hierarchies; and democratic representation.

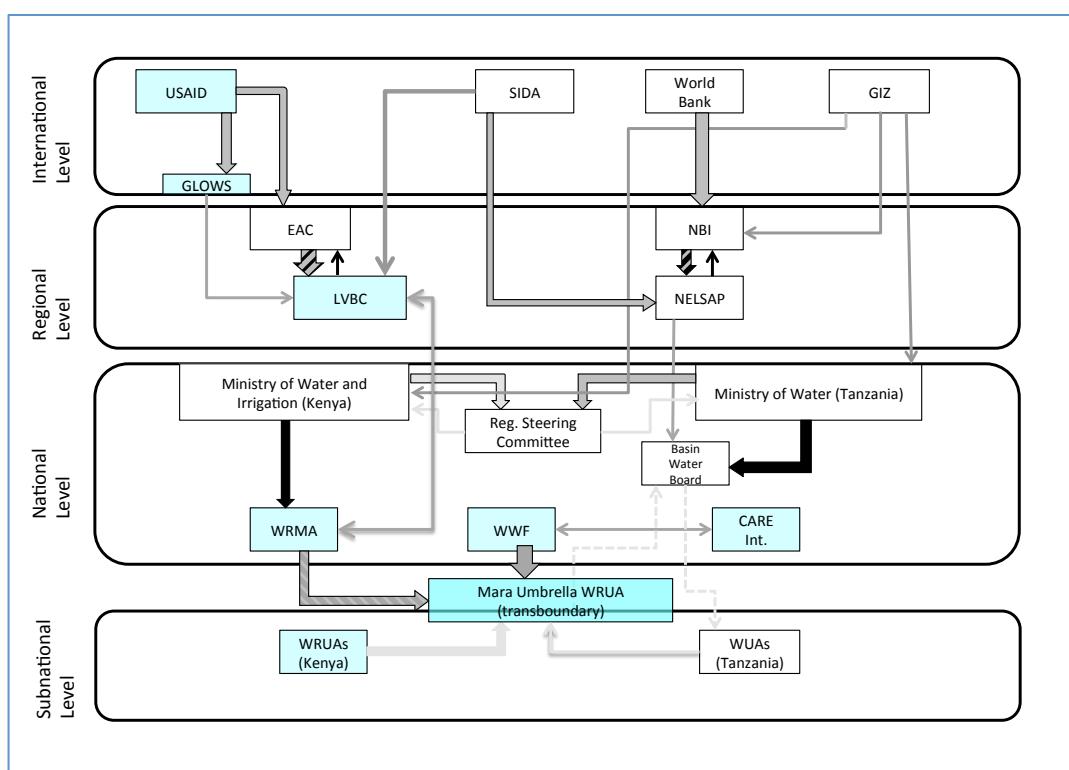


Figure 4.2: Water governance architecture in the Mara River Basin with LVBC network highlighted in blue.

4.2.1. International Level

USAID

USAID provides financial support to other actors within the LVBC network. For example it supported the LVBC directly by funding the Strategic Action Plan on Biodiversity and the Mara River Environmental Assessment (LVBC(a), LVBC(b), LVBC 2013b).¹⁴ USAID also provided funding for the GLOWS research project (Government of United States of America 2013) to conduct the two studies. Afterwards it supported the LVBC's implementation of the studies' recommendations (LVBC(b)). USAID focuses on providing financial assistance within the policy network for water development projects, to sustain other institutions and to foster research and knowledge creation. Other actors such as WWF and CARE International implement the projects (INGO2 (a) KE Gov (a), USAID 2013b).

GLOWS

GLOWS is a research consortium funded by USAID, led by Florida International University and includes various INGOs such as CARE International, WWF, World Vision and WaterAid. At the time of research, GLOWS collaborated with the LVBC and WRMA and carried out research on hydrological flows in the Mara River Basin as well as an environmental assessment (KE Gov (a); LVBC(b)). GLOWS studies have been used to inform WRMA and LVBC policymakers on the hydrology and other environmental determinants in the Mara River Basin (KE Gov (a); LVBC(b)). GLOWS' role within the network is to create and disseminate knowledge for the other actors.

4.2.2. Regional Level

LVBC

The LVBC is a sub-body of the East African Community with the objective of fostering and facilitating cooperation amongst the Lake Victoria Basin's riparian states (EAC 2003). Its role goes beyond cooperation over water or environmental issues to, for example, trade and infrastructure. The LVBC has only a facilitating mandate and cannot implement projects directly. Its main activity is the

¹⁴ See Appendix 2 for referencing of interviewees.

publication of studies related to environmental and social issues in the Lake Victoria Basin to inform policy (LVBC 2013a). For example, the LVBC collaborated with WRMA and GLOWS to produce the Mara Environmental Assessment (KE Gov (a); LVBC(b)). The LVBC had two roles in this process: LVBC staff contributed to the study, disseminated its findings through publications and used the information as a baseline to develop further projects in the Mara River Basin (KE Gov (a)). Thus the LVBC's role within the network is to create and disseminate knowledge to inform policy and the design of water management projects.

4.2.3. National Level

WRMA

The WRMA is a key actor in the LVBC network due to its institutional linkages with the Kenyan Ministry of Water and Irrigation. It is a parastatal agency supervised by the Ministry of Water and Irrigation, but retains a certain degree of autonomy. Through institutional linkages, the WRMA is integrated within the formal institutional structure of the Kenyan water sector (see figure 4.1, above). The WRMA provides an important connection from the LVBC network to the Kenyan water sector, collaborating with other actors to create and disseminate knowledge, for example by providing WRUAs with technical expertise.

WWF/CARE International

WWF and CARE International provide financial support for the activities of the Mara Umbrella WRUA and the sub-WRUAs/WUAs. Local WWF offices in the Mara River Basin are engaged in supporting WRUAs through training in particular (INGO1 (a); INGO1 (b)). WWF directly supports the Mara Umbrella WRUA and has received financial support from USAID for this engagement (Government of the United States of America 2013). CARE International has implemented water supply and sanitation projects together with Tanzanian WUAs, supporting them financially and providing professional knowledge and expertise (INGO2 (a), INGO2 (b)). WWF and CARE International both provide financial support, create knowledge in collaboration with other actors (i.e. the Mara Environmental Assessment), disseminate information to actors at the sub-national level, and implement projects.

4.2.4. Sub-national Level

Mara Umbrella WRUA and sub-WRUAs

The Mara Umbrella WRUA is a body that brings together representatives of each of the sub-WRUAs in the basin. It is a prominent actor at the sub-national level, representing the community interests within the basin.

The Mara Umbrella WRUA receives financial and technical support from WWF (INGO1 (a); INGO1 (b), INGO2 (a)). Even though the WRMA and the Water Resources Trust Fund (both Kenyan government agencies) are designed to support the Mara Umbrella WRUA and the Kenyan sub-WRUAs it is unclear whether or not this mechanism is working. One interviewee suggested that the lack of direct financial support from Kenyan parastatal agencies was due to low political motivation and low interest (KE Private Sec1).

TWRUF

Recently a transboundary stakeholder forum was set up with the support of the LVBC at the sub-national level. The Transboundary Water Resources Users Forum (TWRUF) is an attempt to bring together representatives from a range of stakeholders including government, the private sector, NGOs and local communities to engage in water governance and provide room for their participation in the decision-making process. However, at the time of this research the TWRUF was just emerging and did not seem to have an influential role in water governance in the Mara River Basin. For example, its meetings were irregular and were often postponed (LVBC(b)). The interviewee reported that it was difficult to motivate all types of stakeholders, particularly the tourism industry, to participate in the forum.

In sum, the voluntary and informal LVBC network bridges the gaps between policy levels, pools the actors' resources and skills and facilitates cooperation within the network. The actors complement one another's skills and resources and thus enhance their own agency to shape and influence multilevel water governance.

4.3. The NBI-Network

The NBI network plays a role similar to that of the LVBC network in multilevel water governance. Although it has fewer actors it is similar in scope and cuts across and links actors at all policy levels. The actors in the NBI network have specific functions and mirror the LVBC network, i.e. financial support, knowledge creation and dissemination, institutional hierarchies and democratic representation and participation.

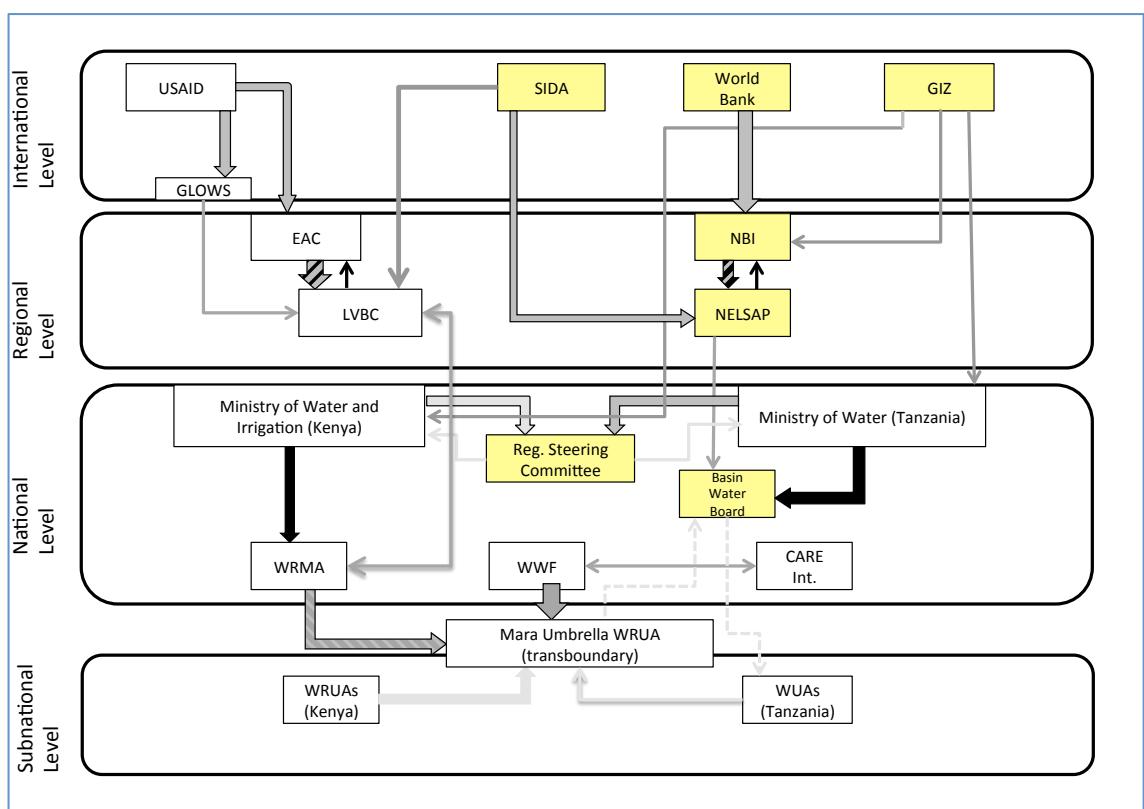


Figure 4.3: Water governance architecture in the Mara River Basin with NBI network highlighted in yellow

4.3.1. International Level

World Bank

The World Bank, a multilateral donor agency, administers the Nile Basin Trust Fund, which included a number of different donor agencies that were the main financial supporters of the NBI.¹⁵ Since the World Bank acted as trustee the other

¹⁵ Between 1999 and 2010 the NBI was financed through the Nile Basin Trust Fund, which was administered by the World Bank. These multi- and bilateral donors are the African

donors played only an indirect role in water governance and hence are not included in the discussion. The World Bank predominantly provides the NBI network with financial support, although it also assists NBI member countries with technical expertise and is known to have a strong influence on policy and project design (NBI (a)).

SIDA and GIZ

SIDA and GIZ actively and directly assist the NBI network with **financial and technical support**. While GIZ supports the NBI Secretariat financially and with technical support and knowledge, SIDA focuses on financial support for the Nile Equatorial Lakes Subsidiary Action Programme (NELSAP) (Donor3; NBI (b)). SIDA and GIZ provide funding additionally to the other donor agencies, which contribute to the Nile Basin Trust Fund.

4.3.2. Regional Level

NELSAP

NELSAP's role largely centres on fostering transboundary cooperation and it plays an important role in knowledge creation and dissemination. It commissions studies on topics relevant to water governance in the Mara Basin, such as a feasibility study of different water development projects (e.g. study by NIRÁS 2011). NELSAP also lobbies national government agencies such as the Tanzanian Basin Water Board and disseminates information to government actors (NBI (a)). Lately NELSAP has been active in establishing water-monitoring stations in the Mara River Basin that are expected to provide crucial data on water flows which will be used to inform decision-making (NBI (a)). The NBI/NELSAP is similar to the LVBC with regard to facilitating transboundary cooperation but sometimes acts as an implementing agency, while the LVBC only assumes a coordinating role.

Within the NBI network, relationships are partially defined by institutional linkages at the regional and national/sub-national levels. At the regional level NELSAP is integrated within the NBI institutional architecture (NBI 2010). Despite being part

of the overall NBI structure it has progressively gained political clout and independence vis-à-vis the NBI Secretariat (IC2). Whereas NBI funding through the NBTF ended in 2012, creating a situation of high uncertainty for the NBI, NELSAP has received only small amounts of funding from the NBTF, its main funding coming directly from donors such as SIDA (Donor3, NBI (b)). Recently NELSAP managed to secure World Bank funding, independently of the NBI, through a trust fund for African River Basins under the Cooperation in International Waters in Africa (CIWA) Initiative based on a project proposal called Climate Resilient Growth (INGO3, NBI (a), NBI (b), NBI 2012b). It seems that NELSAP is also gaining independence from the NBI Secretariat due to its increased financial autonomy. The implications of this are discussed in Chapter 7.

4.3.3. National Level

Water Basin Board

The Mara Basin Water Board on the Tanzanian side of the river basin is integrated within the institutional hierarchies of the Tanzanian water sector (Government of Tanzania 2008). The basin water boards strongly depend on superior institutions among the hierarchy of the Tanzanian water sector such as the National Water Board and the Ministry for Water. The Basin Water Board is part of the NBI network and thus creates an important link between the network's actors and the Tanzanian government. Kenyan government institutions are not integrated into the NBI network but are closely linked to the LVBC network. The competition between the two networks might be one explanation for why government institutions of Kenya and Tanzania are represented in only one of the two networks (see section 4.4), and not in each.

Regional Steering Committee

Negotiations between Kenya and Tanzania over the transboundary Mara River take place at meetings of the Regional Project Steering Committee, an institution that links national policymakers from both countries. The Steering Committee has close links to the NBI network as it was established as part of the transboundary cooperation facilitated by the NBI (TZ Gov (b)). It supplies the NBI network with important institutional linkages to senior government officials from Kenya and

Tanzania and thus offers an opportunity to inform and influence transboundary water policies.

4.3.4. Sub-national Level

Whereas the LVBC network actively collaborates with the Mara Umbrella WRUA, and made efforts to establish the TWRUF – a transboundary stakeholder forum - the NBI network is lacking the engagement with actors at the sub-national level. The NBI network has strong links to the Tanzanian government, but since the implementation of Tanzanian WUAs is not yet very advanced there is a lack of stakeholder participation at the sub-national level. Tanzanian WUAs are also a part of Tanzania's water sector reform, but the lack of information from senior Government of Tanzania staff on the progress of the implementation suggests that the activity of WUAs in the Mara River Basin is at the least not yet very visible (TZ Gov (b)). While some WUAs exist on the Tanzanian side they do not seem to be much involved in water governance or decision-making processes. Even the representation of Tanzanian WUAs in the Mara Umbrella WRUA is marginal and insufficient. Issues such as a shortage of funding and capacity and the distance that must be travelled to attend meetings of the Mara Umbrella WRUA contribute to this fact (NBI (a); FCG1).

To summarise, the NBI network has characteristics that are similar to the LVBC network. By complementing one another's skills and pooling resources, actors in the network link across policy levels and increase their agency in water governance. By providing financial support, creating and disseminating knowledge and including government agencies and local stakeholders alike, NBI network actors have augmented their financial and technical capacity and widened their professional networks.

4.4. Discussion

This section draws on the evidence presented in the previous sections and discusses the applicability of the multilevel governance concept and theory of policy networks outlined in Chapter 2. The section opens with an assessment of the extent to which the characteristics of the two policy networks match the theory and then discusses institutional overlap and competition between the two networks, drawing on insights from the literature on conflict prevention,

governance architecture, institutional redundancy and resilience. The section closes with a reflection on the agency of individual actors within a network and the level of influence of the two policy networks on multilevel governance processes.

4.4.1. Characteristics of Policy Networks in the Mara River Basin

Chapter 2 defined policy networks as

a set of relatively stable relationships which are of non-hierarchical and interdependent nature linking a variety of actors, who share common interests with regard to a policy and who exchange resources to pursue these shared interests acknowledging that co-operation is the best way to achieve common goals. (Börzel 1998: 254)

Policy networks are united by a common interest and based on the exchange of material and non-material resources. Theory on policy networks argues that actors in a policy network develop their own specialisations and thus differentiate themselves from the others in the network and their network from other policy networks (Grant et al. 1988).

As sections 4.1-4.3 have shown, multilevel water governance in the Mara River Basin takes place via informal policy networks. The evidence presented has identified two distinct policy networks and has shown that these provide a vertical structure across policy levels, linking international and regional policy with the national and sub-national levels. This observation is in line with classical theory on public policy networks, which describes the vertical links between national and sub-national actors (Lehmbruch 1991; Marsh and Rhodes 1992; Rhodes 1997). However, the policy networks in the Mara River Basin are also transnational, spanning borders to include transnational organisations (e.g. INGOs such as WWF or CARE International), transboundary organisations (i.e. the LVBC and the NBI) and transboundary local institutions (such as the Mara Umbrella WRUA). The two policy networks share some characteristics with the transnational advocacy networks described by Keck and Sikkink (1998) in international climate change negotiations in that they bridge the divide between the national and the international and use a range of material and non-material resources (e.g. knowledge, information) to exert influence (Keck and Sikkink 1998).

The data indicate that actors have been collaborating on different studies and projects. This suggests a certain degree of stability within each policy network,

which in turn aligns with the above-mentioned definition of policy network theory. One can reason, based on Douglass North's (1990) insights about institutional theory, that by building mutual trust through repeated interaction and thus further stabilising ('institutionalising') the relationships within each network, actors reduce their opportunity costs and thus have a reciprocal interest in mutual collaboration.

The literature on policy networks emphasises their non-hierarchical and voluntary nature and classifies them as a third type of governance, next to hierarchy and markets (Powell 1990). Despite their informal nature, the policy networks in the Mara River Basin are not free of hierarchical relationships. As figure 4.2 (above) illustrates, some network actors are bound together by formal institutional hierarchies and linkages. This is true of parastatal agencies such as the WRMA, which is an extension of the Kenyan Ministry for Water, and to a lesser extent of NELSAP as a subsidiary Nile Basin Initiative action programme. Because national governments and transboundary institutions in particular include such a wide variety of sub-bodies it is important to distinguish between the mother institution and the specific sub-institutions that are involved in the policy network. To view these large institutional (transboundary) structures as black boxes with homogenous interests would not do justice to the diversity of the political interests within these institutions. For example, the political tensions within the NBI regarding the Cooperative Framework Agreement (CFA) demonstrate the diversity of interests in Nile riparian states. Whereas Egypt and Sudan reject the current CFA, the Equatorial Nile riparian countries have signed the agreement and are now at the ratification stage (see Chapter 3). Institutional hierarchies constitute power relations between a superior and an inferior institutional position, and defining policy networks as free from hierarchy risks diverting attention from other forms of power relations such as the unequal distribution of resources and resulting dependency, which create a power imbalance between different network actors.

The analysis finds that actors within a network exchange material and non-material resources. As shown in sections 4.2 and 4.3, in each network there some actors that provide financial support to others, contribute technical expertise and knowledge creation or provide important contacts with key actors outside the network. This shows that actors assume a distinct specialisation within the

network, differentiating themselves from others in the same network while sharing some of their resources with them.

The inclusion of different international actors such as donor agencies and INGOs in a network suggests that network actors make a conscious effort to avoid duplicating the function of other actors within the network (Donor1(b), Donor3). In this context, a senior advisor of a bilateral donor agency (Donor3) referred to the Paris Declaration, a donor initiative to coordinate activities to increase aid effectiveness. It seems that actors, and in particular bilateral donors have improved their coordination efforts. For example, 16 international and national donor agencies support the Kenyan water and sanitation sector through grants or loans.¹⁶ These include different UN agencies, European governments and international development banks. The donor agencies coordinate their efforts and pool resources. However, whereas USAID is mentioned as one of the key donors, it does not pool its resources with those of the others but provides direct finance and loans only to national governments or multilateral institutions such as the LVBC. Although the LVBC has received financial support from other agencies, namely the Norwegian government (NORAD), WWF Norway and the German Ministry for Development Cooperation (BMZ) (LVBC 2013b), these donors' activities are not as visible as USAID's involvement with the LVBC. While this example indicates coordination among some donors, it also shows that not all donors are committed to working together, although more data would be needed to confirm this.

4.4.2. Fragmentation of Governance Architecture in the Mara River Basin

This chapter examined the governance architecture in the Mara River Basin. It found that governance processes are structured through two informal network formations, one revolving around the LVBC and the other with the NBI at its centre. The chapter also revealed that the observed governance architecture of policy networks stands in contrast to the 'official' governance architecture via the national ministries and water sectors of Kenya and Tanzania, as well as the transboundary links through the river/lake basin organisations.

¹⁶ Based on unofficial donor matrix for the Kenyan water sector.

The mapping of the governance networks (Figure 4.2) demonstrated the fragmentation of the governance architecture. Fragmentation of governance is a common occurrence in global governance and international regimes (Biermann et al. 2009). Fragmentation of governance is characterised by a 'patchwork' of institutions that vary in focus, scope, character and scale of operation. Biermann et al. (2009) define three levels of fragmentation, namely synergistic fragmentation, cooperative fragmentation and conflictive fragmentation. *Synergistic fragmentation* refers to a relatively high level of institutional integration, where actors share the same norms and all actors support the same institutions. *Cooperative fragmentation* is situated in the middle of a scale between synergistic and conflictive governance architecture. Here, institutions are loosely integrated, share the same core values but some actors remain outside main institutions, while still supporting the system in general. *Conflictive fragmentation* describes a largely disintegrated system with conflicting norms between the main actors, who support different institutions.

Applying the typology of governance fragmentation by Biermann et al. (2009) to the governance architecture in the Mara River Basin, the following two observations can be made:

- 1) Governance in the Mara is fragmented due to a large number of governance actors. The fragmentation is observed through the two different policy networks, which do not share much overlap.
- 2) The policy networks have an integrating function for water governance in the Mara River Basin. Within each policy network, actors cooperate in their work and share the same core values, as well as support the same main institution.

Therefore, the level of governance fragmentation combines aspects of cooperative with conflicting fragmentation. Within the policy networks governance fragmentation shares characteristics of cooperative fragmentation. Actors are loosely integrated, collaborate through the informal policy network, share the same core values and support the same main institution, namely either the LVBC or the NBI. However, between the two policy networks the governance architecture seems exhibit to a certain degree of conflict. Actors are not well integrated across the two policy networks, and they support different core institutions. Nevertheless, actors from both networks subscribe to similar policy

discourses (Chapter 5), which suggests that actors from both networks share similar norms or values.

There are a number of consequences of fragmented governance architecture, which impact the efficiency and effectiveness of a governance system. In particular the fragmentation of a system can affect the speed of reaching agreements, the level of regulatory compliance, and the level of inclusiveness and participation (Biermann et al. 2009). In the literature, there is yet no consensus as to which kind and level of fragmentation is preferable. Some argue that synergistic fragmentation is beneficial among other aspects for the speed of reaching agreements, quality ('depth') of the agreement, and compliance, as it will only involve relevant actors, which limits the number of actors and potentially makes negotiations less complex (Aldy and Stavins 2007; Barrett 2007; Bodansky 2002; Victor 2007). Other authors emphasise the disadvantages of all types of fragmented architectures, for example that fragmentation can create conflictive institutions in the long-term and is less cost-efficient than a more integrated architecture (Aldy et al. 2003; Biermann 2005; Van Asselt 2007). In addition, agreements, which only involve a small number of like-minded actors decrease the opportunity for 'package deals' across more than just one issue area, which can potentially lead to a decrease in overall policy acceptance and effectiveness (Folmer et al. 1993; E. B. Haas 1980).

For Biermann et al. (2009) the benefits of a less fragmented architecture prevail. The authors argue in favour of a system, which is slightly fragmented, tending towards integration.

"Synergistic fragmentation" might often be a realistic second-best option in a world of diversity and differences in which purely universal governance architectures are more a theoretical postulate than a real-life possibility. (Biermann et al. 2009: 31)

Hence, according to Biermann et al. (2009) the governance architecture in the Mara River Basin could be considered slightly too fragmented and would benefit from a better integration of the two policy networks in order to enhance efficiency and effectiveness of governance. The competition of the two policy networks and the potential disadvantages and advantages of this competition are further discussed in the sections below.

4.4.3. Competing Policy Networks?

The research presented in this chapter observed two policy networks that shape water governance in the Mara River Basin. Whereas the governance architecture across the two networks is relatively fragmented, as there is little substantial interaction between the two networks, within each network the actors collaborate closely, exchanging resources and pooling skills and capacity. The two networks play similar roles in multilevel water governance as both

- focus on a similar issue, i.e. transboundary water management, facilitating and fostering riparian cooperation;
- include actors from various policy levels and sectors;
- shape and affect water governance in the Mara River Basin through their financial support, knowledge creation and dissemination and linkages between different actors across policy levels.

Due to their issue focus the LVBC and the NBI compete for the same resources and roles based on their similar mandates in an overlapping geographical area. This notion was confirmed in interviews with policy advisors from the two institutions. There has been competition between the NBI and the LVBC since they were first established. Originally the LVBC was intended to be a sub-programme to the NBI, but due to the political interests of the East African Community members it was established within the framework of the EAC and not the NBI (INGO3).

Without identifying the specific actors, the LVBC acknowledges in its Operational Strategy that rivalry between different actors has resulted in duplication due to lack of coordination and collaboration, leading to ineffective attainment of their common goals.

[A] characteristic feature that existed in the Basin was the minimal interaction between and among the various groups/associations/NGOs implementing various projects in the Lake Basin and who often acted as adversaries to each other. This state of affairs was not healthy and as a result, most of the projects/programmes implemented were often duplicated within the same areas and most often in the different Partner States. (LVBC 2007: 4)

The LVBC's Operational Strategy makes it very clear that there has been competition between actors in the Lake Victoria Basin which has continued until recently (INGO3). Following the advice of EAC member states' technical water ministry staff, in 2012 the LVBC and NBI formally signed a Memorandum of Understanding in order to strengthen their collaboration (INGO3, LVBC(b)). There is evidence that since 2011 they have increased their effort to work together: for example NELSAP acted as the implementing agent for the LVBC, implementing projects such as monitoring stations. These projects were the result of feasibility studies conducted on behalf of the LVBC (INGO3; LVBC(b)). However, the data are not sufficiently substantial to assess the extent to which this competition has come to an end. As the evidence presented in sections 4.1-4.3 suggests, it still seems that the alliances within each policy network persist.

Given the competition between the LVBC and the NBI/NELSAP, what are the implications for multilevel water governance in the wider context of climate change adaptation and water security? Water governance in the Mara River basin is already influenced by the combination of uncertain climate, which could affect future water availability, and the tense and highly contested politics of water allocation in the Nile Basin (Chapter 3). What are the effects of institutional competition and institutional redundancy under these circumstances?

4.4.3.1. Institutional competition vs. institutional redundancy

Using the example of local conflict over water in communities in Tajikistan, Zürcher illustrates the difference between institutional competition and institutional redundancy (Zürcher 2004). Institutional *competition* is characterised through normative conflict between institutions where each tries to impose its system of rules on the other party. Zürcher concludes that institutional competition increases the risk of the violent escalation of resource conflicts (Zürcher 2004). Institutional *redundancy* describes competition for the same role within a system and for the same material and non-material resources to fulfil this role. Institutional redundancy strengthens the overall institutional architecture, since the institutions concerned can stand in for each other if one fails or collapses. Applied to the Mara River Basin, the two policy networks are an example of institutional redundancy than rather than institutional competition.

Institutional redundancy, in turn, relates to the enhanced resilience of institutions and social systems to external impacts, for instance, climate change (Rockefeller Foundation 2009). Whereas policymakers often perceive ‘redundancy’ as negative and relate it to cost inefficiency (see discursive framings in Chapter 5), Low et al. (2003) suggest that under specific conditions it can enhance institutions’ resilience, performance and effectiveness. In their comprehensive review of the interdisciplinary literature on redundancy, Low et al. (2003) find that an optimal level of redundancy within a governance system can provide a buffer for decision error. Research by Landau (1969), Bendor (1985), and Low et al. (2003) show that redundancies within administrative and governance system, especially at the local level, reduce the impact of errors on the whole system and decrease the probability of system failure. Institutional redundancies at the local level are likely to be efficient when

- transfer of information across multiple policy levels is slow;
- the geographic region is large and spatially heterogeneous;
- institutions address specific local conditions and verify local information;
- checks and balances for local institutions are provided at a superior level, e.g. at national or supra-national level.

These conditions make redundancies at the local level effective and efficient as they facilitate a rapid response to unforeseen events.

In the context of enhancing institutional resilience to cope with the impacts of climate change or conflict, keeping institutional redundancies within the system as back-up in case of failure becomes a compelling argument:

Eliminating ‘redundancies’ and unifying through bundling and simplification of local institutions, however, may not be the best way of securing livelihoods. Rather than seeing an untidy structure as a problem, however, we should be open to the possibility that such arrangements are, through the interplay of institutions they induce, more resilient than counterparts that are more centrally designed according to a narrow viewpoint and scale logic. Bendor (1985: 10)

At the time of this research the LVBC and the NBI network were competing to host the Mara River Basin Commission. Both networks initially argued in favour of establishing a new institution to facilitate transboundary cooperation in the Mara River Basin despite its slow and complex process and high administrative costs

compared to alternative methods of transboundary cooperation, this suggests that proposing a Mara River Basin Commission was a strategic move on the part of both NELSAP and the LVBC. In the case of the Mara River Basin Commission, as an example of institutional redundancy and competing institutional interests in the Equatorial Nile Basin, there are apparent trade-offs between cost efficiency and institutional resilience.

One of the key arguments against the Mara River Basin Commission were the high institutional costs (Donor3). Donor3, who was linked to the NBI policy network, pointed out that to establish one sub-commission within the Nile Basin might lead to the establishment of a total of 27 sub-basin commissions across the whole Nile Basin, increasing the institutional complexity and redundancy and creating high costs. This logic relates to critiques of the high cost and convoluted institutional architecture associated with decentralisation (De Vries 2000). Whereas these are valid arguments given political considerations such as limited budgets, it is necessary to explore whether institutional redundancies can have positive externalities such as enhancing the resilience of an institutional system to a changing climate.

Institutional redundancy might also be more efficient than policymakers assume. As Low et al. (2003) argue, 'efficiency is enhanced by differentiation in the services provided'. This would encourage a strengthening of governance through informal policy networks to improve efficiency, if actors within each policy network provide different services and resources to others in the network. Social networks and 'the collaboration of a diverse set of stakeholders operating at different social and ecological scales in multi-level institutions and organizations' (Lebel et al. 2005: 18) contribute to the adaptive capacity and thus the resilience of a system (Adger et al. 2003). Linking the empirical evidence with the resilience literature suggests that the observed multilevel water governance architecture in the Mara River Basin enhances institutional resilience in the face of climate change, water security and conflict prevention. For policymakers this means making decisions based on political values and priorities rather than clear scientific considerations, specifically in the context of high scientific uncertainty of the impact of climate change in the basin. This is one conclusion of this research and is discussed in Chapter 8. However, further research is needed to explore the link between

institutional redundancy and resilience in more depth by assessing and measuring the level of resilience of water governance in the Mara River Basin.

4.4.4. Agency and Influence of Policy Networks in Multilevel Water Governance

The analysis of the two policy networks in this chapter has demonstrated that the actors complement each other in their roles. Some provide financial resources (e.g. USAID for the LVBC network, SIDA for the NBI-network), while others contribute technical capacity to generate knowledge and social networks to disseminate information (e.g. the LVBC and NBI, and INGOs such as WWF). Overall, it appears that actors at the centre of a network, such as the LVBC and the NBI, are more actively involved in the activities of the policy networks, while others e.g. the GLOWS consortium in the LVBC network, are less engaged and their activities are less visible. Diverse contextual factors such as the level of inclusiveness of the network, the level of additional gains made through the network, dispersed geographical location, and membership of alternative policy networks and thus less reliance on one specific policy network, regulate the actors' motivation to engage with the network. It is beyond the scope of this research to discuss these factors in detail.

Because of the additional factors mentioned above, relationships among the actors in each network are highly complex. The data are thus not sufficient to measure the influence and agency of single actors in comparison to the other actors in the same network. Further research could focus specifically on this to gain better insight into the dynamics within each network. The role of individual policymakers also needs further examination in this context. Meijerink and Huijtema (2009) comprehensive analysis of the agency of individuals in policy change and comparison of a range of case studies in different countries finds that individual experts and policymakers play crucial roles in instigating or blocking policy change. Such individuals often change position within or across institutions within the sector. For example, one of the interviewees for this research, now working for the LVBC, previously worked for the NBI in a senior role. Other examples include Kenyan government agency staff moving between different offices and institutions, such as staff from WRMA moving to the Kenyan Ministry

of Water and vice versa. An examination of individuals' influence on policymaking in the basin would shed further light onto who shapes water governance, and how.

It is difficult to compare the agency of the two policy networks as many factors play a part in determining each network's agency. The LVBC network has a larger number of actors that are relevant to water governance in the Mara River Basin than the NBI network. It also seems to combine a number of very influential actors, e.g. USAID, with high financial and technical capacity, and WRMA, a parastatal agency, with direct links to the Kenyan Ministry of Water, which potentially increases the political leverage of the network. At the time of this research the LVBC's institutional situation was politically less precarious than that of the NBI/NELSAP due to political uncertainty regarding the future of the NBI in relation to CFA negotiations (see Chapter 3), thus member states preferred to make a larger financial commitment to the LVBC than to the NBI (INGO3), further contributing to the perception that the LVBC is a more reliable partner than the NBI (INGO3).

On the other hand, the NBI network includes NELSAP as an integral part. With NELSAP's influential role in the Equatorial Nile Basin and its integration within the wider NBI architecture, the programme has indirect access to policy networks with a greater geographical scope than the LVBC, covering the whole Nile Basin rather than just the Lake Victoria Basin. This could enhance NELSAP's agency through related factors such as a wider political network and access to a greater range of resources. The latter point seems particularly relevant given the World Bank's strong involvement and important financial support for water management issues. It seems that access to resources is more important than the number of members in determining the influence of a policy network. Close comparison of the LVBC and NBI/NELSAP-networks also reveals that while the LVBC only has a facilitating mandate, NELSAP has a focus on technical cooperation and can be an implementing agency, and is therefore less reliant on other actors for implementation than the LVBC. For example, the LVBC had to pass the opportunity to implement one project to NELSAP as the LVBC's mandate does not allow implementation of projects but only the facilitation of transboundary cooperation (INGO3). It appears that NELSAP's function as a potential implementing agency enhances its agency in water governance in the Basin. Nevertheless, the uncertainty of NELSAP/NBI funding and thus the future of the

institution might be seen as a limiting factor vis-à-vis the more politically stable LVBC.

Policy networks are also important in the framing and promotion of policy discourses. Mukhtarov and Gerlak (2013) show that transnational expert networks have been crucial in framing and promoting the global discourse on river basin organisations: these transnational networks

deliberately construct[ed] the meaning of RBOs and carr[ied] out the work of continuous reinterpretation of the discourse in order to maintain its [the transnational network's, N.H.] place on the agenda. (Mukhtarov and Gerlak 2013: 319)

Goldin and Kibassa (2009) report that international policy networks have strongly influenced water resources management discourse in Tanzania. International actors, in particular donor agencies, have established a hegemonic discourse on how water resources should be managed and by whom. National Tanzanian actors felt that their access to these policy networks was restricted if they did not subscribe to the hegemonic discourse generated through the policy networks. Chapter 5 presents an in-depth analysis of the discursive framing of water resources management in the Equatorial Nile Basin and reflects on the roles of the LVBC and NBI networks in shaping and promoting the discourse.

4.5. Conclusion

This chapter has analysed the institutional architecture of multilevel water governance in the Mara River Basin. Two competing policy networks shape water governance in the Mara: the LVBC and the NBI. Actors combine their agency by forming policy networks united by a shared focus, i.e. transboundary water management in the EQNB and the facilitation of cooperation between riparian states based on exchange of material and non-material resources. By aligning themselves with a policy network, individual actors can increase their potential agency as they gain access to further resources such as financial support, access to information and knowledge and important personal contacts. Whereas there is close collaboration among the actors within each network, this chapter found little interaction between actors across the two networks.

The analysis presented reflected on the degree of fragmentation of the governance architecture in the Mara River Basin. It found that governance is partially fragmented, as it occurs via two competing policy networks. While elements of conflictive fragmentation were observed due to the competition between the two networks, the overall architecture was also characterized by cooperative fragmentation. Each policy network was observed to foster coherence and integration among the actors within the network, thus reducing fragmentation.

The chapter has distinguished between institutional competition and redundancy and found that the two policy networks are an example of the latter. The discussion drew on the literature on institutional redundancy and argued that in the context of climate change and water security, the current water governance architecture can make the system more resilient and enhance overall institutional performance. The chapter showed, that while policymakers often try to avoid and reduce institutional redundancies because they are seen as cost-inefficient, under certain conditions institutional redundancies can make a governance system more resilient, efficient and effective.

To further understand the agency and influence of policy networks the next chapter analyses discourses on climate change and water security in the Equatorial Nile Basin, examining the content and structure of the discursive frames and then linking them back to the policy networks.

5. Discursive Framing of Water Resources Management in the Equatorial Nile Basin

This chapter analyses the framing of policy discourse around water resource management (WRM) with a focus on the emerging issues of climate change and water security. The chapter addresses the second sub-question of the thesis:

Q2: How is the policy discourse around WRM framed, and what is the relevance of framings of climate change and water security?

The discourse analysis presented in this chapter answers this question in two steps. First the discursive framing of the wider discourse on WRM in the EQNB is examined and discussed (5.1), then the wider framing is compared to the issue-specific frames of climate change and water security (5.2). The observed discursive framings are then discussed in the context of hydropolitics in the Nile Basin (5.3). The results of the discourse analysis are further linked to the outcomes of the Q study on policymakers' perceptions of climate change and water security (Chapter 6) and used to assess the extent to which discursive framing relates to policy implementation and outcomes (Chapter 7).

The analysis is based on three types of data: policy reports and document analysis, semi-structured interviews, and interviews conducted as part of a Q study (see Chapter 3). The diverse data from these three sources present a variety of perspectives which together form the outcome of the discourse analysis in this chapter. Policy documents and reports present the official standpoint of key actors and organisations in the sector such as government departments and international and transboundary organisations. The discursive frames resulting from the document analysis illustrate the formal or official framing of the discourse. The frames taken from the document analysis are then linked to the perceptions of the key decision-makers. In the interviews, participants were asked about their personal views of WRM, and their answers identified important challenges in WRM. In a second interview the same individuals were asked to participate in a Q study with a focus on their personal perceptions of climate change and its impacts and its consequences for sustainable WRM and adaptation. Whereas the discourse analysis draws on the qualitative data from the Q sort interviews, the quantitative data are analysed and interpreted separately in Chapter 6.

The interviews with policymakers, experts and practitioners, as well as the qualitative data from the Q study, enrich the interpretation of the formal framing. Personal opinions and insights offer a different interpretation of the policy documents, adding important contextual information which enables a new appraisal of the data. While formal policy documents are understood as representing a more abstract and theoretical discourse, the data from the interviews and the Q study reveal insights into day-to-day policy discourse and thus the more practical and applied side of water management.

5.1. Generic Framing: The Water Resources Management Discourse

This section examines the discursive framing of WRM in the Equatorial Nile Basin, notably the generic framing of WRM. Based on the distinction between generic and issue-specific frames (Chapter 2), the section starts with an analysis of the generic frames of the WRM discourse and then section 5.2 looks at the issue-specific framing of climate change and water security within the discourse. Figure 5.1 illustrates the connection between issue-specific and generic frames within the wider context of discourses about sustainable development.

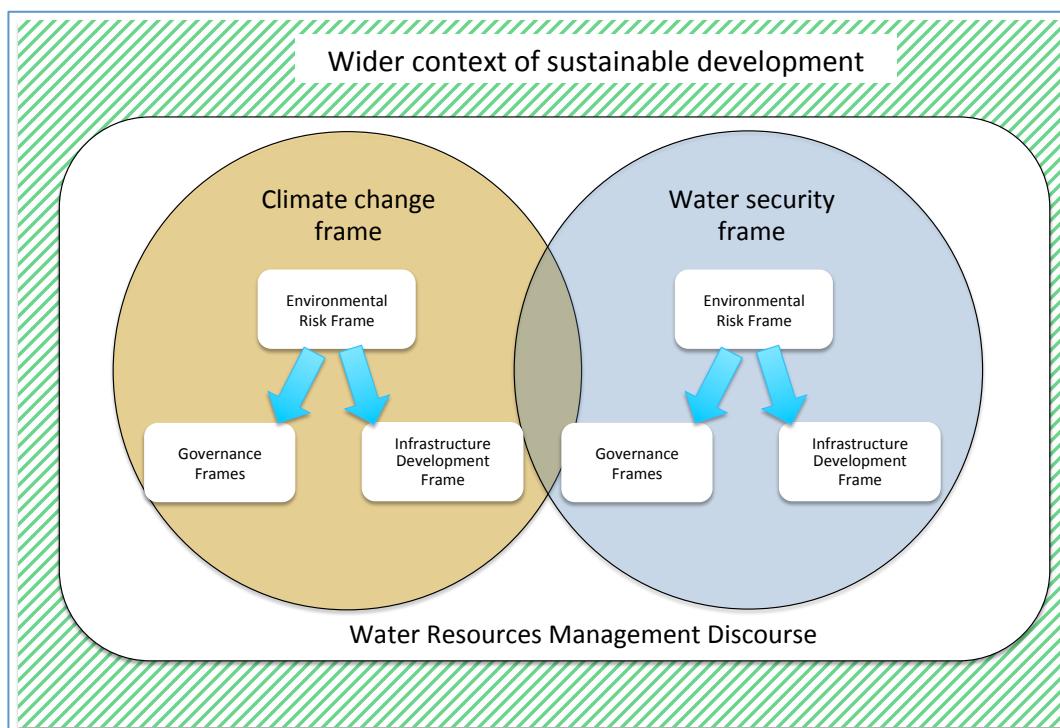


Figure 5.1: The relationship between generic discursive framings and issue-specific frames on climate change and water security

5.1.1. Environmental Risk Frame

Environmental factors are repeatedly framed within WRM discourse as risks to people's livelihoods. In the official documents and participant interviews, environmental conditions such as floods and droughts were common examples of negative impacts on water quantity, quality and access which negatively affect livelihoods. For example, the Strategic Plan of the Kenyan Water Resources Management Authority (WRMA) states:

Prolonged drought, coupled with the appalling state of the major water catchment areas, has caused drying up of rivers, springs and other water bodies. This state of affairs has caused crop failure and decimation of livestock units as well as wild animals thereby creating a state of famine and hopelessness to many ordinary Kenyans in the rural areas. (WRMA 2009b: i)

The framing of floods and droughts as environmental risks that threaten people's livelihoods was replicated in the semi-structured interviews with water managers and further underlined in the results of the Q study (Chapter 6). In the interviews, floods and droughts were portrayed as natural forces which cannot be influenced by humans, as this quote from a policy advisor to the NBI illustrates.

We have drought for very long, farmers cannot predict when to plant. Their crop development is disturbed. Then floods. [...] Floods are killing people. (NBI (a))

Droughts and floods were seen as threatening lives by destroying crops, leading to food insecurity. The environmental risks were framed as clearly identifiable, making it possible to distinguish a causal chain of events; for instance severe rain causes flooding, which threatens livelihoods by destroying the harvest, resulting in food insecurity and famine. This clear identification of a causal chain also enabled the framing of what is considered an adequate responses to such environmental threats, as the following quote by a Kenyan government advisor illustrates:

Drought is a serious issue. The problem is that drought and flooding go together: for a period of three months it rains and floods and after that most of the remaining months are dry. And unfortunately when it is dry, it is seriously dry. And where the animals need grass, the people need the crops, you find people over-concentrating [referring to high population density, N..]. This is really a serious place, in those areas, in those cases [meaning that this situation is a serious

challenge, N.H.]. So droughts and floods actually go together like this, and famine and hunger are a result, a consequence of that. (KE Gov(a))

Policy documents and interviews identified human activities and interaction with the environment as one of the main causes of environmental degradation and pollution; and in its turn, environmental degradation is framed as creating a negative feedback loop leading to the intensified use of natural resources and increasing the pressure on the environment. Within this neo-Malthusian framing, aggravated degradation due to population growth augments the risks associated with environmental factors such as more severe impacts of flooding which further undermine peoples' livelihoods (EAC 2001; EAC and LVBC 2007; EAC 2011b; NBI 2012a; WREM 2008b). This logic is exemplified in a quote from an interview with a technical advisor working for an INGO:

According to me the river is suffering because of catchment degradation and because of the changes in land use over the years. If our catchment was still pristine, as it was before, these extreme weather phenomena would not affect the river much. (INGO1 (b))

The interviewee saw the catchment as 'pristine' before humans degraded it and harmed the environment, which in turn has negatively affected their own livelihoods.

Related to the environmental risk frame, water managers understand their role as protecting humans from water-related hazards by managing the water resource. They aim to prevent or reduce the level of damage and harm caused by floods, droughts and other environmental factors. For example, the EAC's Fourth Development Strategy frames environmental degradation as a key threat to development and recommends the

design and implement[ation of] strategies to substantially minimise the impacts of [...] environmental degradation. (EAC 2011b: 54)

This task is directed at national governments and regional transboundary institutions. For instance, a senior policy advisor to the Kenyan government described his role as follows:

I am charged with the responsibility for ensuring that our water resources are managed, water resources like catchments are protected, and water resources

are available and developed – and to come up with policies and strategies that ensure equitable allocation of the water resource. (KE Gov (b))

In summary, in the WRM discourse there is a strong framing of environmental risks, such as floods and droughts, which present a threat to human livelihoods. WRM is framed as an important tool for protecting catchment areas to prevent or reduce environmental degradation and its negative effects on livelihoods. The water managers interviewed proposed a mix of improved governance (better policies, strategies and institutions) and enhanced infrastructure such as water storage capacity to prevent and reduce the impact of environmental risk on livelihoods. The next two sections present the framing of solutions around issues of governance and infrastructure development in detail.

5.1.2. Governance Frame(s)

The framing of the discourse on WRM emphasises improved governance as one solution to the perceptions of environmental risk discussed in the previous section. The governance theme centres on questions of who should manage the water resource and how, and thus relates to the institutional architecture of water governance (see Chapter 4). The framing consists of three sub-frames: *cooperation* between riparian states, the *decentralisation* of national water management; and stakeholder *participation* in sub-national water management. As such, the governance frames originate in the wider discourse on integrated water management (IWRM) based on international policy documents such as the Dublin Principles (section 2.3.2). As part of a theoretical approach to governance reform the three sub-frames are closely intertwined, looking at governance from different perspectives: in a decentralised system, authority is dispersed away from national governments to a more diverse range of stakeholders, which in turn makes stakeholder participation necessary. As this section demonstrates, the three frames do not exist independently of each other but only in combination. Below, the terms ‘governance frames’ and ‘sub-frame’ are used interchangeably to mean the combination of ideas about cooperation, decentralisation and participation.

5.1.2.1. Cooperation

In the context of WRM, *cooperation* is understood as the riparian countries' joint management of the transboundary water resource. For example, the Nile Basin Initiative's current Strategic Plan describes cooperation as 'efficient joint actions' between 'Nile Basin countries' (NBI 2012c: v). 'Cooperation' is also used to describe better coordination and collaboration within a transboundary institution or between different actors in national water sectors. Examples can be found in the LVBC's Strategic Plan's reference to the 'strengthening of LVBC cooperation with other EAC organs, institutions and stakeholders' (LVBC 2011a: 3); in the WRMA's Strategic Plan advocating the need to 'establish mechanisms to enhance cooperation and collaboration between different institutions in the water and related sectors' (WRMA 2009b); and in the Kenyan Annual Water Sector review, which promotes new cooperation between the Ministry of Irrigation and the Ministry of Public Health (Government of Kenya 2013: 77).

The NBI underlines how cooperation, framed as joint action between stakeholders or riparian states, improves 'the enabling environment' (NBI 2012c: v), is 'required for securing benefits from the common Nile Basin water resources' (NBI 2012c: v), and creates win-win solutions benefiting all parties. This framing relates to the concept of benefit-sharing as advocated in particular by the World Bank and other donor organisations (e.g. Sadoff and Grey 2005). The idea behind emphasising the mutual benefits that cooperation is supposed to bring to each riparian state, is to overcome political tension and deadlock over sensitive issues. As the World Bank Water Resources Sector Strategy puts it,

The basis for success must be a focus on sharing benefits, not on sharing water.

(World Bank 2004: 39)

The NBI incorporates this framing:

The level of cooperation has visibly improved from initial weariness to a strong and mutual sense that the cooperation is valuable and that it produces tangible, beneficial results. (NBI 2012c: 2)

This suggests that despite riparian states' 'initial weariness' (NBI 2012c: 2), they have tried and seen the evidence of positive tangible benefits, which in turn has strengthened their sense that cooperation is valuable.

In sum, cooperation is framed as necessary for efficient and effective WRM whether on a sub-national, national or regional scale, and for benefiting the various actors; therefore cooperation is in their own interest.

5.1.2.2. Decentralisation

As shown in Chapter 3, over the past decades there has been increasing focus on the decentralisation of national WRM in the basin (Hepworth 2009). Whereas this process was underlined in WRM policy documents in the EQNB, different interpretations of decentralisation emerged from the analysis relating to various aspects of the decentralisation. According to the World Bank (2008) there are three stages to decentralisation: *devolution* describes the most substantial level of decentralisation by including local stakeholders in the political decision-making process; *delegation* involves transferring some responsibility from the national to the subnational level; and *deconcentration* refers to increasing the number of administrative offices outside the political centre (for more details see World Bank 2008). In the water policy documents analysed, definitions of decentralisation ranged from 'decentralised decision-making' (Government of Tanzania 2002: 68), which refers to the devolution of government as the most ambitious form of decentralisation to 'decentralising responsibilities to the grassroots level' (WREM 2008b: 66); and to parastatal agencies such as the WRMA, which represents the delegation of responsibilities to the sub-national level; to 'decentralising operations to the field offices' (NEMA 2010: 37), which presents merely a deconcentration of responsibilities by transferring them to another administrative level.

In terms of *who* should manage the water resource, actors frequently mentioned include national ministries, regional transboundary organisations such as the NBI, and civil society actors such as NGOs and community organisations (for example see EAC 2006; Government of Kenya 2002; Government of Tanzania 2009). The analysed policy documents (table 3.3) mainly refer to the responsibility of government-related institutions, such as ministries, county governments or other regulating authorities, for managing water resources, and point out the need to involve stakeholders and communities in the process. The following quote from the Tanzanian National Water Development Strategy illustrates the strong focus on government-related actors, with only a brief mention of civil society in the form

of water users' associations. Whereas the quote refers to 'decentralisation', according to the World Bank's definition it presents an example of delegation, as it mainly describes delegating authority to local government institutions at the subnational level:

Firstly, the changing role of Government to that of co-ordination, policy and guideline formulation will be matched by decentralisation of implementation responsibilities to the local level. In the case of water resources management, the main management responsibilities will be decentralised to the Basin Water Boards, Catchment Water Committees, and to local Water User Associations. Regional Authorities will be represented in the Basin Water Boards, and Local Government Authorities in the Basin Water Boards and Catchment Water Committees. (Government of Tanzania 2008: 71)

Decentralisation in the Mara River Basin

In the context of WRM in the Mara River Basin, decentralisation is anchored in Kenya and Tanzania's national water policies. These legal documents outline the mandates of different national and local government institutions, defining their responsibilities and authorities (Government of Kenya 2002; Government of Tanzania 2009). Compared to the previously centralised management of the water resource, national water policies have strengthened the role of national and sub-national actors, delegating authority from national policy level to sub-national level. For example, as part of the reform process the Kenyan government has created the semi-autonomous Water Resources Management Authority (WRMA). The WRMA is a parastatal agency in charge of 'planning, regulating and managing water resources' (WRMA 2009b: 14), and thus implementing the Ministry's policy. The WRMA is the main institution of the Kenyan government, which interacts and supervises the WRUAs.

The push to decentralise water management has brought about the devolution of government authority to sub-national actors, including local government authorities, and the participation of stakeholders. The discourse emphasises the establishment of WRUAs in the sub-catchments of the Basin (further discussed in section 5.2.3. and Chapter 7). Both the decentralisation of authority and stakeholder participation are portrayed as improving communication between local communities and water management authorities as well as ameliorating

water supply and sanitation. A representative of a Kenyan NGO, for instance, underlined that in a decentralised water sector 'things are [no longer] done from Nairobi' (KE NGO1). Instead, agencies are geographically closer to the people which increases the visibility of government activities at the local level (KE NGO1).

Another interviewee, a technical advisor to a bilateral donor agency, commented on the shift in responsibilities from ministry to local government:

What is important is that more responsibilities are decentralised to the counties. [...] Now we have 47 counties. And they have in the new constitution more responsibilities, for instance in water supply and sanitation. (Donor1(a))

This framing of decentralisation as enhancing water management efficiency by bringing it closer to the communities is repeated in policy-influencing documents. For example, a review of the policy, legal, and institutional cooperative framework for the Mara River Basin (WREM 2008b) underlines the importance of decentralisation for effective water management. The framework review also emphasises that WRM can only be effective through a combination of cooperation, decentralisation and the participation of non-governmental actors in the policy process:

The success of the on-going water sector reforms is dependent on effective collaboration between all players in the sector. The Ministry is in the process of developing a comprehensive stakeholder mobilization and participation strategy that will seek to enhance the effective participation of all key stakeholders in water sector activities and generate consensus on the sector reform agenda and the implementation approach. [...] Decentralization of water resource management institutions is slowly entrusting the management of water resources to communities and the private sector. (WREM 2008b: 74)

The next section explores the third governance sub-frame, stakeholder participation, in more detail.

5.1.2.3. Participation

Policy documents emphasise the need to enhance stakeholder participation. Institutions such as the WRMA, the LVBC and the NBI frame stakeholder participation as ensuring the effectiveness and sustainability of WRM measures (WREM 2008b). In the LVBC's Strategic Plan, for instance, the rationale is that

participation of communities in WRM increases their sense of ownership and will thus enhance the sustainability of WRM measures:

Stakeholder participation: This will ensure enhanced involvement of stakeholders in the planning, prioritization, designing and implementation of projects and programmes for purposes of ownership and sustainability. (WREM 2008b: 74)

While the framing of water policy documents revolves around technical aspects of the cooperation of actors on a regional scale and the decentralisation of national water sectors, in interviews with policymakers and practitioners there was a stronger emphasis on the participation of stakeholders through WRUAs, which they linked closely to decentralising the water sector, which in turn was framed as a key component of improving WRM. One interviewee working for a bilateral donor agency remarked:

Because I strongly believe for instance in these local resource groups, the WRUAs for instance, and they can have an important role as well. It's nonsense that you can think that everything can be arranged from [the centralised system in Nairobi]. We see it. It cannot be done. (Donor1(a))

Participation in the Mara River Basin

The establishment of WRUAs is an example of how a global discourse influences water governance at various policy levels.¹⁷ In the Mara River Basin, Kenya and Tanzania decentralised their national water sectors and introduced Water (Resources) Users Associations in their water policies (for example compare Government of Tanzania 2008: 41; NELSAP 2012b; WRMA 2009b: ii). On paper the Kenyan WRUAs and Tanzanian WUAs share the same functions. The purpose of a WRUA is to collaboratively manage the resource and resolve conflicts over shared water at sub-catchment level (LVBC 2011a: 15). The aim of WRUAs in Kenya and Tanzania is twofold: to improve water management in terms of water access and quality and catchment protection, and to act as a

¹⁷ In the Kenyan Water Act community groups are called 'Water Resources Users Associations' (WRUAs), whereas the Tanzanian Water Act names them 'Water Users Associations' (WUAs).

peace-building institution to prevent and resolve conflicts over the shared resource (Government of Kenya 2002; Government of Tanzania 2009).¹⁸

Kenya reformed its water sector in 2002, decentralising the system and emphasising the need for stakeholder participation in the management of national water resources (Government of Kenya 2002; Government of Tanzania 2009).

The official framing of WRM in government policy documents has been a story of progress and success since the reform. For example, the activity and involvement of WRUAS is reviewed in the Kenyan government's 2011-2012 Annual Water Sector Review. The document shows that the number of WRUAs in Kenyan river basins has steadily increased and that they are in charge of 'guarding the resource through catchment protection and water conservation activities' (Art. 15, Government of Kenya 2002; Art. 88, Government of Tanzania 2009). The report suggests that since the number of WRUAs has increased so have their activities, improving the protection of water resources in Kenya. The review implies that a greater number of WRUAs indicates greater stakeholder participation.

Policy documents and reports such as the Kenyan government's Annual Sector Review fail to acknowledge the challenges facing WRUAs. Instead, their implementation is pictured as a success story, with the increase in the number of WRUAs proof that the water sector reform is working. Representatives of NGOs and researchers have criticised the Kenyan government's call for stakeholder participation as mere lip service, pointing out that while WRUAs were framed around stakeholder participation in order to empower local groups, their functions in the implementation process do not reflect this aim sufficiently (KE NGO1, KE Consult1, INGO2 (a)). A civil society representative complained that instead of giving WRUAs a voice and including them in decisions about local water resources (Government of Kenya 2002), the Kenyan government and other institutions such as the NBI claim to promote stakeholder participation but in fact exclude WRUAs from political decision-making when government interests do not align with theirs (KE NGO1). For example, the interviewee criticised how institutions such as the NBI and the Kenyan government did not consult local

¹⁸ The WRUAs' objectives link with the definition of water security, namely ensuring sufficient water in terms of quantity, quality and access (see Chapters 5-6). In addition, water security is often connected with the securitisation of water, which relates to the potential for conflict over a scarce water resource. The second aspect of water security, which relates to potential conflict over the resource, is also acknowledged in the WRUA approach, as it emphasises the WRUAs aim to prevent conflict over the water resource.

stakeholders about their needs and wishes regarding dams and a sewage plant in the Sio-Malaba-Malakisi, another transboundary sub-catchment of the Equatorial Nile Basin.

The WRUAs were often discussed in very technical terms; for example interviewees debated the best structure for WRUAs and sub-WRUAs, the right catchment size per WRUA to enable them to manage the resource effectively, and the availability of and access to funding (KE Gov(a); KE NGO1; Donor1(a); INGO1 (a); INGO1 (b)). A representative of an INGO involved in advising WRUAs reflected on the process of setting up WRUAs in the Mara River Basin, such as the optimum number of members and the size of the catchment they should manage:

In terms of WRUAs we have the umbrella Mara WRUA that is in Mulot. The mobilisation started in 2003 for transformation and over the years we've seen the need for additional WRUAs at the local level, because we've realised that the Mara River is too big for one WRUA to incorporate all stakeholders in the basin. (INGO1 (b))

The process of establishing WRUAs, as an interviewee from a bilateral donor agency explained, is not without difficulties. For instance, complications have occurred with specific membership of WRUAs. The interviewee related how, in a smaller sub-catchment of the Lake Victoria Basin, WRUA members were dispersed over a large area and various communities and therefore did not belong to the WRUA which was in charge of managing the catchment in which they lived. Reasons for the dispersion were that for example WRUA members had moved to another catchment area but still retained their WRUA membership with the previous catchment area, or extended family members all joined the same WRUA disregarding in which catchment they lived. This resulted in the need to reorganise the members of WRUAs (Donor1(a)).

The different stages of WRUA implementation between Kenya and Tanzania in the Mara River Basin are a challenge for successful stakeholder participation. Difficulties in the transboundary coordination of WRUAs/WUAs have manifested themselves at sub-national level. In a focus group discussion with members of the Mara Umbrella WRUA and various Kenyan sub-WRUAs it surfaced that it is not easy for Kenyan WRUAs to engage with Tanzanian WUAs. While the function of the Mara umbrella WRUA is to coordinate the activities of all WRUAs in the Mara

River Basin and advise them on WRM, it is often too far and too expensive for Tanzanian WUA members to travel to Narok, Kenya, where most meetings of the umbrella WRUA are held (FCG1). This suggests that while there are WUAs in Tanzania, their level of engagement is lower than that of Kenyan WRUAs. Possible factors contributing to this mismatch are lack of political will and clout, lack of funding, insufficient cooperation and coordination between the two governments and other actors (civil society, NGOs) in the basin, and insufficient implementation of an overarching political framework (Government of Kenya 2013: 38). Furthermore, Tanzanian policymakers' apparent reluctance to decentralise water management and involve stakeholders in the process might relate to the country's post-independence political history, which, in contrast to Kenya, was marked in 1967-1985 by a one-party system according to the socialist model, which was highly centralised. Even though, the Tanzanian constitution has embraced a multi-party system since the mid-1980s, its political system still bears traces of the formerly-centralised one-party system with its strong hierarchies. Further research is needed to test the hypothesis, that the political history of Tanzania is a hindering factor for the implementation of WUAs.

A number of interviewees mentioned the empowerment of communities as the main objective of stakeholder participation in water management (KE Gov(a), LVBC(a), LVBC(b), Donor1(a)). However, the implementation of this process did not always resemble the initially-stated goal. For example, a WRMA employee described WRUAs as a way of engaging communities in resource management, explaining that WRUAs were asked to come up with a 'catchment management plan' in which they proposed their own targets and suggested activities to reach these targets (KE Gov(a)). WRUA members first received training through the WRMA, and in the design phase of the catchment management plan technical staff from the Kenyan government advised them on their plans. The WRMA's technical advisor underlined the positive outcomes of this participatory process, namely that as a result of designing the catchment management plans themselves WRUAs now have 'real activities and targets'. The interviewee gave the following examples of proposed WRUA activities:

[The WRUAs] had wanted to expand determination of the river flows for the Nyangores River [a tributary to the Mara River Basin], control 3 non-point and 7 point pollution sources. Things such as that. [The catchment management plan]

says [WRUAs need to] assess flows in the Nyangores catchment, form teams and [engage] key specialists in key components in environmental flow assessment. (KE Gov(a))

The WRMA employee framed the participation of the WRUA around data collection, the assessment of flows and controlling pollution. The idea of empowering communities to influence decisions on water management and make their voices heard seemed secondary. The WRUA's involvement is framed as technical, relating to the original work of the WRMA itself. As an institution the WRMA has in the past monitored and assessed river flows. One possible interpretation of the transferral of tasks from the WRMA to local sub-WRUAs is that decentralisation further pressurises the agency and creates a need for additional staff and technical capacity (WWF 2012). It appears that the WRMA increasingly relies on local communities to monitor and assess river flows themselves and then feed the data back to the agency to enhance the overall capacity for water monitoring, assessment and resource management.

Despite an ambivalent understanding of what WRUA participation should entail, their establishment in the Mara River Basin is perceived as a positive change by policymakers, the private sector and local WRUAs such as (WWF 2012). In a focus group discussion with members of various Mara sub-WRUAs and the umbrella Mara WRUA, research participants expressed their concern about water pollution, especially by plastic, paper and waste dumped in the river. While the catchment management plan is largely written in technical jargon, which suggests the influence of technical advisors from agencies such as the WRMA or other experts, it nevertheless seems that the catchment management plan addresses some of the WRUA's needs and concerns. For example, in the focus group discussion research participants described WRUAs' responsibilities primarily as 'the conservation, preservation and protection of the river basin', the control of soil erosion and organisation of river cleaning, such as by collecting plastic and other waste from the river or its bank to reduce pollution (FCG1). These aims are emphasised in the catchment management and activities are specified in the plan, including river cleaning. However, it was unclear whether the WRUA had these goals before the consulting process, or actors such as WRMA or technical experts have informed WRUA goals. Some of the WRUAs have carried out river cleanings in recent years, collecting waste in the river. At the time of the research

(summer 2012) these activities were not being executed, despite focus group participants expressing their motivation for cleaning the river as they perceived it as beneficial to the quality of the water and because it raises awareness of river pollution and its negative health and environmental impacts (FCG1). According to the focus group participants the river cleanings had not been carried out due to a lack of funding (FCG1). Whereas the catchment management plan acknowledges that WRUAs need to raise their own funds, it omits information about the WRUAs' difficulties in identifying, applying for and accessing available funding.

In sum, the stakeholder participation frame is closely connected to the decentralisation frame. However, the reality of implementation of stakeholder participation, as exemplified by the implementation of WRUAs in the Mara River Basin, does not entirely match the stated aims. Whereas the policy actors framed participation as empowering local communities by involving them in water resources management and increasing their sense of ownership, it does not appear that the implementation of WRUAs has integrated local communities into political WRM decision-making processes. Nevertheless, WRUA representatives emphasised that despite the many remaining issues their activities have improved local awareness of WRM and local water quality (FCG1).

5.1.2.4. Lack of funding as an obstacle to governance reform

The governance frame also mentions obstacles which hinder the effective governance of the resource. The most frequently mentioned obstacle and a key problem is the lack of funding to implement technical measures to reduce environmental risk, such as building and improving water storage infrastructure. Secondly, creating new institutions or enhancing the capacity of existing ones (such as by hiring more staff and increasing the institutional budget) are framed as vital in the discourse, which argues that more funding is needed for these enhancements to improve the governance of the river.

This framing was also found in the context of stakeholders' participation through WRUAS. The process of WRUA implementation started with setting up the WRUAs and creating institutional frameworks, then training WRUA members and enhancing their skills to enable them to manage their local water resources. Some WRUAs had started with implementing water management activities, though interviewees and policy reports alike pointed out that WRUA activities mainly

depended on the availability of future funding. The following quote illustrates this perception which is common to water managers:

From when the [2002 Kenyan] Water Act was enacted there was a need to form WRUAs that had been struggling to get all the institutions in place. What we [an international NGO] did during the first phase of the project, we were forming these institutions [WRUAs] and training them and building capacity and doing some pilot projects with them, to go for best land management practices. Now they are at a point where they have all this knowledge. They have the capacity to implement what they are supposed to implement. But the problem now is their capacity, in terms of their financial capacity and governance. Of course the number one factor here is financial capacity. They won't go very far without being able to sustain their activities on the ground and themselves. (INGO1 (b))

The perception that WRUAs have received the necessary training but lack funding to take their activities forward was confirmed by several WRUA members in a focus group discussion (FCG1). Two representatives of a Mara sub-WRUA mentioned that they had organised river-cleaning activities in their WRUA but had not been able to do this recently due to a lack of funding. They also emphasised that despite the fact that their sub-catchment management plan was ready they were now waiting for 'well-wishers' to fund the activities indicated in the plan (FCG1). A more detailed reflection on community WRM through WRUAs in the Mara River Basin follows in Chapter 7.

Further gains in efficiency and cost-effectiveness were expected from the involvement of the private sector (e.g. Government of Tanzania 2002; USAID 2013a; WRMA 2009b). Private sector involvement is especially supported in the context of local of water supply and sanitation, as the Tanzanian Water Sector Development Strategy illustrates:

The institutional framework for water supply, sewerage and sanitation will be clarified and streamlined to meet the challenges of efficient and cost-effective provision of services, and the roles and responsibilities of the different stakeholders will be clearly defined so as to ensure the participation of stakeholders. The framework will encourage the participation of the private sector where such involvement results in greater efficiencies and cost-effectiveness. (Government of Tanzania 2008: 41)

As a technical advisor to a bilateral donor agency confirmed, most water policy documents as well as in interviews with practitioners portrayed stakeholder participation as key to improving WRM without critically reflecting on the variations in political leverage and abilities to influence decision-making (Donor1(a)). There is an assumption inherent in the participation frame that once communities and local stakeholders are more involved in the decision-making process WRM will become more effective and efficient, leading to improved local water access and availability. This framing ignores the fact that stakeholders can also involve international companies, such as Lipton or Unilever, in the example of the Mara River Basin, which have more technical capacity and knowledge than WRUAs and thus put local communities at a disadvantage in participative decision-making (Donor1(a)). Critical discussion of the inherent assumptions in the participation frame follow in Chapter 7

5.1.3. Infrastructure Development Frame

Infrastructure development is framed as one of the solutions to WRM challenges. While environmental risks are framed as clearly identifiable environmental threats to health, livelihoods and economic growth, infrastructure development is framed as appropriate responses to these risks. Proposed technical measures include constructing new or enhancing existing infrastructure such as for dams for water storage and irrigation.

The infrastructure development frame is dominant in policy documents. In particular the Subsidiary Action Programmes of the Nile Basin Initiative emphasise the development of infrastructure, as the current strategy of NELSAP exemplifies. The discursive argument points to the inadequacy of the infrastructure to address shocks such as flooding and drought which are causing a lack of water services and electric power and are further aggravated by climate change. The framing highlights investments in energy production and transmission infrastructure as successfully facilitating transboundary cooperation. Furthermore, the document stresses that the '[b]enefits to the Nile Basin are immense' (NELSAP 2012b: 12) and calls for the establishment of financial sustainability so that the Nile Basin can benefit even further.

The framing suggests a linear trajectory to solve WRM problems: investing in infrastructure will solve issues around WRM. The greater the number of such

technical measures implemented, the better and more effectively WRM issues will be addressed, in turn reducing political tension and enhancing cooperation. This framing is observed in Kenyan and Tanzanian government policy documents. For example, the WRMA strategy first establishes that water resources are vulnerable, leading to inadequate water access and supply. The report states that 'current water storage levels [are] low and need to be increased to meet the growing demand for water'. New water infrastructure to address these challenges will require 'heavy investment' (WRMA 2009b: 6).

The Tanzania WSDS draws similar conclusions. High population growth and growing economic performance are causing increased water demand. The WSDS points out:

This rapid population and economic growth has not been accompanied by an equivalent rate of development in water infrastructure and services. (Government of Tanzania 2008: 34)

This is framed as the cause of increasing 'competition over water' and 'conflicts between natural uses and man-made uses' (*ibid*). According to this logic more investment in water infrastructure is needed to resolve this situation and prevent conflict over water.

Apart from transboundary institutions and national governments, donor agencies such as the World Bank also frame investment in water sector infrastructure as the solution to many problems. The World Bank's Water Resources Strategy, for instance, highlights the strong evidence – as 'numerous assessments have documented' – of 'huge financing needs for water-related infrastructure in developing countries' (World Bank 2004: 43). The World Bank (*ibid*) further argues that given the 'broad consensus among developing countries', investment in water infrastructure is needed by both national governments and the private sector.

The framing of WRM suggests that the more money is invested in the water sector the better the WRM and the more effectively environmental risks can be addressed. The same logic of greater financial capacity equals better water management was also detected within the governance frames, as discussed in section 5.1.2. The governance frames around decentralisation and stakeholder participation are also reflected in this context. Through the advocacy of more

private investment in the water sector, framed as stakeholder participation of private actors, national governments' aim to reduce their costs and responsibilities.

However, there is evidence that the framing of investment in water infrastructure is changing. As the topical Lake Victoria Basin Commission's Strategic Plan points out under 'Lessons learned':

Positive change at the community/society level is not dependent on the level of investment but on local governance and community participation. (LVBC 2011a: 8)

This suggests that the prevailing logic of more investment automatically equals improved water management and livelihoods might be re-examined, and suggests greater awareness of the importance of social and governance processes in WRM. Whereas national government representatives and advisors to transboundary organisations also note the lack of infrastructure as one of the key WRM concerns in interviews (e.g. KE Gov(a), NBI (d), Journalist), this framing of technical innovation and the need to invest in infrastructure as the main concern were less prominent in the interviews, where participants saw the governance frames (section 5.1.2.) as more relevant to improving water management. Nevertheless, investment in infrastructure was important to the interviewees, as revealed in the Q study in which they related adequate water infrastructure directly to 'being water-secure' (Chapter 6). In the discursive framing there was therefore a strong link between water security issues relating to either political instability or sufficient water, and the development of infrastructure as a way of addressing these issues (see section 5.2.2.).

5.2. Issue-specific Framing: Climate Change and Water Security

The following section explores the issue-specific framing of climate change and water security within the discourse of WRM in the Equatorial Nile Basin. The generic frames discussed in section 5.1. are applied to climate change and water security here. The following section starts by examining the climate change frame, which of late has drawn much attention from water managers in the Equatorial Nile Basin (section 5.2.1.). Subsequently the framing of water security is analysed, including discussion of why the water security frame seems to be inconspicuous

in WRM discourse despite its importance in international negotiations (section 5.2.2.).

5.2.1. Climate Change Frame

Similar to the generic framing of WRM, the climate change frame incorporates aspects of the environmental risk frame, the three governance frames and the infrastructure development frame. This section observes how the generic frames are applied to match the context of climate change.

5.2.1.1. Climate change as an environmental risk

In policy documents climate change is framed as an environmental risk exacerbating existing environmental risks, and as a threat to sustainable development (EAC 2011a; Government of Kenya 2010; NBI 2012a; Nile Basin Development Forum 2011b; United Republic of Tanzania 2007 among others). For example, the relevant chapter in the recently published NBI State of the River Nile Basin report opens with the headline 'Climate Change: An Emerging Threat' and continues:

Climate change is a serious threat, with potentially very adverse impacts on the socio-economic conditions in the Nile Basin, on its environment, and on the ongoing efforts to establish mutually agreed upon mechanisms to manage the shared Nile water resources. (NBI 2012a: 207)

Climate change is commonly framed in the same context as other environmental risks such as environmental degradation, soil erosion, deforestation, pollution, etc, as Kenya's Environmental Agency's strategic plan illustrates:

The major challenges under environment include environmental degradation, decreasing forest cover, deterioration of water quality and quantity, pollution and waste management, impacts of climate change and global warming, inadequate adoption of biotechnology and lack of integrated environmental planning strategy towards attaining the sustainable development objective. (NEMA 2010: 26)

Not only is climate change framed as an environmental risk or threat but also its adverse impacts are seen as already present, or as the NBI report puts it: 'Climate Change is Real' (NBI 2012a: 208).

The framing of climate change as a present environmental threat is found in WRM documents at all policy levels from documents by regional actors such as the NBI and the LVBC to those of national governments, donor agencies, NGOs and local water management groups (EAC 2011a; Government of Kenya 2010; Government of Tanzania 2008; LVBC 2011a, 2011c; MRWUA 2011; NBI 2012a; Nile Basin Development Forum 2011a; SIDA 2010; USAID 2013a). A quote from the Kenyan Climate Change Policy demonstrates this framing:¹⁹

It is universally accepted that climate change is one of the greatest challenges facing humanity this century. In Kenya, this phenomenon is already unmistakable and intensifying at an alarming rate as is evident from countrywide temperature increases and rainfall irregularity and intensification. (Government of Kenya 2010: 5)

In the documents and interviews there is a direct association between climate change impacts and water resources and changes in the quantity and timing of water availability. For instance, as the Third Report of the Nile Basin Development Forum observes:

Previous studies indicate that climate change will have considerable negative impacts on the quantity and quality of the Nile waters and related natural resources. As a consequence, human livelihoods and development in the riparian countries could be adversely affected. (Nile Basin Development Forum 2011a: 2)

Tanzania's Water Policy also links variations in climate and rainfall to 'the water stress situation', which is further 'exacerbated by the global effects of climate change.' (Government of Tanzania 2002: 30)

In addition to anticipated variations in precipitation, the following physical impacts are mentioned as part of the climate change frame: higher evaporation and evapotranspiration, increased frequency and intensity of floods and drought, higher air and water temperatures (with various negative consequences such as an increase in water-borne diseases), sea level rise and melting glaciers (NBI

¹⁹ Even though some of these documents specifically focus on climate change and are not directly related to WRM, WRM documents refer explicitly to these policies. For example, the 4th EAC strategy only briefly mentions climate change, emphasises that the EAC is conscious of its negative impacts and then refers to the EAC's Climate Change Policy for further information and guidance (World Bank 2013). Thus this section on climate change framing also includes such relevant climate documents in the discourse analysis as they are of great relevance to WRM in the basin.

2012a). Despite this extensive list of predicted physical climate change impacts, most water policy documents simply refer to the 'adverse impacts of climate change', stating that climate change is a concern that should be addressed (EAC 2011b; Government of Kenya 2013; Government of Tanzania 2008; LVBC 2011a).

Like the policy reports, the interviewees perceived climate change as a threat that is already present and needs to be addressed with urgency. This links to the results of the Q study (presented in Chapter 6) in which a policy advisor to the Kenyan government responded to the question asking whether he thought climate change has had positive effects in East Africa:

No! I strongly disagree. It will really spoil this economy, and if we don't check it we are dead, all of us. All of the East African community will die – socially and even economically. (KE Gov(a))

In the semi-structured interviews, representatives of NGOs agreed with the framing that climate change has already had negative impacts on local communities (e.g. KE NGO1, INGO2 (a), INGO2 (b)). While most participants agreed that climate change has had negative socio-economic impacts, others remarked that climate change is a diversion from the real issues (Journalist), referring to the political deadlock in negotiations over the allocation of Nile waters. This aspect is discussed further in Chapter 7, looking at the relationship between dominant and alternative framings and the influence and motivation of the various actors forming discursive alliances.

5.2.1.2. Addressing climate change through improved governance and investments in technology

Climate change is framed as an environmental threat parallel to the generic framing of environmental risk. To address this threat the framing of climate change revolves around improved governance and investment in technical solutions. Improved governance measures such as better policies and institutions and capacity-building are advocated in policy documents and by interviewees alike. For example, in both the Q study and the semi-structured interviews participants argued that climate change should be urgently addressed by creating better policies and helping local communities to adapt and become more resilient to its impacts:

You need to adapt, you need to put in some measures that make you more resilient. [...] [Climate change] is real, I mean how can we wait? [...] We really need those policies as urgently as yesterday. (KE Gov(a))

I agree [that climate change needs to be included in policies]. Why do I agree? Yes, because it is an emerging issue, it's a new challenge that can affect, that can erode all the things that we have done. (KE Gov(b))

Phrases such as 'no-regret' measures, 'climate-mainstreaming', and 'climate-proofing' development projects were used to describe approaches to addressing climate change in the water sector. In the State of the Nile Basin Report (2012a), the NBI defines 'no-regret' measures as actions

that build resilience to current climate variability while enhancing adaptive capacity. (NBI 2012a: 218)

Within the issue-specific framing of climate change, proposed 'no-regret' measures are framed under two generic frames – improved governance and infrastructure development. Governance measures include strengthening human and institutional capacity, enhancing the integration of markets in the region and fostering intra-basin trade, diversifying economies and livelihoods, and expanding scientific understanding of climate change impacts through intensified data collection. In terms of developing infrastructure, the framing centres on increasing water-storage capacity and hydropower production and investing in power transmission lines (NBI 2011a, 2012a; NELSAP 2012a).

The infrastructure development frame centres on measures such as enhancing water storage and stabilising the energy supply, and refers to these measures as 'climate proofing' development. The term 'climate mainstreaming', meaning the inclusion of climate change in policies and measures across all sectors, is used as part of the governance frame.²⁰ In governance terms this relates to building and expanding institutions and their adaptive capacity and other socio-economic initiatives such as building new trade relations between riparian countries.

²⁰ For example, the EAC mentions in its Climate Change Policy the 'climate proofing of social infrastructure' (EAC 2011b). A policy advisor to the Nile Basin Initiative also mentioned the term in the context of 'climate proofing investments' (NBI (d)) and linked it to 'climate mainstreaming' as part of 'climate change adaptation mainstreaming'. 'Climate proofing' has been advocated as a term by the German Development Cooperation (formerly GTZ), for example see EAC (2011a: ii)

The proposed responses to climate change mirror undertakings to improve transboundary water management. The dominant framing is that climate change simply exacerbates pre-existing WRM challenges and hence the measures proposed under the WRM frame are considered adequate to address climate change. For example, the Kenya's WRMA states:

Increasing water demand coupled with adverse effects of climate change means that the future of water supply is not secure. Effective management and protection of water resources, investing in more water storage infrastructure and increasing water use efficiency are therefore inevitable. (WRMA 2009b: ii)

As under WRM, the climate change frame includes an emphasis on the need for joint action and improved cooperation between the Nile riparian countries to address climate change, for more efficient and sustainable water management, which in turn will enhance communities' resilience in the face of adverse impacts of climate change (NBI 2011a: 15).

5.2.2. Water Security Frame

The framing of water security incorporates two of the three generic frames in WRM discourse: environmental risk and infrastructure development. In contrast to the generic framing of WRM and the issue-specific framing of climate change, governance aspects are not part of the water security frame. Instead, there is a strong focus on the development of better infrastructure within this frame and the water security frame is much less prominent than the climate change frame. This is demonstrated in graph 5.1., which shows the number of times that the term 'climate change' is referred to in relevant policy documents compared to 'water security' and 'food security'. The graph shows that climate change has rarely been mentioned since 2004 but spiked in 2010-2011 with an abrupt decline in 2012-2013. In comparison, water security is hardly mentioned at all and related concepts such as food security have received slightly more attention in policy documents. The two issue-specific frames are compared further in section 5.3., with a discussion of why the water security frame is less noticeable in the discourse.

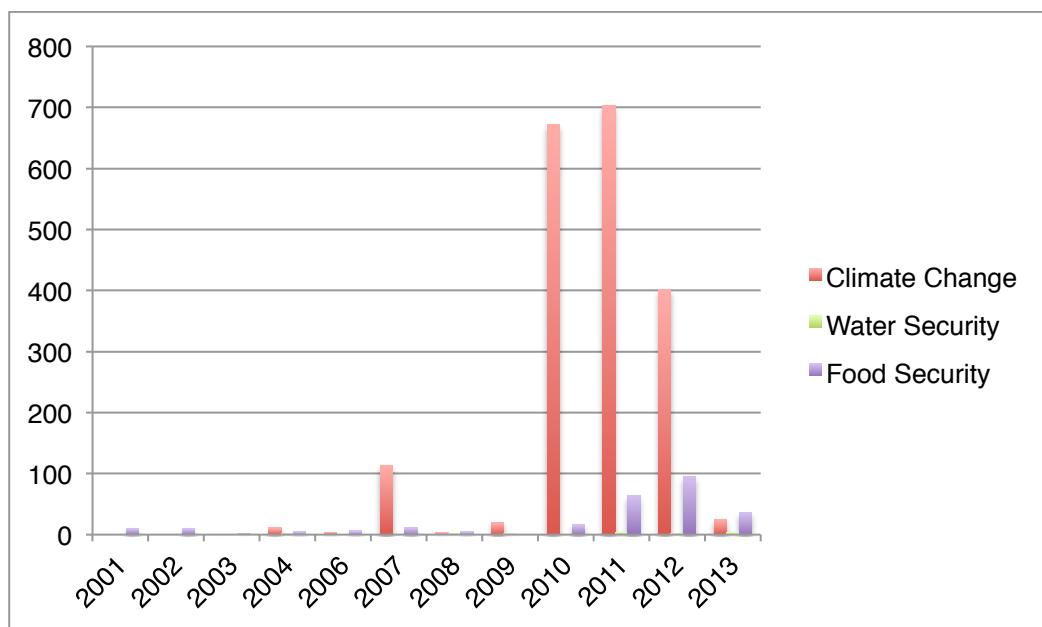


Figure 5.2: Frequency of use of the key terms 'climate change', 'water security' and 'food security' in policy documents.²¹

Within the generic discourse on WRM the term 'security' is mentioned in two contexts, most often with reference to 'food security' and less frequently linked to other types of natural resource security, e.g. 'energy security', 'water security', as illustrated by the following quote:

However, the growth in agriculture as envisaged in the National Irrigation Master Plan could only be achieved with increased irrigation and this will have a significant impact upon the already vulnerable water resources. Thus specific planning and water allocation measures need to be taken to promote the objectives for food security and to ensure that irrigation does not come into conflict with other uses of water resources. (Government of Tanzania 2002: 21)

Here the phrase 'security' means being self-sufficient regarding the resource and having adequate access to food or water, for example, in order to meet all the needs of society. This definition of the term overlaps with the outcomes of the Q study, in which all the participants understood water security to mean the availability of water in sufficient quantity and adequate quality to meet all human and environmental needs (Chapter 6). This seems to be the most common definition of water security, as the outcomes of the Q study and the semi-structured interviews with water managers suggest.

²¹ See table 3.3. for details of the documents.

The second context in which the term 'security' is used in water policy documents relates to classical security concerns about conflict over water. However, this interpretation is rare in the examined policy documents and interviews. For instance, one NELSAP document linking 'water management' and the key word 'security' with ideas of conflict and peace stood out:

The Nile Basin Initiative (NBI) is a partnership among the Nile riparian states. It seeks to develop the river in a cooperative manner, share substantial socioeconomic benefits, and promote regional peace and security. (NELSAP 2012b: 10)

The Kenyan WRMA states that water insecurity has increased due to 'social, economic and environmental factors', further reducing freshwater availability. The agency concludes that exacerbated environmental risks causing water insecurity will increase conflict between competing water users.

[W]ater security cannot be achieved by focusing on water services alone. [...] This trend is caused by diverse factors ranging from social to economic and environment. [...] This has resulted in accelerated soil erosion and siltation of water resources, pollution and conflicts among competing uses of water. (WRMA 2009b: iii)

Despite infrequent mention of water security in the analysed policy documents (see figure 5.2), by widening the analysis of water policy documents further use of the framing around 'water security' in the context of conflict and instability was found. The Water Sector Strategy of USAID, one of the key actors in water governance in the Mara River basin, emphasises the danger of instability due to 'water problems' and affirms the importance of water security for political stability.

As indicated by the 2012 Intelligence Community Assessment on Global Water Security, water problems will contribute to instability in countries important to U.S. security interests. Water security is an increasingly important component of the U.S. Government's diplomatic and development efforts to promote peace and security within and between key countries and around transboundary river basins. (USAID 2013a: 4)

5.2.2.1. Water security as an environmental risk

The issue-specific framing of water security corresponds to the overall discursive structure of WRM. The first two of the three identified generic frames

(environmental risk, infrastructure development and governance frames) were observed in the water security frame. Whereas the environmental risk frame is applied to create a sense of threat and thus urgency in addressing water security issues, solutions to this challenge are framed solely around infrastructure development and further investment. For example, NELSAP's strategic plan states:

Improved water storage plays an important role in building water security. Water security will be the cornerstone of climate resilience and a critical component of adaptation. Without improved water security, NEL countries will be highly vulnerable and have limited scope for adaptation to changing variability and availability of water. (NELSAP 2012b: 47)

WRMA includes climate change as a factor that threatens water security and, further, increases the perception of environmental threat:

In addition a comprehensive climate change information gathering will be conducted to assess the vulnerability of our country's water resources to potential climate change impacts which will assist in formulating a climate change adaptation and mitigation strategy as part of a water security program. (WRMA 2009b: 21)

The WRMA is not the sole actor framing water (in)security as linked to climate (change). This is a common frame amongst actors in WRM in the Equatorial Nile Basin. For example, the Tanzanian government employs a similar approach, connecting security concerns with vulnerability, which it sees climate variability exacerbating. Under the headline 'Security and vulnerability', Tanzania's water policy states:

The poor are particularly vulnerable to floods and droughts since they often live in areas such as floodplains or steep slopes. People's vulnerability to climate variability and resource degradation would be reduced by investing in strategies that limit and control floods and provide water storage for droughts. (Government of Tanzania 2002: 8)

5.2.2.2. Water security through infrastructure development

As shown earlier, the environmental risk frame presents the foundation of the governance and infrastructure development frames. The framing of infrastructure development and the improved governance of water present solutions to the

threat and urgency that the environmental risk frame presents. This discursive structure is found in documents by the Government of Tanzania (see quotes above) and NELSAP, for instance. NELSAP also frames infrastructure development as the answer to improved water security:

Improved water storage plays an important role in building water security.
(NELSAP 2012b: 47)

The frame around infrastructure development also includes the need for more investment in infrastructure. The assumption that prevails is that the more money is invested in infrastructure, the more water security will improve. The Tanzanian National Water Policy demonstrates how water insecurity is framed as a result of a lack of infrastructure (Government of Tanzania 2002: 30):

The hydraulic variability also results in constant economic risk, and managing this extreme variability requires considerable societal adaptation and high levels of investment and skill. Water insecurity is compounded by inadequate construction of water storage reservoirs, including rainwater harvesting systems, lack of inter-basin transfer systems, as well as inadequate exploitation of available groundwater resources. (Government of Tanzania 2002: 30).

This view that more investment in infrastructure development will resolve water insecurity is also part of the generic framing of WRM. The World Bank's Water Strategy emphasises the need for further investment in water infrastructure development in developing countries. In its report it underlines that there is a 'broad consensus' that additional funds are needed in order to build the 'required infrastructure' (World Bank 2004: 43). This logic suggests that additional financial investment improves water security (as part of WRM).

Whereas the environmental risk and infrastructure development frames can be observed in the debate around water security in the EQNB, none of the three governance frames was found in the issue-specific framing of water security. This is not to say that there are no governance frames as part of the global and ongoing debate on water security. Many international actors such as the Global Water Partnership continuously develop the debate on water security and emphasise the governance challenge it presents (AMCOW and GWP 2012; GWP 2000a). Section 5.3 discusses hypotheses as to why governance frames are absent from the framing of water security, despite the importance of governance framings for Nile riparian countries and the lively international policy debate on

water security, which highlights governance challenges. Regardless of what the numerous quotes presented in this section might suggest, the term 'water security' is largely absent from the discussion of WRM in the EQNB (see graph 5.1). This is particularly surprising, given its similarity to the debate on climate change, which has gained momentum in the basin over the last five years. The following section reflects on the dominance of the climate change frame in EQNB discourse on WRM and embeds it in the wider political context of the discourse.

5.3. Discussion and Conclusion

So far the analysis presented in this chapter has shown that the WRM discourse is structured around the three generic frames of environmental risk, governance and infrastructure development. A similar framing structure was observed in issue-specific framing around climate change and water security as part of the wider WRM discourse. The analysis has unravelled the structure and content of each of the generic frames within the discourse on WRM. A second step has examined the issue-specific frames of climate change and water security. The analysis has found that the generic frames are replicated within the issue-specific framing. In the context of the climate change frame, the discourse first establishes climate change as an environmental risk and frames responses according to the governance frames (i.e. cooperation, decentralisation and participation) and the infrastructure development frame. There is greater emphasis on governance framing than on infrastructure development framing within issue-specific framing on climate change. Overall the analysis has demonstrated that during the research period climate change emerged as a discursive frame within WRM discourse and has lately claimed increasing attention from water managers.

In comparison, the water security frame is hardly observed in WRM discourse. Only a few references to water security are made in the policy documents analysed (figure 5.1, section 5.2.2) and the interviews, with other terms, such as 'food security', appearing more frequently in the discourse. Despite the lack of mention of water security, the issue-specific framing also replicates the generic frames of the general WRM discourse. Like climate change, water (in)security is linked to environmental risks, although as an outcome of these rather than an exacerbating factor. To address water insecurity the framing showed a strong focus on infrastructure development, omitting the governance frames altogether.

Two components of the term ‘water security’ emerged in the policy discourse, one referring to sufficient quantity and quality of water to meet all needs and the other drawing attention to security concerns about the political instability caused by conflicts over water resources.

In light of the political deadlock over the Cooperative Framework Agreement in the Nile Basin, and the contested interpretation of the term ‘water security’ in Article 14b, it seems surprising at first that climate change plays a more prominent role than water security in WRM discourse (see section 3.2.2). The history of cooperation over water in the Nile Basin is in itself rooted in questions about the distribution, allocation and use of the resource and is thus closely intertwined with water security concerns. Over the last decade, hydropolitics in the Nile have been characterised by a deadlock over water reallocation. The main contention being that upstream riparian states, i.e. the Equatorial Nile countries and Ethiopia, demand an equal share of the Nile Basin while Egypt and Sudan are holding onto their historic rights. Of late, the disagreement manifested in a dispute over Article 14b of the Cooperative Framework Agreement (CFA), which emphasises how important it is

not to adversely affect in a significant manner the water security, uses and rights of any other Nile Basin State.

The purpose of the CFA is to establish a permanent Nile Basin Commission and make the distribution of Nile water more equal.

Given the politically sensitive context and the political deadlock over CFA negotiations, it seems less surprising that the term ‘water security’ is only rarely mentioned in WRM discourse compared to climate change. As discussed in section 5.2.2 on the issue-specific framing of water security, more attention is paid to food security and aspects related to water security (e.g. infrastructure development) that are less contentious than the term ‘water security’ itself. The following argument is derived from the above analysis:

Policymakers use the climate change frame, which is less politically sensitive than the water security frame, in order to circumvent the political deadlock over the CFA and make it possible to continue discussing WRM issues and prepare and implement technical responses that relate to governance and infrastructure development.

The argument might also explain why the issue-specific framing of climate change is more visible in the discourse than that of water security. As the results of this chapter and the Q study demonstrate, there is a broad consensus among water managers in the EQNB that climate change is a relevant concern and is already evident today. Furthermore, responses to climate change are framed according to the same principles as WRM, often resulting in very similar solutions being proposed for both issues. It appears that climate change offers a less politically sensitive avenue for water policymakers to discuss WRM issues and prepare and implement technical responses which involve governance reform and infrastructure development. Besides this, the international donor community has increasingly become involved in financing climate change adaptation and mitigation efforts, which might further motivate water managers to consider climate change. These findings are further explored and discussed in Chapter 7.

The following chapter presents the results of the Q study enquiring into individuals' perceptions of WRM, climate change and water security. Chapter 6 also compares the results of the Q study with the discursive frames identified in this chapter.

6. Individual Perceptions of the Water Resources Management Discourse and Discursive Framings of Climate Change and Water Security

This chapter contributes to the third sub-research question of the thesis:

Q3: How do policymakers in the Equatorial Nile Basin perceive the discourse on water resources management in the context of climate change and water security?

The aim is to gain insight into how individual policymakers perceive the discourse on water resources management and their attitudes towards climate change and water security in this context. The results of this chapter complement the discourse analysis presented in Chapter 5 and compare the extent to which the discursive frames identified in that chapter are reflected in individual policymakers' attitudes

This chapter presents the quantitative results from the Q study. Factor analysis, as outlined in Chapter 3, was applied to the quantitative Q sort data. Factors offer a statistical method by which to reduce the complexity of comparing Q sorts individually by creating groups of Q sorts with a high correlation. A factor 'is derived on the basis of shared meaning and represents something held in common' (Watts and Stenner 2012: 98). Factor extraction condenses information from the correlation matrix. and searches for commonality between all the Q sorts rather than simply comparing pairs of Q sort in the correlation matrix. As explained in Chapter 3, a factor loading is attributed to each Q sort to indicate how closely it resembles the factor. Thus Q sorts can be compared according to their factor loading to provide a common point of reference.

The factor analysis derived a single factor solution, which is referred to here as factor one. This chapter starts by interpreting and discussing factor one (6.1). As all but one Q sort loaded significantly on factor one, in a second step this chapter compares the viewpoint of factor one with the outlier viewpoint held by Donor1(a) (6.2). The last section (6.3) discusses the Q study on policymakers' attitudes, referring back to the discursive framings identified in Chapter 5 and comparing the outcomes of the discourse analysis with the results of the Q study.

6.1. Limitations of the Q study

This research applies Q methodology to derive insights into policymakers' perceptions of and attitudes towards WRM, climate change and water security. The analysis benefits from using Q methodology, which 'combines the openness of qualitative methods with the statistical rigour of quantitative research analysis' (AMCOW and GWP 2012; GWP 2000a). Q methodology enables the systematic uncovering of patterns among individual viewpoints without relying on indicators such as age, gender, etc., but instead can measure these attitudes directly (see Chapter 3 on Q methodology and Q study design). When triangulated with the qualitative analyses presented in Chapters 4 and 5, the contribution of the Q study provides a more nuanced perspective of discursive framings and decision-makers' attitudes towards the dominant discourse.

However, the results of this Q study are subject to the following limitations in the study's design:

- 1) There is a large overlap in study participants between the Q study and the semi-structured interviews. All except one Q study participant also took part in the semi-structured interviews. Therefore, similar opinions between the semi-structured interviews and the Q-study are to be expected. Nevertheless, the Q study might reveal more nuanced opinions, compared to the semi-structured interviews.
- 2) While the number of participants exceeded the minimum requirements for a Q study (there should be a minimum of 10 participants), with eleven study participants the selection was rather small. Therefore, biases which might occur in the Q study could be pronounced due to the small number of participants.
- 3) There is a potential selection bias in Q study participants. Out of eleven participants, eight participants represented organisations, which were affiliated with the NBI-network (see Chapter 4). Hence, the LVBC-network is underrepresented in the Q study.
- 4) All participants were affiliated with an organisation that was either part of the NBI or the LVBC network. No people that were outside these two networks were included in the Q study. While the aim of the Q study was to gain a

deeper understanding of the perceptions of policy makers in the Mara River Basin, and thus most policy makers would be associated with either of the two networks, the Q study does only include a limited variety of people. Hence, it is likely that not all opinions and perceptions, that exist within the basin are captured by the Q study.

- 5) Due to practical considerations, such as time constraints of research participants, the item sample for the Q study only included 28 items, which in comparison to most Q studies is rather small (see section 3.4. for more details). Furthermore, the item sample combined two topics, namely water management concerns with climate change issues. In combination these two adjustments to a standard Q study design potentially limit the depth of the results of the Q study. While the Q study still reveals accurate perceptions, the scope of these are broader and more general, and thus may have limited the uncovering of detailed differences in perceptions.

6.2. Interpretation of Factor One

The interpretation of factor one starts with some details about the factor's eigenvalue and the number of participants loading significantly on it. It then summarises the factor's main perspective before interpreting its single components in more detail. For factor interpretation the factor arrays were used (see section 3.4).

Factor one has an eigenvalue of 5.82 and explains 53% of the study variance. Ten of eleven participants are significantly associated with this factor. Participants who loaded significantly on factor one included representatives of the Kenyan and Tanzanian governments, an international organisation, a bilateral donor agency and an INGO. All are key actors in water management in the Mara River Basin.

Due to the original study design, the factor combines perceptions on two themes :a) perceptions relating to climate change, its impacts and adaptation options; and b) perceptions of water resources management and water security. The factor interpretation is based on the factor arrays indicated for each item in the interpretation as '(item number: factor array)'. See table 6.1 for the numbered items. The factor arrays range from -3 ('strongly disagree') to +3 ('strongly agree') and relate to the ranking given to each item. Negative scores (-3, -2, -1) represent

varying levels of disagreement with a statement; positive scores (+3, +2, +1) signify agreement with the statement, and a score of 0 stands for a neutral opinion or no opinion. For example, item 14, '*Impacts from climate change are not yet evident*', has a factor array of -3, which is displayed in the text as (14: -3). This means that participants who loaded on factor one ranked item 14 'strongly disagree', which is represented by the negative score of -3. The interpretation of this item based on its factor array is that participants on factor one strongly disagreed with item 14, thus finding that climate change is not yet evident today.

Q Methodology requires a particular nomenclature. Throughout this chapter I employ the method that propose for communicating the analysis of the Q

Methodology. That is, I state the association of an item/statement and indicate the strength to which it was agreed with. For example

adequate policies that address climate change were perceived as lacking by the participants (10: +3).

This means that I have interpreted the perceptions of participants according to factor array (+3) of item 10 and indicate the item number and factor array in parentheses as evidence of my interpretation.

In cases where items have an ambiguous factor array such as a '0' score I rely on qualitative data from the Q sort interviews for factor interpretation. During the sorting process participants elaborated on the reasoning that they employed to sort an item; i.e. why they disagreed or agreed with each one. Accurate interpretation of the individual viewpoints benefited from referring back to the qualitative Q sort data. Like the individual Q sort scores, factor arrays need to be interpreted relative to one another. For example, the factor array of +1 for item 16, '*The construction of large dams is a good solution for adapting to climate change impacts such as more frequent droughts and floods*', means that participants 'somewhat agreed' with the item relative to the other items. It is important to be aware of the degree of ambiguity and flexibility that is possible in interpreting factor arrays, as they do not represent absolute but relative values.

Item number	Factor Array	Item	Item number (continued)	Factor Array	Item
1	+2	Adaptation to climate change	15	-2	Africa should develop economically first

		should not just be about survival but should improve the quality of life.			before worrying about global warming.
2	0	Adaptation to climate change means to respond to change in the environment.	16	+1	The construction of large dams is a good solution to adapting to climate change impacts such as more frequent droughts and floods.
3	0	To create a better future for Africa, climate change adaptation should be the first priority.	17	-1	The greater the quantity of water available, the higher is water security.
4	-1	It is adequate to take identical measures against climate change and environmental degradation, since both phenomena are similar.	18	+2	To be water-secure means to meet all human (e.g. economic, social) and environmental needs for water.
5	-2	Climate change will have positive effects on social and economic development in East Africa through, for example, increasing crop productivity.	19	0	Compared to other challenges (e.g. climate change) reducing high population growth is the most important factor when it comes to improving and guaranteeing sustainable water management.
6	+2	Measures for climate change adaptation should be developed by county governments and communities to meet their needs.	20	-1	Protecting humans from water-related hazards (e.g. floods) should be the first concern when thinking about water security.
7	+1	It is important to limit the emission of CO ₂ and other greenhouse gases, even if it will harm economic growth.	21	-1	Less water availability will bring countries and groups together to equitably share the water resource.
8	0	Adaptation efforts should focus on the most frequent	22	-2	Because a physical lack of water is a constraint to economic

		climatic events.			development, a country should use all its available water resources for improving economic development despite the negative environmental impacts this might have.
9	+3	It is important to increase adaptive capacity for climate change in order to solve other current problems, e.g. poverty.	23	0	A River Basin Organisation should have a strong mandate and should be able to punish riparian countries that violate agreements.
10	+3	Climate change adaptation should be included in policy development to guarantee sustainable economic growth in the future.	24	+1	Member countries should even further strengthen cooperation in the EAC over natural resources management, even though this will mean giving up part of their sovereignty.
11	+1	To adapt to climate change an integrated ecosystems approach and benefit sharing should be applied.	25	-1	Climate change adaptation funds should be open to any organisation or country which needs more finance to fund important development projects, regardless of their focus.
12	0	East African countries should focus on developing policies and practices to adapt to climate change, rather than trying to reduce CO2 emissions.	26	+2	Because water is such an important resource, water management should be an issue of national security.
13	-2	Because the impacts of climate change on the ground are too uncertain, policymakers should postpone	27	-3	A riparian country should be allowed to develop its water resources in its own interests without consulting the other

		their climate change adaptation until there is more information on specific impacts.			riparian countries.
14	-3	Impacts from climate change are not yet evident.	28	+1	Downstream riparian countries only consider their own interests when demanding more water and don't see the sacrifices that those upstream already make to protect shared resources.

Table 6.1: Item sample used in the Q study, with item number and factor arrays

6.2.1. Theme a): Climate change is a Threat to Sustainable Development

Participants who loaded significantly on factor one are interpreted as perceiving that climate change is harming the Equatorial Nile Basin. These participants disagreed with the item '*Climate change will have positive effects on social and economic development in East Africa through for example increasing crop productivity*' (5: -2). Participants on factor one shared the opinion that climate change impacts are evident today, as a factor array of '-3' for item 14 indicates ('*Impacts from climate change are not yet evident*'; 14: -3). Thus participants saw climate change as causing harm today. In the eyes of the interview participants, climate change requires immediate attention and policymakers should address the issue now instead of waiting for improved projections or better-quality data (13: -2; 15: -2). Adequate policies addressing climate change were perceived as lacking (10: +3). In addition to the need to create policies to tackle climate change impacts, the participants on factor one argued that capacity to adapt to climate change in the region needs to be increased, which would contribute to resolving other important issues such as poverty ('*It is important to increase the adaptive capacity for climate change in order to solve other current problems, e.g. poverty.*'; 9: +3).

According to the participants on factor one, climate change is already having a negative effect on socio-economic development in the region. They held the viewpoint that it was more important to aim to improve the quality of life through

climate change adaptation than to focus on mere survival (*'Adaptation to climate change should not just be about survival but should improve the quality of life.'*; 1: +2). Even though participants perceived climate change as having visible, negative environmental and social impacts, addressing climate change should not be the first priority for African countries, as revealed in the ranking of (3:0) for item 3 '*To create a better future for Africa, climate change adaptation should be the first priority*'. Whereas participants had strong views on the visibility of climate change impacts (14: -3) and argued that there is an urgent need to address its challenges (13: -2; 15: -2), the '0' factor array for item 3 can be interpreted as a negative response to these other items. The reluctance to make climate change a priority concern for Africa (item 3) appears inconsistent with the strong reactions to items 13, 14, and 15, which underline that climate change is visible and that its impacts urgently need to be addressed. These latter rankings mirror the discursive framing of climate change as an environmental risk, as identified in Chapter 5. However, the interpretation of factor one offers a slightly different perspective on the dominant environmental risk frame, as it seems that the perception of climate change as a risk does not immediately make the issue a high-priority concern for African policymakers.

Participants' opinions on how climate change should be addressed varied. In the Q sort interviews, as well as the ranking of items shows, many seemed uncertain or indecisive about climate change adaptation and mitigation options. For example, participants who scored highly on factor one were uncertain whether adaptation should prioritise more frequent or more severe events (*'Adaptation efforts should focus on the most frequent climatic events'* (8: 0) and unsure whether to focus on adaptation or mitigation efforts (*'East African countries should focus on developing policies and practices to adapt to climate change, rather than trying to reduce CO2 emissions.'* 12: 0). The qualitative Q sort interview data found that participants argued slightly in favour of adaptation, reasoning that 1) African countries are not emitting much Greenhouse Gases (GHGs) and thus mitigation is not as important as adaptation in Africa; 2) mitigation (perceived simply as lower consumption and emission of GHGs) should not be the focus, as future technologies will be more efficient and reduce emissions; and 3) mitigation is an integral part of adaptation and hence there is no divide between the two. These attitudes reflect common arguments for and against adaptation and

mitigation in global and regional policy debates on climate change (see Chapter 2).

Given the interviewees' subtle preference for adaptation over mitigation, they shared a broad outlook on their approach to climate change adaptation. The factor array score for item 2 '*Adaptation to climate change means to respond to change in the environment*' was '0' (2: 0). Participants argued in the qualitative interviews that adaptation to climate change should not just be a response to change, and nor should adaptation focus only on environmental factors. Rather, adaptation needs to anticipate as well as respond to a wide range of environmental, social and economic changes. From the point of view of participants with significant loading on factor one, measures addressing climate change should be different from those addressing environmental degradation; however, they saw similarities in the impacts of the two phenomena and argued in favour of similar measures to address both ('*It is adequate to take identical measures against climate change and environmental degradation, since both phenomena are similar*'; (4: -1)).

Participants on factor one agreed that sub-national governments and communities needed to be involved in the development of appropriate measures to address climate change ('*Measures for climate change adaptation should be developed by county governments and communities to meet their needs*' (6: +2)). Given the context of regional political structures, participants emphasised in their Q sorts that decision-making processes should include local communities, rather than national governments dealing with the issue exclusively. This ranking reflects the discursive framing around decentralisation and stakeholder participation identified in Chapter 5.

6.2.2. Theme b): Water Security through Development, while Limiting Conflict

Because water is a critical resource in the region, participants on factor one agreed that water should be an issue of national security ('*Because water is such an important resource, water management should be an issue of national security.*' (26: +2)). They also strongly agreed on what entails water security, i.e. '*Countries are water-secure when all human and environmental needs for water are met*' (18: +2). Participants emphasised that to be water-secure it is not

enough to have a sufficient quantity of water; the quality of water is equally important (*'The greater the quantity of water available, the higher the water security'* (17: -1)). In contrast to the definitions of water security introduced in Chapter 2, the participants did not see water-related hazards as relevant to water security concerns (20: -1).

While the Q study participants acknowledged that lack of water is a constraint to economic development, they agreed that water must not be used only for economic development, and adequate flows to sustain the environment must be guaranteed (22: -2). For greater water security and to foster social and economic development, participants thought it crucial to regulate and smooth out peak high and low water flows. They shared the view that more dams are needed as water storage facilities which will reduce damage from floods and store enough water for the dry months. While it is necessary to build dams, their construction is seen as having negative environmental and social impacts (16: +1). This reasoning also matches the discursive framing of water security explained in Chapter 5. Suggestions about how to improve water security solely revolved around infrastructure development and did not include governance-related measures. The Q study participants' answers and rankings reflected the emphasis on infrastructure development and the absence of governance framings in this context.

Most participants strongly disagreed with the item 'A riparian country should be allowed to develop its water resources in its own interests without consulting the other riparian countries' (27: -3). Instead, they advocated cooperative management of shared water resources. Riparian countries should consult one another and cooperate when planning to change their water use and management regime. Interviewees underlined how water is scarce in the region and a lack of water would exacerbate tension and increase the risk of conflict (21: -1); they emphasised the importance of transboundary cooperation in line with the dominant discursive framing of cooperation (Chapter 5).

However, whereas the cooperation frame outlined in Chapter 5 underlines the importance of enhancing and deepening efforts at cooperation, the interpretation of participants' opinions who loaded significantly on factor one suggests that they saw current efforts at cooperation between countries as satisfactory. Relative to their strong views on item 27 (27: -3), which emphasises the need for cooperation,

their attitudes to items 24 ('Member countries should even further strengthen cooperation in the EAC over natural resources management, even though this will mean giving up part of their sovereignty' (24: +1)) and 23 ('A River Basin Organisation should have a strong mandate and be able to punish riparian countries who violate agreements' (23: 0)) seemed unsure in comparison. Participants 'somewhat agreed' with item 24, which suggests that strengthening cooperation between countries is outweighed by having to give up some national sovereignty (24: +1), which a stronger mandate for RBOs would entail (23: 0). Despite the fact that participants wanted RBOs to have a 'strong mandate', most opined that an RBO should be based on the consensus principle. It should not be able to enforce the compliance of member states to its rules as this would infringe on national sovereignty. This view underlines the status quo of cooperation between riparian countries in the Nile and Equatorial Nile Basin efforts and stands in slight contrast to the dominant discursive framing of cooperation.

6.3. Viewpoint of Donor1(a)

Out of all eleven participants, ten loaded significantly on factor one. A significant loading on a factor resembles a high commonality between the views expressed in the single Q sorts; hence ten out of eleven research participants shared many of their opinions on climate change and water security. One participant, Donor1(a), did not load significantly onto factor one, which indicates a very different viewpoint from the other participants.²² Even though Donor1(a)'s viewpoint is statistically not significant given the small sample size of the Q study, this result suggests that there may be other voices in the policy discourse which are not represented by factor one or the dominant discourse. To explore this different perception the following section presents an in-depth analysis of Donor1(a)'s Q sort and compares the participant's views to those of the participants on factor one.

6.3.1. Theme a): Climate change Adaptation and Limits to Economic Development

Donor1(a) perceived the impacts of climate change as harmful to the social and economic development of East Africa (5: -2), strongly agreeing that it is important

²² The factor loading for factor one of the participant's Q sort was 0.453. The sort scored below the minimum level of 0.49 to be significant. All other Q sorts loaded highly on factor one (see figure 3.10: unrotated factor matrix, Chapter 3).

to include climate change adaptation in policy development ('*Climate change adaptation should be included in policy development to guarantee sustainable economic growth in the future.*' 10: +3) and that policymakers and practitioners need to address the issue of climate change now and cannot afford to wait until its impacts are more certain ('*Because the impacts of climate change on the ground are too uncertain, policymakers should wait with climate change adaptation until there is more information on specific impacts.*' 13: -3). The participant advocated a 'no harm' approach and reasoned that assuming that climate change will have negative effects, policymakers and practitioners should work on reducing vulnerability. Donor1(a) also reasoned that tackling issues such as poverty reduces vulnerability to climate change as well as creating new space for further climate change adaptation activity (9: -1). However, the respondent argued that climate change adaptation should not be the priority for East African countries as it is uncertain whether climate change impacts are already evident (14: 0). Whereas Donor1(a) shared the view of participants on factor one, that there are more pressing issues for East African countries than climate change ('*To create a better future for Africa, climate change adaptation should be the first priority.*' 3: -2), there was strong disagreement with the perceptions of factor one participants who strongly emphasised the already-visible impacts of climate change.

Whereas the participant was sceptical regarding the evidence of climate change impacts, this did not translate into a general scepticism of climate change itself; s/he underlined that climate change will demand sacrifices to maintain a healthy environment and sustainable development in the long term. Donor1(a) warned that it is not enough for policymakers to focus on improving the quality of life through climate change adaptation, as this can easily lead to an emphasis on economic growth alone (1: -1), cautioning that overemphasising economic growth is short-term thinking. To guarantee future sustainable development for society as a whole, policymakers need to make difficult decisions which might result in sacrificing high economic growth rates.

Donor1(a) suggested that all type of climate change impacts should be considered when developing a climate change strategy. The participant reasoned that given the high uncertainty of what climate change impacts are, prioritising adaptation measures for the most frequent climatic events is not a sustainable

strategy because the frequency of climate events such as floods can change over time (8: 0). The research participant concluded that adaptation should be only a partial response to change in the environment ('*Adaptation to climate change means to respond to change in the environment.*' 2: +1). The manifestation of climate change impacts on the ground is uncertain, and not everyone is convinced that particular problems are directly linked to climate change; it is necessary to avoid further harm through mitigation by anticipating change and preparing for it now. East African countries should include mitigation in their climate change policies ('*East African countries should focus on developing policies and practices to adapt to climate change rather than trying to reduce CO2 emissions.*' 12: -1). Ignoring mitigation and focusing only on adaptation would result in what the participant called an 'ostrich policy' – putting your head in the sand and pretending that as long as you cannot see the issue it is not there.

Donor1(a) had an ambivalent opinion about item 6, '*Measures for climate change adaptation should be developed by the county governments and communities to meet their needs.*' (6:0), remarking that whereas measures and policy to address climate change should be developed at the national rather than the sub-national level, at the same time a wide range of stakeholders should be involved in the consultation process. Donor1(a) reflected that in order for stakeholder involvement to be effective it is important to distinguish between policy levels, e.g. national and sub-national/ local level. Compared to participants on factor one, as well as the discursive framing of stakeholder participation, Donor1(a)'s attitude rather critically reflected on this stakeholder participation framing. For example, the participant commented on the difficulties of including stakeholders in the decision-making process, such as the fact that there is often a great power imbalance between different stakeholders which can lead to the interests of powerful stakeholders dominating those of the others.

6.3.2. Theme b): Water Management and Water Security

With regard to both climate change and water management practices, the participant underlined the importance of sustaining a healthy environment while fostering social and economic development (22: -3). To improve water management, Donor1(a) emphasised the importance of social and economic development for solving problems such as population growth, while preserving

the environment ('Compared to other challenges (e.g. climate change) reducing high population growth is the most important factor when it comes to improving and guaranteeing sustainable water management' 19: +2). According to the respondent, economic and social development can only be achieved when a healthy ecosystem is maintained. Water managers should address the ecosystem as a whole and share the benefits among the riparian countries (11: +2). This view matches more general discourse on sustainable development which includes socio-economic development while at the same time avoiding environmental degradation.

Donor1(a) shared the same definition of water security as the participants loading highly on factor one. For the respondent, water security means sufficient availability and access to water (quality and quantity) to satisfy all human, economic and environmental needs (18: +2). The participant saw a link between water availability and water security, but specified that water availability needs to match water demand in order to contribute to enhanced water security (17: 0). Protection from water-related hazards was not a main concern when conceptualising the term 'water security' (20: 0).

The respondent closely linked the concept of water security with the development of infrastructure such as large dams. This corresponds with the main discourse around water security (section 5.2.2), which largely revolves around the development of infrastructure to reduce environmental risks and increase water security. Discussing the impact of large-scale dams, the participant saw their benefits as buffering floods and droughts, thus those improving water security, but also pointed out the negative environmental and social impacts, such as displacement of communities (16: +1). The interviewee carefully challenged the dominant discursive framing that more and larger infrastructure is *a priori* a positive development. This view contrasts with that of factor one, which mainly reproduces the infrastructure development framing.

The participant differentiated between the concepts of water security and the securitisation of water, i.e. water as an issue of national security, considering that such securitisation of water is partially inevitable as water is an important factor in the regional economy but pointing out that securitising the resource bears the danger of excluding local stakeholders from water management (26: +1). The interviewee argued that for water management to be effective WRUAs have an

important role to play, again underlining the importance of stakeholder participation at the sub-national level. This connection between water security, water securitisation and the stakeholder participation frame is unusual compared to the water security framing described in Chapter 5. Donor1(a)'s water security frame omitted any governance frames such as stakeholder participation and solely revolved around infrastructure development. None of the participants with high loadings on factor one linked water security and stakeholder participation either.

The interviewee strongly advocated cooperative transboundary water management, calling it a 'hot issue' and acknowledging current tensions between riparian countries (27: -2). Even though cooperative water management is not always easily achieved, the participant expressed that upstream and downstream riparian countries are aware of each other's needs and that there have been positive examples of transboundary and national water management ('*Downstream riparian countries only consider their own interests when demanding more water and don't see the sacrifices upstream riparian countries already make to protect shared resources*' (28: -1)). However, because cooperative transboundary water management is such a difficult and politically sensitive issue, according to this participant the aim should be to maintain rather than strengthen cooperation which would be 'asking too much' of the riparian countries at present (24: 0). Parallel to participants on factor one, Donor1(a) revealed a more nuanced perception of transboundary cooperation than the detected discursive framing of the policy discourse (Chapter 5). In contrast to factor one, the participant thought it desirable to strengthen transboundary cooperation, although s/he appreciated that in the political circumstances this does not seem realistic. Donor1(a) understood water management as a 'power conflict' between riparian countries, which may be exacerbated by increasing water scarcity. From the perspective of Donor1(a), a further lack of water would increase the potential for political conflict rather than uniting riparian countries in cooperatively and sustainably managing water resources (21: -2). RBOs should play a leading role in water management with a robust mandate, and be able to enforce the rules (23: +1). This view again contrasts with those of participants on factor one, who saw transboundary cooperation as satisfactory and did not think that the RBOs' mandate should be stronger than it currently is.

6.4. Comparison and Discussion of Factor One with Donor1(a)

6.4.1. Theme a) Perceptions of Climate Change Impacts and Adaptation Options

Despite Donor1(a)'s low Q sort score on factor one, both viewpoints share similar attitudes to and opinions of water resource management and climate change. Donor1(a) and factor one both perceive climate change as a threat to sustainable socio-economic development and both agree that climate change and the resulting negative impacts need to be addressed by policymakers, for example by enhancing adaptive capacity at the sub-national level and creating appropriate policies. As the results of the factor analysis show, both views reflect the dominant issue-specific framing on climate change analysed in Chapter 5; i.e. they frame climate change as an environmental risk which threatens sustainable development. The framing suggests the need for improved governance, such as by developing new policies and enhancing adaptive capacity to mitigate and adapt to the risks posed by climate change (see Chapter 5). The Q study revealed the same climate change framing in the subjective perceptions of the study participants.

While there is some overlap between the two perspectives of factor one and Donor1(a) there are also distinct differences. Whereas factor one emphasises that negative climate change impacts are already evident today, Donor1(a) was dubious about how far climate change can be detected in recent extreme weather events such as floods and droughts, arguing that other human influences on the environment, such as population growth, land use change and changes to the water infrastructure, influence living conditions more than climate change. Very different conclusions are drawn stemming from the diverging perceptions of the evidence of climate change impacts. Participants on factor one see climate change impacts as already evident and consider that this challenge should be urgently addressed. This stands in contrast to Donor1(a), who is not sure whether climate change impacts are visible yet. Donor1(a) therefore considers the urgency of tackling climate change to be limited, arguing that other issues should be at the

forefront of sustainable development efforts such as reducing population growth and the pressure of the increasing demand for water resources.

The different opinions are also reflected in the two groups' understanding of what climate change adaptation should achieve. Whereas factor one advocates that adaptation to climate change should improve the quality of life for people, Donor1(a) thinks that it should focus on guaranteeing survival, arguing that otherwise there is a danger that concentrating too much on short-term economic growth and improving quality of life might have unintended negative effects on the latter in the long term. Donor1(a) stressed that there are limits to economic growth posed by the health and sustainability of ecosystems, which is the basis for economic prosperity, and therefore policymakers should focus more on sustaining the environment. This stands in contrast to factor one, which strongly emphasises the need for economic growth without reflecting on its potential limits. Whereas this debate was not reflected in the issue-specific framing of climate change (section 5.2.1), policymakers expressed a range of opinions on the urgency of climate change action in their semi-structured interviews. While some interviewees emphasised the need to act quickly and adapt to climate change impacts, others stressed the need to tackle population growth and poverty alleviation first.

Both factor one and Donor1(a) agree that policymakers should create appropriate policies on adaptation to climate change. Whereas the responses from participants loading on factor one suggest an argument based on urgency, Donor1(a)'s answers suggest a consideration of the long term. Donor1(a) supports a 'no harm' approach, focusing on reducing vulnerability to climate change through sustainable development projects addressing both adaptation and mitigation. Again, factor one and Donor1(a) stand in contrast to each other. The Q sorts of participants with a high loading on factor one showed uncertainty about the definition and understanding of mitigation and adaptation, some seeing mitigation as part of adaptation to climate change. Despite the statistical difference in their answers, factor one and Donor1(a) share similar reasoning, with factor one putting slightly more emphasis on adaptation practices. Participants on factor one argued that East Africa has low GHGs emissions and hence mitigation is not as important as adaptation.

Factor one and Donor1(a) have both overlaps and differences in their views. For example, factor one participants would reason that addressing climate change by designing and implementing adaptation measures increases resilience to environmental shock and thus benefits socio-economic development such as by reducing poverty. Donor1(a) concluded that implementing projects aimed at fostering sustainable development and reducing factors such as population growth will make society less vulnerable to the impact of climate change. In addition, by tackling the most pressing factors of poverty, e.g. improving sanitation and the quality of and access to water, would open up new spaces for the design and implementation of specific actions targeting climate change. The conclusions drawn from both parties' arguments are also different with regard to climate change finance. Whereas participants on factor one agree that only projects specifically designed to address climate change should be eligible for climate change finance ('*Climate change adaptation funds should be open to any organisation or country which needs more finances to fund important development projects, regardless of their focus*' (25: -1)), Donor1(a) argues that any project should be eligible to apply for climate finance, which broadly relates to climate change (25:+3).

6.4.2. Theme b): Perceptions of Water Resources Management and Water Security

When asked about their understanding of the term 'water security', the participants agreed unanimously that water security means having enough water to satisfy human and environmental needs. This definition includes quality, quantity and access. Donor1(a) also stressed that water security means being able to meet the demand for water. Neither of the two perspectives included water-related hazards in their definition of water security.

The views of Donor1(a) and participants loading on factor one on the securitisation of water, i.e. understanding water as a national security concern, were slightly different. While participants on factor one thought it desirable to perceive water as an issue of national security, Donor1(a) acknowledged that even though it might not be possible to avoid water becoming securitised in the Equatorial Nile, the securitisation of water might have negative implications for participatory water management. Once a resource is understood to be vital for

national security, Donor1(a) argued, it will be solely managed at the national level and local stakeholders may be excluded. In Donor1(a)'s view stakeholder involvement, e.g. in the form of letting WUAs manage their own resources, is very important in IWRM. The participant also reflected that local communities involved in water management still need to be aware of and comply with national policies and frameworks.

Perceptions differed on the subject of cooperative transboundary water management. Whereas the discursive framing of cooperation emphasises the need to further strengthen cooperation between riparian countries, the results of the Q study found that the participants on factor one and Donor1(a) were more cautious. Factor one sees transboundary cooperation approaches as satisfying and riparian countries interacting and jointly managing water resources. Any further cooperation might lead to a reduction in national sovereignty, e.g. through a strong RBO. From the viewpoint of factor one this is not a desirable outcome. Donor1(a) was in favour of a strong RBO which can enforce rules and regulations. To have such a strong mandate the RBO would be similar to a supranational institution and hence this process would entail riparian countries transferring a certain level of authority and responsibility to it. Participant Donor1(a) pointed out that given the current political tension, transboundary cooperation between riparian countries is a sensitive issue and the aim should be to maintain present levels of cooperation rather than try to strengthen them. Increasing cooperation was deemed unrealistic in the present situation. Donor1(a)'s opinion acknowledges the political situation behind calls for enhanced cooperation. Whereas such a critical reflection was not found in the discursive framing of cooperation in policy reports and interviews, the results of the Q study add a more nuanced and subtle view to the various perceptions of transboundary cooperation. However, Donor1(a) stands out as the only participant without significant loading on factor one. More research is needed for a deeper and more differentiated understanding of policymakers' perceptions of transboundary cooperation. A larger sample size for the Q study and a broader range of participants could strengthen the evidence base; and creating and piloting an item sample specifically geared towards researching participants' perceptions on transboundary cooperation would reveal more significant insights.

6.5. Conclusions

This chapter has focused on the interpretation of the quantitative analysis of the Q study, contributing to understanding of policymakers' dominant perceptions of climate change, water resources management and water security in the Mara River Basin. The views of the research participants were assessed via a Q study based on climate change and water management discourses. One factor was derived from the statistical analysis, with the factor loadings of a single Q sort (by participant Donor1(a)) standing out from those of the rest of the participants. This chapter has discussed and compared factor one with Donor1(a)'s Q sort.

Interpretation of the Q data found that participants reflected dominant discursive framings of environmental risk, governance and infrastructure development in their perceptions. The results of the Q study concur with the results of the discourse analysis presented in Chapter 5. However, the Q study uncovered subtleties in participants' opinions which are not apparent in the discourse analysis. For example, the perceptions of participants who scored highly on factor one were largely congruent with the dominant discursive framings about environmental risk, governance and infrastructure development identified in Chapter 5. However, despite their view that climate change is evident and should be urgently addressed, most participants did not see climate change as a top priority for African policymakers, with classic development issues such as poverty and population growth reduction and increasing economic growth seen as more important. Furthermore, the interpretation of factor one revealed a subtle hesitation with regard to strengthening transboundary cooperation which is yet again not reflected in the discursive cooperation framing.

Donor1(a)'s views further emphasise subtle differences between factor one and the dominant discourse. Donor1(a) was reluctant to focus on climate change and instead argued for tackling other problems such as poverty alleviation first. Donor1(a) considered taking measures to achieve sustainable development as key; these would also reduce vulnerability to climate change.

The quantitative results of the Q study strengthened the qualitative discourse analysis, as both identified very similar attitudes through different research methods. The homogenous replies and the sorting of participants' Q sorts suggests a strong and dominant policy discourse on climate change and water

security in the basin with no evident discursive alternatives. Even the differences between the views of factor one and Donor1(a) seem minor compared to the general overlap and similarity in viewpoints. This relates to research findings by (Gupta 2009), who suggests that there is a dominant and homogenous global water policy discourse, and the discourse framings inherent in the water policy discourse are then spread across countries. The results of the Q study were further indication for this strong and uniform global water policy discourse. Nevertheless the Q study did reveal that policymakers' opinions differ subtly from the dominant discourse, although they appeared to be careful in challenging dominant views.

The following chapter takes a closer look at the extent to which discursive framings are reflected in policy implementation and outcomes. This analysis relates to policymakers' perceptions, which, in combination with political power, translate into political will to implement certain policies – or not. Chapter 7 explores the climate change/water security framing based on the analysis presented in Chapter 5. It reflects on the degree to which policy discourses are relevant to multi-level water governance implementation and outcomes.

7. The Relationship between Discursive Frames, Policy Practice and Policy Outcomes – The Climate Change and Water Security Frames

By analysing the discursive framing of climate change, its link to the water security frame and their translation into policy practice this chapter explores the fourth sub-research question:

Q4: To what extent are discursive framings and policy practice connected in the Equatorial Nile Basin, and what are the implications for water governance?

This chapter synthesises the results of the previous empirical chapters, Chapters 4-6, and presents a provisional analysis of how discursive framings relate to policy practice. The evidence to assert and measure the links between discursive framings, policy networks and policy practice is very limited as the primary empirical data were collected with diverse research foci. During the data analysis process, however, I became interested in the influence of discursive framings on tangible governance or water management outcomes. This chapter explores the links between discursive frames and policy practice within the limitations of the depth and range of the data (Table 7.1). The following sections critically discuss the data, embedding them in the wider hydropolitical context of the Nile basin and pointing towards areas for future research.

As an example the climate change and water security frames were selected, as examined in Chapter 5, to illustrate the influence of discourse on multilevel water governance. This chapter looks at the issue-specific frames of climate change and water security and their function in the context of hydropolitics in the Nile Basin. The chapter examines the framing of climate change and water security in negotiations about the CFA for the Nile Basin and further examines the argument derived from Chapter 5: that the climate change frame offers an alternative route to continued transboundary cooperation in the Nile Basin and thus circumvents the political tensions that revolve around the CFA and the term 'water security'.

Table 7.1 summarises the findings of this chapter, namely the extent to which discursive framings are reflected in policy design and practice. The discursive framings discussed in this chapter are the results of the discourse analysis in Chapter 5. As the discourse analysis and the examples in this chapter

demonstrate, discursive framings of climate change and water security are reflected in policy design to varying degrees. However, compared to policy practice the framings are often found to a stronger degree in the policy design than in the policy implementation stage. The table shows that there seems to be mismatch between the framing of policy design and policy practice. Whereas, for example, the climate change framing is reflected to a medium strength in the policy design, the projects to be implemented do not reflect the framing to the same degree. In contrast, the water security framing is hardly existent in policy design, but implemented projects directly relate to ideas around water security.

Discursive Frame	Policy design	Policy implementation
Climate Change Frame	Medium – Recently emerging, although included in project proposals	Weak – Implemented projects aimed at growth and cooperation, not addressing climate change
Water Security Frame	Weak – Almost non-existent apart from Nile CFA Article	Medium – Implemented projects indirectly relate to water security concerns, i.e. water quality, water storage and infrastructure

Table 7.1: The extent to which discursive frames are reflected in policy design and implementation

7.1. Circumventing Hydropolitical Tensions in the Nile Basin via Discursive Framing

In light of the politically-sensitive context in the Nile Basin with political deadlock relating to the term 'water security' in negotiations of the Cooperative Framework Agreement (CFA) this study derived on the basis of Chapter 5 the following argument, namely that policy makers use the climate change frame, which is less politically sensitive than the water security frame, in order to circumvent the political deadlock over the CFA and make it possible to continue discussing WRM issues and prepare and implement technical responses that relate to governance and infrastructure development.

In parallel with the political events surrounding CFA negotiations involving the NBI and its member states, the international donor community has been increasingly involved in raising awareness of climate change and financing climate change adaptation and mitigation efforts, which offers motivation for water managers to consider climate change. The experience of extreme climate-related events such

as the severe drought in 2011 and the floods in 2007 in East Africa have also raised policymakers' and water managers' awareness of climate-related issues (Goulden et al. 2009; Zeitoun et al. 2013). The following section explores the argument stated above further by scrutinising recent NBI and NELSAP debates and policy initiatives with a focus on the climate change and water security framings. Subsequently, this chapter then examines the application of discursive framings of climate change and water security in the policy implementation process.

7.1.1. Political Context of Negotiations over Nile Waters

At the time of the research (2010-2013), relations between most upstream riparian countries (Ethiopia, Uganda, Kenya, Tanzania, Rwanda, Burundi) and the two downstream riparian countries (Egypt, Sudan) were tense, due to disagreement over Article 14b in the Cooperative Framework Agreement (CFA). To recap briefly, the main political tensions in the Nile Basin revolve around a disagreement between upstream and downstream riparian countries regarding allocation of Nile waters. Until the present day, water allocation in the Nile is based on the 1959 Agreement, which allocates 55bm³ to Egypt, and the remaining 18.5bm³ to Sudan, while not allocating any water to the upstream countries. The upstream countries reject the agreement with the argument that it was signed during colonial times, and thus they demand a renegotiation of water allocation. In this context the CFA is supposed to serve as a new treaty between Nile riparian countries, basing water allocation on principles of 'equitable use' while causing 'no harm' to other riparians.

At the time of research, Egypt (and Sudan) rejected the CFA, and in particular the proposed wording of Article 14b, which states:

[...] the Nile Basin States therefore agree, in a spirit of cooperation, to work together to ensure that all states achieve and sustain water security and not to significantly affect the water security of any other Nile Basin State. (Article 14b cited in Nicol and Cascao 2011: 318)

As Nicol and Cascao (2011) explain, the main contention over the CFA between the upstream and downstream riparian countries was whether or not the existing colonial agreement of 1959 on water allocation should be renegotiated (see Chapter 3). Article 14b is at the heart of the disagreement, and in particular, the

interpretation of the term 'water security'; i.e. what amount of water makes a riparian country water-secure or water-insecure? Upstream riparian countries and external actors proposed this wording to create 'constructive ambiguity' (Cascao 2008a) to move the process of renegotiations along. However, downstream riparian countries (Egypt and Sudan) did not accept the wording out of concern for their own water security and water allocation quotas, and rejected the idea of renegotiation of allocation. The disagreement over the CFA has led to a de-facto bloc formation in 2010 over Nile negotiations. On the one side stand Egypt and Sudan, who rejected the CFA, and on the other side the upstream riparian who have signed the CFA – and some are already in the processes of ratification.

Apart from addressing water sharing in the basin, the CFA serves a second function: it is the legal foundation of the establishment of a Nile River Commission. From its outset, the Nile Basin Initiative's primary goal has been to establish a permanent river basin commission for the Nile Basin as a basis for basin wide cooperation. Donors such as the World Bank and SIDA have set conditions for the extension of funding for the NBI, among others the establishment of a permanent Nile Basin Commission. Six upstream countries signed the CFA²³, including Art. 14b on water security (at the time of this research these countries were about to start ratification of the CFA) and thus move forward in the process of establishing a Nile Basin Commission. The difficulty of persuading all the Nile riparian countries to sign the CFA, including the contested Art. 14b, created uncertainty about establishing a Nile Basin Commission and therefore put into question the donor community's future financial support for the NBI. This situation translated into an uncertain future of the NBI and its sub-programmes NELSAP and ENTRO.

7.2. Links between Framings of Climate Change, Funding and Transboundary Cooperation

Against the backdrop of the political context regarding allocation of water in the Nile Basin, the adaptation to and mitigation of climate change have become a prominent topic in policy documents and initiatives of the NBI and NELSAP. Chapter 5 showed that the climate change frame has emerged since 2010 in WRM in the Nile Basin. Chapter 5 concluded that the climate change framing was

²³ These are Ethiopia, Uganda, Tanzania, Rwanda and Burundi.

based on three generic frames adapted from the WRM discourse, namely the environmental risk frame, the governance frames, and the infrastructure development frame. All three generic frames were reproduced in the climate change framing, through first constructing climate change as an environmental risk, which then consequently needed to be addressed through improved governance and new technology/ infrastructure.

Since 2010 there seems to be increasing interest in climate change from water managers in the Nile Basin. As Chapter 5 observed there has been a growing number of climate-change-related initiatives and projects in the basin. As one NELSAP representative confirmed, the organisation has raised its own awareness of climate change in recent years:

Recently there has been a paradigm shift. There were various studies on how to better manage and adapt to climate change. These had the focus on institutional design and various studies on how to integrate climate change into policies. (NBI (b))

NELSAP's 2012-2015 strategic plan mentions its aim to include climate change mainstreaming in its projects and thus also understanding of the management of the water cycle as an incremental part of its contribution to climate change adaptation (NBI (b), NBI (d)). In 2010, NELSAP started to develop its Guidelines for Climate Adaptation Mainstreaming in Water Infrastructure Development with the support of the German development bank, KfW (NBI (d)). Other donors such as Sweden's SIDA have also increased their support for projects with an environmental and climate-change focus (Donor3, IC2). In February 2012 the NELSAP guidelines on climate adaptation were published. They aimed to

provide the principles and steps to mainstream climate change into water resources programmes and water infrastructure selection and implementation.
(NELSAP 2012a: 5)

NELSAP is concerned that impacts of climate change will undo the positive effects of infrastructure development (e.g. through higher rainfall variability causing more extreme floods and droughts which might exceed the levels anticipated in previous infrastructure planning). This concern reflects the identified framing of climate change as an environmental risk to human and economic development (Chapter 5). In addition, it also shows that the development (and

maintenance) of infrastructure is seen as a key factor in order to lower negative climate change impacts.

To prevent negative outcomes, NELSAP developed guidelines to prioritise the safe development of water resources. In their interviews representatives of NELSAP linked climate change projects with new funding opportunities for the organisation. Two research participants stated that NELSAP was interested in 'innovative financing mechanisms' such as the Adaptation Fund, which aims to provide funding for adaptation to the negative effects of climate change, which became available from the beginning of 2014 (NBI (d), NBI (b)). An external adviser to the NBI also confirmed that water managers in the basin have shown a growing interest in climate change since 2010 (IC2).

Against the backdrop of uncertain NBI funding and political deadlock over Article 14b of the CFA, the recent increase in the framing of WRM projects in the EQNB in terms of climate change adaptation and mitigation appears to relate to strategic political and economic interests as well as to concerns about the prevention and mitigation of negative climate impacts. Climate change presents an additional opportunity for NELSAP to obtain funding from donor agencies and continue with its WRM projects, since the framing of climate change (adaptation) and WRM significantly overlap. Both discourses include frames on environmental risk, governance and infrastructure development. Drawing on discourse theory by Hager (1995) a similar discourse between the climate change narrative and the general narrative around WRM is observed. Such similarities between discursive framing enable actors to legitimize similar actions for both problems. As the next section will demonstrate, within the political context of the Nile Basin the climate change and water security discourses become entangled, while both seem to be a reproduction of the general discourse on WRM.

7.3. Climate change Tacked onto WRM?

The following example illustrates how NELSAP and donors such as the World Bank changed the framing of WRM projects by framing it around climate change. In order to allow the continuation of Nile cooperation after the expiration of the Nile Basin Trust Fund in September 2012, NELSAP applied for funding from the World Bank's 'Nile Basin Climate Resilient Growth Project. The World Bank started preparing this in June 2012, and by November 2012 the project was

approved. As the project title shows, the emphasis is on economic growth in the Nile Basin; to sustain development it needs to be 'climate resilient'. The project objectives underline this framing. Its main aim is to 'improve cooperative climate-resilient water resources management and development in the Nile Basin':

[The] key results to be achieved through the Project are: (i) NBI continues to enhance its platform for cooperation in the Nile basin; (ii) NBI provides its stakeholders with tools and knowledge resources for climate resilient water resources management in the Nile basin; and (iii) NBI advances preparation of climate resilient water resources development in the Nile basin. (World Bank 2012: 3)

The World Bank and the NBI frame their projects around 'climate-resilient growth', which is related to similar frames such as 'green growth', 'climate resilient development' and 'sustainable development'. By applying this discursive framing in their project proposals and other documents these actors have also contributed to the rise of the 'climate-resilient growth' framing in the Nile Basin. It seems that particular actors related to the NBI network (Chapter 4) such as the World Bank, NELSAP and GIZ use this framing more than actors in the LVBC network. While NBI and NELSAP in cooperation with the World Bank use the climate change discourse to frame resilient growth in their documents as shown above, at the time of research framing resilient growth around climate change was not found in LVBC documents or those of other actors in the network. However, actors in the LVBC network have also shown an emerging interest in climate change, as Chapter 5 demonstrated.

From the exploratory analysis of this chapter, it seems that the NBI-network has a stronger influence on shaping the climate change framing in the Nile Basin than the LVBC-network. However, to test this claim further research is necessary. As argued above, at the time of research the NBI faced a great level of uncertainty regarding its future funding. This might explain the heightened interest of the NBI-network in the climate change discourse as compared to the LVBC-network. The climate change discourse provides an opportunity to seek additional funding, while keeping a similar focus for NBI activities due to the overlaps in the framing between WRM and climate change. Therefore, it seems in the NBI's interest to engage in the climate change discourse. In comparison, funding for the LVBC was secure, and LVBC member states did not have such strong political tensions

between them at the time of research. Thus, the climate change discourse potentially provided an interesting opportunity for the NBI-network to shape the climate change story-line to fit with its financial and technical interests, while being less contentious than the water security discourse.

The overlap between the framing of climate change and WRM generally, can be observed in the example of the Nile Basin Climate Resilient Growth Project. Despite framing NELSAP's Nile Basin Climate Resilient Growth Project around climate-resilient growth, one of the project's key objectives is to strengthen transboundary cooperation. It appears that the project is superficially framed around climate change, whereas the actual focus is linked to the WRM's cooperation framing (Chapter 5). For example, the NBI frames climate change impacts as potentially undermining cooperation efforts:

Climate change is a serious threat, with potentially very adverse impacts on the socio-economic conditions in the Nile Basin, on its environment, and on the ongoing efforts to establish mutually agreed upon mechanisms to manage the shared Nile water resources. (NBI 2012a)

This emphasis on transboundary cooperation was reflected in interviews with NELSAP and Tanzanian government interviewees, who viewed the technical cooperation between riparian countries in the EQNB as successful and emphasised that NELSAP and the riparian states have an interest in continuing this cooperation, despite the uncertain future of overall NBI funding (NBI (a), Donor3, TZ Gov (a), NBI (b)). The results from the Q-study presented in Chapter 6 go hand in hand with this observation. The factor analysis demonstrated that participants, who loaded on Factor 1 equally emphasised the need to cooperate and strengthen cooperation, while at the same time recognizing the visibility of climate change impacts. However, participants in the Q-study revealed that despite the evidence for climate change impacts, they considered that climate change should not become the first priority for policy makers. Whereas further research is necessary to identify what participants would have wished to be the priority for policy makers in the Nile Basin, it becomes clear that participants emphasised the need for cooperation with the other riparian countries.

A senior representative of the Tanzanian government explained that the implementation of technical projects on the ground demonstrates the success of

transboundary cooperation, and argued that policymakers should focus on its continuation rather than overly emphasising the political deadlock over the CFA.

The future is very clear. We started in 1999, negotiating. [...] We came up with a draft document. That's cooperation. We are still having meetings and we work together. Don't look at [only look at] not signing the CFA. Look at the projects. At the projects we are working on together. [...] They are efficient. There's a lot to be reached. [...] So don't look at the CFA. [...] Just go down and see what's happening on the ground and see – disregarding the CFA. (TZ Gov (a))

Several NELSAP representatives emphasised that more projects were ready to be implemented and were awaiting funding to take the process forward (NBI (a), NBI (c), NBI (d)). One external NBI advisor observed:

What we should be looking at is *not* what interest the countries have in the Nile waters, but what interest they have in the cooperation process. (IC2)

This example illustrates the persistence of the cooperation frame. Despite framing the Nile Basin Climate Resilient Growth Project around climate change, the policymakers' main interest was in strengthening transboundary cooperation and investing in concrete projects such as 'water resources, dams, watershed management, irrigation and [...] capacity building' (NBI (a)). Such infrastructure development projects require large budgets – as an interviewee pointed out, investment of \$1.23 billion is needed for planned infrastructure projects (NBI (d)) – and such funding is easier to access when joining forces with other riparian countries (IC2). Therefore transboundary cooperation between riparian countries is seen as key to acquiring the necessary funds.

Observing policy developments and activities with regard to NELSAP and the NBI, it becomes apparent that these actors apply a combination of discursive framing around climate change and cooperation to access funding to secure their future. Both frames on climate change and cooperation were found in NBI and NELSAP documents, as Chapter 5 and Chapter 7 have demonstrated. While actors in the NBI-network strongly emphasize the need and benefits of transboundary cooperation, the network is engaged in the climate change discourse. Here, there are incidences where the two discourses are directly connected, for example framing climate change impacts as endangering future transboundary cooperation (NBI 2012a). The close connection between the two discursive frames helps the actors in the NBI-network to develop a story-line to justify the need for more

funding to support transboundary cooperation, which will also benefit climate change adaptation.

To enhance riparian countries' interest in Nile cooperation, the NBI and NELSAP, there has been a greater focus on projects related to economic development in the region such as the production of hydropower, which also include climate change in the framing of these projects. For example, lately there has been a strong emphasis in the policy discourse on the production of hydropower, with the Rusumo Falls project in the Kagera Basin one of NELSAP's biggest projects (NBI (b), IC2). As an external advisor pointed out, policymakers often use the term 'energy security' as a 'catch phrase for building infrastructure projects' (IC2). NELSAP, as a sub-division of the NBI, facilitates transboundary joint action between the EQNB riparian countries to harness the considerable potential for hydropower in the region and build dams, for which huge financial investment is needed. As explained earlier, the riparian countries improve their political leverage by cooperating and thus have a greater chance of accessing enough funding from donor agencies such as the World Bank. In interviews with NBI and NELSAP representatives and their supporting development partners there was a strong focus on the financial aspects of transboundary cooperation (NBI (a), NBI (b), NBI (c), NBI (d), Donor3):

For the next three years NELSAP needs to raise US\$117m. Also NELSAP needs to raise investment financing worth US\$1.23 bn. (NBI (d))

NELSAP staff explained that since the NBTF funding ended in October 2012 NELSAP had received funding of \$35m for three years (NBI (b)), less than a third of the money it had aimed to raise.

Since hydropower is considered a renewable energy source and the international donor community has increased its support of renewable energy production as part of climate change mitigation and adaptation, framing such projects around climate change presents an additional way of accessing financial investment.²⁴ For example, NELSAP applied for a grant under the Nile Basin Climate Resilient Growth Project and received funding from the World Bank's new initiative,

²⁴ Emerging economies such as China, India and Arab countries play an increasingly important role for providing foreign revenues as they invest in infrastructure projects as well as in agriculture in Nile Basin countries. It is beyond the scope of this study to discuss the role of China and other investors in African economies. For a detailed discussion see, among others EAC (2011b).

Cooperation of International Waters in Africa (CIWA) and from Sweden's donor agency, SIDA (NBI (a), NBI (b), Donor3). This example seems to confirm Mosse's conceptualization of the relationship between policy (discourse) and practice (Section 2.4). Mosse observes that policy rather works to legitimize practice, instead of orienting it (Mosse 2004). The example of the Climate Resilient Growth project demonstrates how actors use discursive framings to legitimize their actions, which serve their own interests. Instead of policy orienting activities and guiding a discourse, it seems to be the other way around. The interest of the NELSAP in this case was to secure funding for energy development projects. Here, the climate change frame was employed to serve this interest and access additional channels of funding. The argument of being beneficial for climate change mitigation and adaptation was used by NELSAP to legitimize the investment in hydropower. This example also shows how actors managed to successfully translate their interests into policy practice through using the discursive story-line around climate change within the context of infrastructure development.

The Climate Resilient Growth Project proposal reflects the interests of the NELSAP member countries in infrastructure development and power generation. The tangible outcomes to be generated through the project and implemented by NELSAP and the riparian countries are

to advance development of hydropower generation; (b) advance water resource development (possibly including irrigation and watershed management) and (c) undertake consultations on NELSAP operations. (NELSAP 2012a: 6)

The Climate Resilient Growth Project is one example of the 'new' approach in WRM, i.e. the framing of former and ongoing NBI activities, which are mainly concerned with transboundary cooperation, generating and disseminating knowledge and building large infrastructure, around climate change. The programme proposal explicitly states that the projects will be aligned and integrated with ongoing developments (World Bank 2012: 3). It appears that 'climate resilience' has been added to the overall WRM framing as an auxiliary component to legitimize current practice and interests.

This section has explored the argument that the climate change frame is being 'tacked onto' WRM to enable the continuation of transboundary cooperation despite political tension and to access additional funding for WRM projects.

Interviewees' comments support this notion. One remarked: 'Climate change is a diversion from the real issues' (Journalist); 'real issues' referring to the political deadlock in negotiations about the allocation of Nile waters. An NBI advisor underlined this perception, pointing out that the focus on climate change serves political and economic purposes within the hydropolitical context:

This is all about being pleasant with the World Bank and finding a way of getting more funds – I mean, this is what [political discourse about climate change] is about! (IC2)

A donor representative remarked that climate change seemed to be 'a bit of a fashion' (Donor1(a)) and that while many water managers were talking about it, the expertise needed to tailor project proposals towards climate change adaptation was often lacking (Donor1(a)). The interviewee saw climate change as a way of accessing funding in order to continue with WRM and other environment-related projects and commented that whereas similar measures used to be undertaken under the framing of water conservation, nowadays more funding was available when projects were framed around climate change:

I mean there is funding available for climate change adaptation. I mean twenty years ago we also did erosion and water conservation measures for instance. And now you put just climate change on top of it. I don't care, as long as it has a positive impact on, for instance, the water balance. (Donor1(a))

Further to the example of how NELSAP used the climate change frame to access funding for hydropower projects, the interviewees' comments support Mosse's observation that policy discourses are used to legitimize practice and actors' interests, rather than orienting practice and policy implementation.

7.4. Vanishing Water Security Frame?

Despite the focus on cooperative transboundary water management, the NELSAP Nile Basin Climate Resilient Growth Project was produced under the frames of climate resilience and economic growth. With the plans for water resource development, irrigation and watershed management making up part of the project, the initiative shows a close link to the improvement of water security – defined as improving the quality and quantity of and access to water resources (Chapters 5 and 6) – and relates to overall WRM. However, analysis of the Nile Basin Climate Resilient Growth Project proposal finds that the term 'water security' is not

mentioned and furthermore is absent from most NELSAP and NBI publications (see Chapter 5, figure 5.1).

There are a number of possible reasons for this absence. Firstly, as discussed in this chapter, in the Nile Basin the term has become politicised with the dispute about its use in Article 14b of the CFA. This study argues that including such a sensitive term in project proposals and policy documents aiming to enhance transboundary cooperation might cause further diplomatic tension rather than improve relations between riparian countries. The term 'water security' is often exchanged for other terms or descriptions of a similar phenomenon. An external NBI advisor suggested that policymakers describe issues associated with water security using other technical terms (IC2). For example, NELSAP's Climate Change Guidelines do not explicitly use the term 'water security' but refer to related issues such as 'water needs' and 'risks of droughts' and 'shortage of water for some usages.' (World Bank 2012: 3) Such a discursive strategy links to Hajer's argumentative approach for analysing discourses (Hajer 1995). Hajer reasons that policy discourses and the story-lines they contain, are characterized by multi-interpretability. According to Hajer, this is crucial for the formation of discourse coalitions. Discourse coalitions are a combination of diverse actors with diverse interests, which all subscribe to the same discursive story-line, while having to legitimize different interests with the same story-line. In order to serve such interests, options for multiple interpretations of the discourse and resulting policy documents are crucial.

In interviews, participants used similar phrasing to describe water security without using the term explicitly. Interviewees avoided the term by emphasising the successful cooperation process in the form of negotiations, talks, and technical cooperation on the ground. Whereas there is little overlap between the definitions of the terms 'water security' and 'cooperation', due to the political circumstances regarding CFA negotiations water security has become a politically-sensitive term and the concepts of water security and transboundary cooperation have become closely intertwined. The Egyptian government insists that abandoning existing agreements or negotiating new water allocation quotas will harm its water security, rejects the CFA and refuses to be a member of a permanent Nile Basin Commission, effectively stalling transboundary cooperation. Ethiopia and the EQNB riparian countries instead emphasise the importance of transboundary

cooperation, since renegotiating the existing agreement of 1959 and signing the CFA are in their interests (see Chapter 3).

It appears that the absence of the water security framing in the WRM discourse is an example of the importance of multi-interpretability of discourses in the formation of discourse coalitions (Hajer 1995). Due to the politically tense context the term 'water security' became politically charged and especially for Egypt had a negative connotation within the CFA. Whereas the term 'water security' was originally introduced to the CFA to create ambiguity (Cascao 2008a), i.e. multi-interpretability in Hajer's terms, to solve the political deadlock, it seems that the Egyptian position became the dominant interpretation of 'water security' in the Nile. Thus, to avoid political tension and reintroduce more flexible ways of interpreting the discourse, actors avoid the term 'water security' and use more elastic terms framed around 'cooperation' and 'needs'.

Secondly, the term 'water security' has only emerged in WRM recently (NBI and World Bank 2012: 2). It is likely that the term has been introduced into the discourse and CFA by Sadoff and Grey (Sadoff and Grey 2005), who formerly worked for the World Bank. This is also an example for the agency of individuals or individual organizations to significantly influence policy discourses. The term is also largely criticised by scholars and practitioners for being too narrow to capture the complexities of the realities of WRM and too broad to be applicable in practice and to guide implementation of WRM projects (NELSAP 2012a: 8). While some scholars and practitioners might interpret the failure to achieve water security or to derive clear guidance for policy from the concept as an explanation for why the term is largely absent in documents and interviews with policymakers, Mosse's conceptualization of the relationship between policy and practice, and Hajer's concept of multi-interpretability argue against this notion. In the light of the examples discussed above, Mosse's view that policy serves to legitimize practice seems a more suitable explanation for the absence of the term 'water security' in the case of the Nile Basin (Mosse 2004). Based on Mosse's argument, it is irrelevant for the concept to be narrow and specific, as policy practice will not be shaped through the concept, but the concept would just be used to legitimize policy. Furthermore, drawing on Hajer, a narrow and specific understanding of water security would close off opportunities for multi-interpretability, which are important for practitioners during negotiations and the formation of discourse

coalitions (Hajer 1995). Therefore, it seems likely that the term is absent due to political tensions, and rather substituted in the discussion with other terms such as 'cooperation'.

Thirdly, despite the political tension around water security in the context of the CFA, the results of the Q study demonstrated that from a technical point of view water managers perceive the term as clearly defined (see Chapter 6). As Addams (2000) argues in the example of environmental discourse and climate change, debating the framing or definition of a term is mostly relevant in the case of complex and contested issues. One could draw the reverse conclusion; i.e. when definitions or 'discursive framings' are perceived as clearly defined and thus not disputed there is little need for debate on the issue. This could be another reason why 'water security' is largely absent in EQNB policy documents: there is agreement on the term, and hence no need for further discursive struggle over it. This indicates that there could be a hegemonic framing surrounding the interpretation of 'water security'. It also could be a sign of a strong discourse coalition. As reflected in section 6.1. participants of the Q-study had very homogenous viewpoints. Linking the affiliations of Q-study participants to the policy-networks identified in Chapter 4, most participants were related to the LVBC-network and hence there seems to be a bias in the study towards the LVBC-network. Therefore, the agreement regarding the definition of 'water security' is likely to indicate, that participants liked to the LVBC-network were also part of a larger discourse coalition.

In summary, this section has explored the links between the emergent climate change frame and the hydropolitical context of the Nile Basin. It has argued that whereas awareness of climate change has increased among water managers over the past years, climate change is often simply 'tacked onto' WRM issues. Water managers in the basin use the climate change framing to access additional funding for already-existing water management projects, thus guaranteeing the continuation of initiatives promoting transboundary cooperation. Whereas the climate change frame has been emerging in recent years, this section has shown that the cooperation frame is still dominant in water management in the Nile Basin. Further, this chapter has discussed the largely-absent framing of water security. Even though most topical issues relate to the concept of water security, due to its

politicised interpretation in the Nile Basin this discursive frame is largely avoided in the policy discourse, which instead emphasises transboundary cooperation.

7.5. Conclusion

This chapter has explored the relationship between discursive framings, policy actors and practice. As an example the chapter selected the issue-specific framing around climate change and water security (Chapter 5) to discuss how actors use discursive frames and how these relate to policy design and practice.

The chapter looked at hydropolitical dynamics in the EQNB and the emergence of the climate change frame and its connection to the water security frame, showing that lately WRM in the EQNB has mainly been framed around responses to climate change, apparently avoiding the water security frame. The analysis revealed that while the climate change frame was present in policy documents, in policy practice it was reflected to a lesser extent. In contrast, the water security framing was largely absent from most policy documents, but the objectives of implemented projects related directly to aspects of water security. Therefore, it appears that the climate change frame offers a less politically-sensitive framing that allows actors in the Nile Basin to continue with transboundary cooperation without having to address the more sensitive issues of water (re)allocation and water security. Furthermore, this chapter also argued that actors use the climate change discourse to legitimize their ongoing policy practice and preferences, namely for policy projects that have a focus on transboundary cooperation and economic development in the region. It seemed that actors employed the climate change frame to access donor funding for a diverse range of projects including climate change adaptation, but also transboundary cooperation. To conclude, in light of the uncertainty of NBI funding and the future of the organisation, the climate change discourse may offer a useful alternative for the NBI compared to the previous IWRM discourse to secure future funding while emphasising transboundary cooperation, thus guaranteeing the continuation of the organisation.

8. Conclusions

This thesis has investigated the influence of policy discourses on multilevel water governance in the Equatorial Nile Basin. Combining a multilevel governance approach with critical discourse analysis to show how policy discourses influence policymaking, it provides a novel contribution to the literature on water management and environmental governance. The research was conducted in the context of discussions of climate change adaptation and water security in East Africa and thus also contributes to knowledge in these areas.

The previous chapters have analysed the water governance architecture (Chapter 4) and scrutinised the discursive framing of the water resources management discourse (Chapter 5), linking it to policymakers' individual perceptions of climate change and water security (Chapter 6) and exploring the influence of policy discourses on policy practice in the Equatorial Nile and Mara River Basins (Chapter 7). This chapter presents the main conclusions drawn from the evidence presented in this thesis and discusses their implications for policy and research.

8.1. Summary of the Results

Chapter 2 presented the theoretical framework of this research. It introduced the main multilevel governance framework, discussed the relevance of discourse analysis in water governance and reviewed other research on environmental discourses, identifying four research gaps:

- the role of policy networks in multilevel environmental governance in developing countries;
- emerging discourses on climate change and water security and their influence on water resources management;
- the role of individuals and organisations in the production and reproduction of policy discourses on water management in developing countries;
- the implications of discursive framing for policy practice and the outcomes of multilevel water governance.

To address these four research gaps, a main research question was framed around the impacts of policy discourses on multilevel water governance:

What is the impact on multilevel water governance in the EQNB of policy discourses around water resources management?

Four sub-research questions guided the empirical analysis:

Q1: How does multilevel water governance function in the Equatorial Nile Basin (EQNB)?

Q2: How is the policy discourse around water resources management (WRM) framed, and what is the relevance of the framings of climate change and water security?

Q3: How do policymakers perceive climate change and water security in the context of WRM in the EQNB?

Q4: To what extent are discursive framings and policy practice connected in the Equatorial Nile Basin, and what are the implications for water governance?

Chapters 4, 5, 6 and 7 addressed these research questions, each contributing to answering the main research question. The empirical results were based on qualitative and quantitative data collected using mixed research methods which were adapted according to policy level. Details of the research methodology and methods were presented in Chapter 3. The research is based on an embedded case study design in the Equatorial Nile Basin which was selected according to the following criteria: the politicisation of water governance, and its multilevel policy and transboundary context. The Mara River Basin was used as a sub-unit of analysis in the embedded case-study design.

The following sections summarise the results and conclusions presented in each empirical chapter.

8.1.1. Multilevel Water Governance through Policy Networks

Chapter 4 presented an analysis of the multilevel water governance architecture in the Mara River Basin as an example of water governance in the Equatorial Nile Basin as a whole. It identified the key governance actors in the Basin according to policy level and portrayed their role and interactions in water governance.

Two competing networks were identified in the Mara River Basin, one revolving around the Lake Victoria Basin Commission and the other with the Nile Basin Initiative at its centre. By forming policy networks the actors are able to pool their resources, which include funding, knowledge and access to wider policy networks. The analysis of the two policy networks demonstrated that actors in each network took on specific roles. Interactions within the networks were based on four types of relationships: providing and accessing funding, creating and disseminating knowledge, hierarchical interdependencies, and democratic representation. Whereas the formal institutional structure was portrayed by government documents as state-centred and had strong and clear hierarchies, water governance was observed to take place through informal policy networks.

The chapter also discussed the implications of the two policy networks' competition for water governance in the Basin. While the networks had dissimilar member numbers, they had a similar scope and competed for the same role as facilitator of transboundary cooperation in the Mara River Basin. Although members of each network collaborated closely with each other there was little interaction across the two networks. Actors in both networks perceived the competition between the networks as suboptimal and had made efforts to enhance communication and coordination between them. Drawing on the conflict and resilience literature, I argued that this competition could be viewed as a case of institutional redundancy. Whereas the main concern of the policy actors was to reduce institutional redundancy and thus improve cost-efficiency, institutional redundancy can be beneficial in the context of limiting the risk of violent conflict and increasing resilience to climate change. In case of the failure of one institution, other institutions are able to fill the gap and provide the same role and services for the institutional system, thus making the overall system more resilient to failure. In conclusion, actors in the Basin prioritise short-term cost efficiency over long-term resilience and political stability by aiming to reduce the institutional redundancy between the two policy networks. This may have negative externalities with regard to conflict over water and climate change resilience.

8.1.2. Discursive Framing of Water Resources Management, Climate Change and Water Security

Chapter 5 scrutinised the WRM policy discourse in the Equatorial Nile Basin with particular attention to issue-specific framings of climate change and water security. The discourse analysis, which was based on data from documents and interviews, revealed three generic and two issue-specific frames. The generic frames are the environmental risk frame, the governance frame(s) and the infrastructure development frame. Together these formed the dominant discourse on WRM and built upon each other. Whereas the environmental risk frame was used to establish a perception of threat, e.g. floods and droughts as a threat to livelihoods, the governance frame(s) and infrastructure development frame were applied to addressing these threats, i.e. through improving the governance of water and building infrastructure to protect against environmental threats. Particular attention was paid to the governance sub-frames which incorporated themes of cooperation, decentralisation and participation. This trio is closely linked to and influenced by other discourses such as the sustainable development discourse.

The three generic frames were reflected in the two issue-specific frames of climate change and water security. The same logic of the framing of the WRM discourse was transferred to the issue specific framing of climate change, e.g. framing climate change as an environmental risk which needs to be addressed through governance reform and the development of infrastructure. The water security frame included only two generic frames, namely the environmental risk frame and the infrastructure frame, omitting the governance frames altogether. Since 2010, climate change as a discursive frame emerged in policy documents in the Nile Basin and was reflected in interviews. The climate change frame was dominant, compared to the hardly mentioned frame around water security (section 5.2.2). As a result of the discourse analysis, a hypothesis was derived stating that due to the political situation in the Nile Basin, policymakers use the climate change frame to circumvent the political deadlock, as it is less politically-sensitive than the water security framing.

8.1.3. Individual Perceptions of Policymakers of Water Resources Management, Climate Change and Water Security

Chapter 6 contributed to answering the main research question by comparing the dominant discourse with individual policymakers' perceptions to understand the extent to which the official discourse overlapped with individual views. A Q study designed around two key themes, issues around WRM/water security and climate change impacts and adaptation options, was conducted to shed light on policymakers' individual perceptions of the discursive framings of WRM, climate change and water security. The quantitative results of the Q study were presented using factor analysis which derived a one-factor solution with ten out of eleven participants loading significantly on factor one, demonstrating that most participants shared similar attitudes to and understandings of the subject matter. Only one participant had a different opinion and did not load significantly on factor one.

The Q study found strong coherence between individual opinions and the dominant discursive framing of WRM, water security, and climate change impacts and adaptation options. In particular, all participants reproduced the environmental risk frame by perceiving climate change as an environmental threat. Opinions differed between participants with regard to the urgency with which climate change should be addressed and the resulting relationship between climate change adaptation and sustainable development. While most participants argued that sustainable economic development can be achieved by prioritising climate change adaptation measures, one participant, which did not load on factor one, emphasised that projects should instead prioritise poverty alleviation, in turn decreasing vulnerability to climate change. All participants strongly advocated the cooperation frame for transboundary water management. Whereas this outcome overlapped with the dominant discourse, the Q study revealed subtle differences between individual participants' perceptions and the discourse, for example regarding the desired level or strengthening of transboundary cooperation. Participants, which loaded significantly on factor one appeared reluctant in regards to deepening transboundary cooperation, as this potentially entails giving up parts of national sovereignty to a transboundary River Basin Organisation. Instead, one participant, which did not load on factor one, was in favour of a strong mandate for a River Basin Organisation, though acknowledged that it

would be unrealistic under current political circumstances to try and deepen transboundary cooperation in the Mara River Basin. Here the Q study provided more nuanced opinions on dominant discursive framings and added more depth to the results of the discourse analysis.

8.1.4. The Influence of Discursive Framings on Policy Practice

Chapter 7 synthesised the research findings and explored the extent to which discursive framings were reflected in policy and thus influenced water governance in the Equatorial Nile Basin. As an example the chapter explored the discursive framings around climate change and water security and how these related to policy practice and outcomes. The analysis linked the issue-specific framings around climate change and water security to hydropolitical developments in the Nile Basin, drawing on the context of WRM in the Mara and Equatorial Nile Basins. This section explored the argument as derived from Chapter 5, that the climate change framing is being used to circumvent the political deadlock concerning the issue of water allocation and water security in the Nile Basin. Examining the climate change and water security frames in the hydropolitical context demonstrated that actors used the climate change framing strategically to foster technical transboundary cooperation between Nile riparian countries and to assess the potential for gaining additional funding for projects while avoiding the politically-sensitive topic of water security and water allocation rights.²⁵ Whereas this strategy benefited immediate cooperation and technical collaboration between riparian countries, it did not address the key issues to find a sustainable solution to the conflict.

The synthesis of the research results finds that the discursive frames are strongly reflected in policy design; however, in policy practice and outcomes these frames are uneven in their level of influence. Policy frames reflected actors' interests and were subsequently woven into story-lines, which then gave legitimization to policy practice. Rather than informing policy, the analysis of the climate change and water security discourses showed that discourse are used to legitimize ongoing policy practice.

²⁵ Technical cooperation refers to riparian states jointly working together on technical issues, such as developing infrastructure. Technical cooperation refers to apolitical cooperation and focuses on issues all riparian countries agree on, and thus might avoid addressing politically sensitive topics.

8.2. Implications for Policy

Multilevel water governance in the Equatorial Nile Basin/ Mara River Basin is shaped and implemented through informal policy networks. While the framing of the policy discourse around WRM produced and reproduced by these actors has a strong influence on policy design, it only has a medium to low influence on policy implementation and outcomes; the discourse reflects the interests of the key actors and is used to legitimize policy practice and water governance processes.

Recognising the realities of multilevel water governance is a first step to improving the system. Rather than conceptualising water governance in the Mara River and Equatorial Nile Basins as solely shaped and driven by government and parastatal actors, it is crucial to acknowledge the influence and role of non-governmental actors, and in particular those of international and national donor agencies and local INGOs. This perspective presents manifold opportunities for a new approach to the implementation of water governance and policies. A realistic assessment of the water governance architecture across multiple policy levels, the identification of key actors and a deepened understanding of how the various actors interact and shape water governance could enhance both implementation and outcomes by employing the networks as an effective implementation structure. Informal policy networks range across policy levels, presenting opportunities to reach and connect actors at all levels. Whereas policy is often formulated at the national/international level and struggles to reach local, and in particular marginalised, groups at the subnational level, collaborating and strengthening such informal policy networks is one way of closing this gap. In the developing country context where governments are weak and areas of limited statehood present a challenge to national governments' implementation of policy, the greater involvement of such informal policy networks could improve the situation.

However, using informal policy networks to 'outsource' government responsibilities can create a number of challenges. Firstly, non-governmental actors' democratic legitimacy in carrying out and monitoring policy implementation is questionable. To ensure legitimacy it is important to involve local stakeholders closely in the decision-making process, giving them a voice and a sense of

ownership. In the example of the implementation of WRUAs in the Mara River Basin, strengthening stakeholder participation, one of the key WRM framings, is strongly reflected in the policy design. Despite the emphasis on stakeholder participation in WRM, often the reality does not match the stated aims. In the case of the Mara River, parastatal agencies only transferred responsibilities and tasks such as collecting hydrological data and monitoring river flows to local stakeholders. This is only marginal to empowerment and inclusive decision-making, and is an area where the implementation of stakeholder participation needs to be improved. The interests and values of various actors such as the WRUAs must also be considered. Another reason for the shortfall in inclusive decision-making may be key actors' lack of political will to reallocate power and authority to the lowest appropriate policy level.

Chapter 4 identified two competing policy networks in the Mara River Basin and Chapter 7 discussed the implications of this competition, such as institutional redundancy. Policy actors perceived institutional redundancy as negative as it is seen as not cost-efficient, and tried to reduce redundancy and streamline efforts rather than duplicating them. While superficially this seems rational, in the context of climate change and conflict over water it needs to be reconsidered. Drawing on the resilience literature and peace and conflict studies (Berkes 2002; Zürcher 2004), the literature argues that institutional redundancy can enhance a system's resilience to external shock and lower the risk of violent conflict. If one institution fails, others can take over and create stability. Even though this thesis hasn't fully tested this claim, it seems highly relevant in the case of the Mara River and the Equatorial Nile Basins, which are in a region vulnerable to climate change and at risk of violent conflict over water resources (Gleick 1993; Hultin 1995; IPCC 2013). This finding has also implications for wider Nile Basin cooperation, in particular for the Eastern Nile Basin states, Egypt, Sudan and Ethiopia. So far, these states were the focal point of studies regarding conflict potential over water within and between countries, as the conflict potential in this area has been perceived as high (Cooley et al. 2009; Gleick 1993). Thus, understanding the benefits of institutional redundancy for conflict prevention seems highly relevant for Nile Basin riparian countries. Forward-looking policymaking would benefit from including these considerations in policy formulation, design and implementation, which may improve the long-term resilience of the institutional system.

Climate change and its projected impacts and adaptation opportunities has gained the attention of water managers in the Equatorial Nile Basin. Chapter 5 scrutinised the framing of climate change within the context of WRM and Chapter 7 reflected on the use of the climate change frame in the discussion of hydropolitics in the Nile Basin. 'Climate change' is used as a new frame to circumvent the political deadlock on the Nile Basin over water reallocation implied by the use of the term water security. This political strategy fits the concept of 'benefit-sharing' advocated by the World Bank, among others (Sadoff and Grey 2005) and emphasises technical cooperation between riparian countries, e.g. working together on infrastructure projects, creating a win-win situation.

Benefit-sharing implicitly tries to depoliticise conflicts by focusing on the interests and needs of the actors and seeking a common denominator. Climate change seems to be 'tacked on' to the WRM agenda and simply presents a reframing of previous projects and activities. As Chapter 7 demonstrated, water management projects previously framed to enhance transboundary cooperation were re-framed as climate change adaptation projects, while not changing essential elements of the project itself. The cooperation of the Nile Basin states has profited from this approach, as riparian countries continue their cooperation efforts despite political tensions by redirecting their efforts towards tackling climate change. Here, the multi-interpretability of the climate change framing has helped actors to form and maintain discursive coalitions and work together, despite political tensions over water allocation. While avoiding political conflict by distracting from tensions by utilising the climate change frame is unlikely to lead to a solution to the conflict over water allocation in the basin, it might nevertheless be cohesive to create and maintain trust between riparian countries, which could then be beneficial to resolve the conflict in the future.

Re-framing transboundary cooperation project as climate change adaptation has the potential for promoting maladaptation to climate change in the Basin. Even though the actors highlighted their efforts to 'climate-proof' development projects and infrastructure, it remains to be seen whether this approach is sufficient in order to adapt to climate change. It is uncertain whether specific WRM projects improve adaptation to climate change or rather simply present a case of maladaptation. For example, building infrastructure such as dams or roads creates emissions and contributes to land-use change, which in turn may deplete

carbon sinks (Cooley et al. 2009; Gleick 1993). Furthermore, the uncertainty of climate change means that infrastructure may be poorly adapted to future climatic impacts, unless that uncertainty is factored into the design. Developing and including flexible and forward-looking decision-making processes in new policies and WRM projects is a prerequisite for addressing the uncertainty about climate change impacts and sustainable climate change adaptation. Extending old projects and contracts by simply adding the term 'climate change' to the proposal (e.g. the 'Climate Resilient Growth Project' (section 7.3.2)) does not seem enough to reduce the vulnerability of the Basin's economy and its inhabitants to climate change. Whereas the flexibility of discursive framings might be beneficial to for creating political alliances and continue transboundary cooperation, it bears the potential to fail to reach the policy goals, which will be necessary to prevent Therefore, a realistic approach towards climate change (and water security) is a necessary step among others to prevent maladaptation by improving the design of policy framework and projects, which truly address the issues at stake.

8.3. Implications for Research

This thesis contributes to filling multiple knowledge gaps. Its main contribution to theory is grounded in the literature on environmental governance in a developing country context and in environmental discourse analysis and its implications for policymaking. This section discusses the research gaps filled and points towards future research.

8.3.1. Contribution to Knowledge Gaps

This thesis contributes to understandings of multilevel water governance in the Equatorial Nile Basin, and in particular in the Mara River Basin, and links to literature on environmental governance. Environmental governance is defined as:

a set of regulatory processes, mechanisms and organisations through which political actors influence environmental actions and outcomes. (Lemos and Agrawal 2006: 298)

Governance, as distinguished from government, highlights the involvement of state and non-state actors in rule-making and rule implementation in society (Risse 2011). The literature on multilevel environmental governance has a strong research focus on the EU. By analysing water governance in the Equatorial Nile

Basin this thesis has added to the empirical evidence of governance analysis in the developing country context. As the case study reveals, fragile political environments and national governments' lack of institutional, financial, and technical capacity impact on multilevel water governance and its implementation in the basin. This research sheds light on how governance takes place in such an environment, and thus bears relevance to other Nile riparian states, as most of them are characterised as fragile political environments. Due to the lack of government capacity, successful water governance is even more reliant on the initiatives and capacity of non-state actors. Actors in the Equatorial Nile Basin form informal policy networks to overcome government shortcomings. This finding is also relevant to other Nile riparians states, as well as other river basins in developing countries. Applying the concept of multilevel governance as well as policy network theory proved useful for uncovering how water governance takes place in the Equatorial Nile and Mara River Basins. In the context of the wider Nile Basin, the question arises whether or not similar policy networks and patterns of interactions across policy levels could be observed in other parts of the Nile Basin, or other river basins across the world. Such an insight is beneficial to various actors involved in water governance in the Nile and elsewhere as it bears the potential to enhance interactions and thus policy outcomes for water governance. In order to test the existence of similar policy networks in other parts of the Nile Basin, further research is required.

This research has provided new insights into policy networks and their role in a developing country context with evidence of the formation and structure of such policy networks and their role in water governance in the Equatorial Nile Basin. The implications of the institutional redundancy created by two policy networks competing for water governance in the Mara River Basin have been discussed with regard to cost-efficiency, resilience and conflict prevention. Based on insights from literature on resilience and institutions, this thesis suggests that institutional redundancies might enhance the resilience of a system to external shocks thus reducing the potential for failure of an institutional system. Drawing on findings from peace and conflict studies, this research provides an unusual perspective on the benefits of institutional redundancy for reducing the risk of violent conflict over water and thus critically questions the cost-efficiency paradigm promoted by most policy actors in the basin.

The study shows that actors use policy discourses to legitimize policy practice, rather than for orienting policy design. For the example of the climate change discourse, this study revealed that actors adopted a climate change frame to legitimize practices for transboundary water governance and cooperation. The multi-interpretability of the framing was cohesive for the formation of discourse coalitions, and enabled actors to continue cooperation despite political tensions. Furthermore, actors used the discursive framing to foster their own interests, such as accessing donor funding for a diverse range of water management projects including climate change adaptation, but also those focussed on transboundary cooperation.

This research has furthermore contributed to the advancement of Q Methodology, namely by applying the method with African and European policymakers and using it in a diverse culture context. Compared to most Q studies which apply Q Methodology with laypersons in a European or North American context (Addams and Proops 2000; Barry and Proops 2000), this research tested the usefulness of the methodology in the East African policy context. The experience showed that after initial doubt or reluctance by some participants, all eleven participants enjoyed the exercise of sorting the statements on the Q sort. The method worked well with policymakers, as all participants seemed enthusiastic and motivated when asked about their perceptions and opinions in their field of expertise. Most participants seemed to enjoy the ‘food for thought’ (Donor1a) the Q method provided.

However, it was important to make minor adjustments to the method, specifically in sorting instructions (section 3.4.7). For example, most participants had busy schedules and thus only a limited amount of time for the Q sort interview and got impatient when being instructed to first make three piles of items, before the more detailed sorting on the Q sort grid. Being aware of the time limitations of participants is an important insight to applying Q Methodology with policymakers and other high-ranking individuals, and has relevance to other cultural contexts. This insight does not only relate to sorting instructions but also to the design of the Q study. Whereas this study used a comparatively small item sample of 28 statements, most Q studies use between 40-50 statements (Watts and Stenner 2012). On average it took participants between 30-45 minutes to sort 28 items, and most participants seemed to be able to concentrate well on the task. More

items would have extended the time frame of the sorting process, and might have created a feeling of impatience in the participants or potentially even leading to ending the Q sorting before all items were arranged. When using Q Methodology with technical experts and asking them about their expertise, most statements need less introduction or explanation than when applying the method with laypersons. Instead, the experience of this research suggests that experts might get slightly impatient, and hence might increase the potential for a negative bias in their responses. In order to test this impression more research and experiences applying Q Methodology with policymakers is needed.

8.3.2. Future Research Areas

This thesis contributes to filling gaps in knowledge on the role of policy networks in environmental governance in developing countries and the relevance of policy discourses for policy practice. It also indicates future areas for research.

The thesis has started to explore the relevance and connections of discursive framings in policy practice and outcomes. More research is needed to better understand how these processes function and to establish with more certainty how and to what extent a policy discourse influences policy outcomes. Improved understanding of a discourse's influence on policy is relevant not only to the literature on environmental discourse analysis and public policymaking; it also acts as an important reference point for policymakers and lobby groups seeking to shape policy outcomes. While leading individuals are often crucial in influencing policy designs and outcomes, research suggests that policy change was most effectively implemented through collectives of individuals (Huitema et al. 2011), which is a similar finding to the informal policy networks this research observed. However, the role of individuals in policy making is yet not well understood. Whereas there are few studies of the role of individuals in governance processes, see for example Huitema and Meijerink (2009), limitations for researching the role of individuals as drivers of change are often complex policy processes, which make it difficult to attribute a specific event to one individual (Meijerink and Huitema 2009). The Q study used in the present research started to analyse the role of individuals in policy discourse, but thorough analysis is necessary to shed more light on how key individuals influence the production and reproduction of discourses.

This research has also scrutinised the implications of institutional redundancy for water governance, establishing that it may enhance resilience and lower the risk of violent conflict. Although this research did not adopt the concept of resilience to frame the research, the concept emerged as relevant when examining the overlapping functions of institutions in the two policy networks. Questions about the conceptualisation of resilience arise in this context; for example, whereas Manyena (2006) understands resilience as a system's ability to adapt to shocks without changing its fundamental characteristics, other authors emphasise different types of resilience which can include transformative change, i.e. the 'ability to change basic operating assumptions, and thus institutional structure.' (Dovers and Handmer 1992: 270) To improve understanding of the relationships and trade-offs between different types of resilience and transformative change, further data collection, analysis and research assessing the desirability and fit of different types of resilience in existing institutional systems are needed. Improved awareness of such trade-offs would be beneficial both for policy actors and the people living in the Basin. The findings of such research would have implications that extend beyond water resources management in the Equatorial Nile and may be relevant in other situations of institutional redundancy in developing countries.

Lastly, this research has critically discussed the use of the climate change framing within the wider discourse on WRM in the Nile Basin. Policy actors use the climate change frame as a strategy to evade political tension over water security and allocation and to foster technical transboundary cooperation. The research participants held a range of views on water sector priorities with regard to climate change adaptation, and many argued that developing and improving water infrastructure reduces vulnerability to climate change. This argument suggests that infrastructure development projects are beneficial to climate change adaptation as well as poverty alleviation. A critical examination of the implications of this 'business as usual' approach for climate change adaptation (or maladaptation) is needed, including an improvement of data on hydrological implications of infrastructure in the context of climate change and changes to socio-economic factors in the context of high population and economic growth.

8.4. Concluding Remarks

Water governance in the Nile Basin and the management of transboundary water resources are political issues. This research has enhanced understanding of multilevel water governance in the Equatorial Nile Basin and the influence of environmental discourses on water governance through policy design, implementation and outcomes. Using the example of the Mara River Basin, it has established that informal policy networks, including state and non-state actors across multiple policy levels, play a key role in the design and implementation of water governance. The observed water governance structure contrasts with the formal institutional architecture, which was solely focused on state actors for policy design and implementation.

To answer the main research question of this study, namely 'What is the impact of policy discourses around water resource management on multilevel water governance in the Equatorial Nile Basin (EQNB)?' this thesis demonstrates that discursive frames influence governance by strongly shaping policy design, while policy implementation and outcomes only match such framing to a medium or even a low degree. Actors use policy discourses to legitimize policy practice, rather than orienting it. Here, actors created narratives connecting a number of framings, which support actors' interests and justify their actions. Discursive framings were produced and reproduced by policy actors in both networks whose opinions mainly reflected the dominant discourse. This suggested that the multi-interpretability of the discursive framings was cohesive for the formation of a dominant discourse coalition. However, as this thesis showed discursive framings are particularly important during the policy design stage, and thus they should not only be used to legitimize ongoing policy practice. Instead unrealistic framings of climate change adaptation and water security risk maladaptation and may not address the issues at stake sufficiently, thus jeopardizing the resilience of the Nile Basin to climate change.

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Appendix

Appendix 1 – Ethical Clearance

**UNIVERSITY OF EAST ANGLIA,
INTERNATIONAL DEVELOPMENT RESEARCH ETHICS COMMITTEE
APPLICATION FOR ETHICAL APPROVAL**

PART A – to be completed by the applicant(s)

ALL QUESTIONS IN PART A MUST BE ANSWERED.

Name of applicant:	Nina Hissen			
Student ID no. (if applicable)	5923018	Sex (✓)	M	F ✓
Project Title:	PhD research to achieve an understanding of decision-making processes over transboundary water resources in the Equatorial Nile Basin in the context of the securitization of water resources and the discourse on climate change in the region in order to explore the factors determining water management policies.			
Project Funder*:	UEA, Tyndall Centre for Climate Change Research			
Submitted by (✓)*	SSF	✓	ODG	

*for DEV/ODG faculty or ODG research associate applications only.

Date of submission of application:	10/11/11
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Name(s) of all person(s) submitting research proposal (including main applicant)	Status (BA/BSc/MA/MSc/MRes/ MPhil/PhD/research associate/faculty etc.) <u>Students please specify your course</u>	Department/Group/ Institute/Centre
Nina Hissen	PhD	Tyndall Centre/ DEV

Email address for correspondence relating to this submission:		
n.hissen@uea.ac.uk		

In the case of undergraduate and postgraduate research please give details of supervisor(s):	
Name	Position held
Marisa Goulden Mark Zeitoun Declan Conway	Lecturer in Climate Change (DEV/Tyndall) Senior Lecturer of International Development Professor of International Development

Postgraduate research students please indicate the date of your PP presentation:	
Date:	26/09/11

1. OVERVIEW OF THE STUDY: Describe the purposes of the research proposed. Detail the methods to be used and the research questions. Provide any other relevant background which will allow the reviewers to contextualise your research. Include questionnaires/checklists as attachments, if appropriate.
Water management in the Nile Basin is challenging. According to the Falkenmark Index (Dovers and Handmer 1992: 270), all eleven Nile Basin riparians either face physical shortages of water or a lack of access to the resource resulting from socio-economic factors (e.g. poor supply-demand management, lack of infrastructure to harness the water resources available). The situation is expected to become more severe as a consequence of high population growth, a rising demand for water and climate change (Falkenmark 1989). The political instability of the region (Conway et al. 2005), weak states and political institutions exacerbate the already serious situation making the region a hotspot for water insecurity. Water insecurity relates to the insufficient availability and supply of fresh water. Combined with national political interests, water insecurity results in the “securitization” of the water resource, i.e. turning water into an issue of national security (Rice and Patrick 2008). The consequences of the combination of political instability and physical water shortages (Brauch 2009; Buznan et al. 1998) are likely to be exacerbated by climate change. This leads to the politicization of climate change and the securitization of water resources within an unstable political environment. This research addresses the question of how management decisions are made within this setting. The aim is to gain a better understanding of the relationship between water governance and the decision-making processes within water resources management in the context of water securitization and climate change. The following research questions will be addressed: <u>Main question:</u> What is the relationship between water governance and water management decisions in the Equatorial Nile Basin (EQNB) in the context of water securitization and climate change? <u>Sub-questions:</u> 1) How does the interaction between transboundary and national institutions shape

water management decisions in the EQNB?

2a) How are emerging discourses around water security and climate change taking shape in the EQNB?

2b) How does the discourse on water security and climate change influence water management decisions?

3) How could water management decisions relate to water security in the context of delivering adaptation to climate change?

The interaction between the transboundary and the national level will be the focus of this study. A case study approach is used to present a more detailed analysis of decision-making within the Mara River Basin (MRB), located in Kenya and Tanzania, while integrating this within the wider context of the Equatorial Nile Basin (EQNB).

Methods include semi-structured interviews, institutional mapping, Q-sorts and Likert-scale questionnaires, possibly a focus group and observations by the researcher. Semi-structured interviews, questionnaires and the focus group will be held with the representatives of the different organizations and will take place, depending on the method one on one with the researcher (interviews, questionnaires) or in a group (focus group). Organizations to be approached will include the Nile Basin Initiative, Lake Victoria Basin Commission, and the East African Community. In addition representatives of national governments (ministries and district managers), international organizations (e.g. UNEP, World Bank) and bilateral donor agencies (e.g. DFID, GIZ, USAID) as well as members of civil society (e.g. NGOs) will be interviewed. The representatives will be encouraged to state their opinion freely, also regarding the research procedure itself. Approximately eighty to onehundred interviews will be conducted with a duration of about one hour, though it is possible that some participants will be interviewed more than once. The exact dates still need to be specified but will take place from January to September 2012.

The interviews will be conducted either in the offices of the interviewees or in public places. The objective of fieldwork is to find out about factors influencing decision-making over transboundary water resources, and to see whether the securitization of water resources and the politicization of the climate change discourse have an impact. However, the research is designed to discover other important factors which influence the decision-making process over water resources as well.

In addition to conducting interviews, the research will include document analysis of primary sources (i.e. grey literature in forms of reports and working papers) and secondary literature (i.e. journal articles, books etc.).

Locations of the interviews will include Kampala and Entebbe (Uganda); Nairobi, Kisumu and the Mara Basin (Kenya), Dar-es-Salam, Musoma and the Mara Basin (Tanzania) and possibly other cities in the region, such as Kigali (Rwanda); however this has to be decided when in the field. Visits to selected communities in the respective countries will be part of the research

ALLAN, T. 2009. Global Trade: Balancing Existing and Future Regional Water Resource Deficits. In: BRAUCH, H. G., OSWALD SPRING, Ú., GRIN, J., MESJSZ, C., KAMERI-MBOTE, P., BEHERA, N. C., CHOUREAU, B. & KRUMMENACHER, H. (eds.) *Facing Global Environmental Change. Environmental, Human, Energy, Food, Health and Water Security Concepts*. Heidelberg, Berlin.

BRAUCH, H. G. 2009. Securitizing Global Environmental Change. In: BRAUCH, H. G., OSWALD SPRING, Ú., GRIN, J., MESJASZ, C., KAMERI-MBOTE, P.,

BEHERA, N. C., CHOUROU, B. & KRUMMENACHER, H. (eds.) *Facing Global Environmental Change. Environmental, Human, Energy, Food, Health and Water Security Concepts*. Berlin, Heidelberg.

BUZNAN, B., WÆVER, O. & DE WILDE, J. 1998. *Security: A New Framework for Analysis*, London.

CONWAY, D., ALLISON, E., FELSTEAD, R. & GOULDEN, M. 2005. Rainfall variability in East Africa: implications for natural resource management and livelihoods. *Philosophical Transactions: Mathematical, Physical and Engineering Sciences*, 363, 49-54.

FALKENMARK, M. 1989. The Massive Water Scarcity Now Threatening Africa: Why Isn't It Being Addressed? *Ambio*, 18, 112-118.

RICE, S. E. & PATRICK, S. 2008. *Index of State Weakness in the Developing World*. Washington, D.C.: The Brookings Institution.

2. SOURCES OF FUNDING: The organisation, individual or group providing finance for the study.

The research will be undertaken as part of PhD research at UEA funded by the Tyndall Centre for Climate Change Research. This study will take place in Uganda, Kenya, Tanzania, and Rwanda during January to September 2012.

3. RISKS TO PARTICIPANTS: What risks to the subject are entailed in involvement in the research? Are there any potential physical, psychological or disclosure dangers that can be anticipated? What is the possible benefit or harm to the subject or society from their participation or from the project as a whole? What procedures have been established for the care and protection of participants (e.g. insurance, medical cover) and the control of any information gained from them or about them?

The risk to participating individuals is expected to be moderately low. Before each interview informed-consent of the participants will be sought. In any presentation of the findings, names of participants will remain anonymous. However, for the research presentation it might be necessary to identify the affiliated organization of an individual. In general, data will only be related to the organization type and country (e.g. Tanzanian NGO representative, Ugandan Government). If for purposes of clarity the specific organization needs to be identified, permission will be sought and needs to be granted from the person interviewed. This option will be indicated on the consent form to be approved by every participant before the interview.

4. RECRUITMENT/SELECTION PROCEDURES: How will study participants be selected? Is there any sense in which participants might be 'obliged' to participate – as in the case of students, prisoners or patients – or are volunteers being recruited? If participation is compulsory, the potential consequences of non-compliance must be indicated to participants; if voluntary, entitlement to withdraw consent must be indicated and when that entitlement lapses.

Participants will be selected according to the institution they belong to or work for. Only representatives from institutions, which are considered significant for transboundary water decision-making and influencing the process of it in the EQNB will be interviewed. The researcher will be interacting with a wide range of participants. Interviewees might

be members of a transboundary organization (e.g. Nile Basin Initiative), representatives of national governments (in ministries, on the district level such as district officials for water, fisheries and the environment, and local level) and community members affected by transboundary water issues. In addition, representatives from international bodies (e.g. UNEP, UNDP, World Bank) will be interviewed. Persons participating in the interviews will do so voluntarily and will be free to decline to participate in the research. Participants will also be free to withdraw their consent for the information they have given to be used in the research, as long as they communicate this wish to the researcher within the 30 days following the interview. Where consent is withdrawn the information from the interview will not be used in the research publications. Where individuals decline to participate an alternative person will be approached if appropriate. Participants will be required to give permission before audio recording of the interview takes place. Where participants decline to be recorded, the researcher will take notes herself. The interviews will be conducted in English. Where English is not the native language a translator will be employed to translate into English.

5. PARTICIPANTS IN DEPENDENT RELATIONSHIPS: Specify whether participants will include students or others in a dependent relationship (this could affect their ability to decline to participate). If such participants will be included what will you do to ensure that their participation is voluntary etc.?

n/a

6. VULNERABLE INDIVIDUALS: Specify whether the research will include children or people with mental illness. If so, please explain the necessity of involving these individuals as research participants and what will be done to facilitate their participation, or the participation of people with physical disabilities.

n/a

7. PAYMENTS AND INCENTIVES: Will payment or any other incentive, such as a gift or free services, be made to any research subject? If so, please specify and state the level of payment to be made and/or the source of the funds/gift/free service to be used. Please explain the justification for offering payment or other incentive.

The participants will neither receive payment nor any other incentive or free service to participate in the study. During a focus groups, refreshments will be provided by the researcher.

8. CONSENT: Please give details of how consent is to be obtained. A copy of the proposed consent form, along with a separate information sheet, written in simple, non-technical language MUST accompany this proposal form (do not include the text of the form in this space, attach with your submission as a separate document).

Consent will be sought both verbally and in a written form, by talking through and giving the participant a copy of an information sheet with a consent form for them to sign and return to the researcher (a copy of both will be provided for them to keep). The researcher will give the participant the opportunity to ask any questions they have about the research and provide appropriate explanations. On the rare occasion that someone is unable to give written consent, they will only be able to participate if verbal consent is

given.

9. CULTURAL, SOCIAL, GENDER-BASED CHARACTERISTICS: Comment on any cultural, social or gender-based characteristics of the research participants which have affected the design of the project or which may affect its conduct.

The researcher will take care to be well informed of religious, culturally and gender-specific sensitive customs or expectations so as not to cause offence by her conduct or dress.

10. ENVIRONMENTAL IMPACT: Identify any environmental impacts arising from your research and the measures you will take to minimise risk of impact.

The environmental impact of this research will include the emission of Green House Gases, such as CO₂ through the use of airplanes and other motorized vehicles (e.g. car, buses) for travelling to the research sights.

11. CONFIDENTIALITY: Please state who will have access to the data and what measures which will be adopted to maintain the confidentiality of the research subject and to comply with data protection requirements e.g. will the data be anonymised?

The researcher (Nina Hissen) and PhD supervisor (Marisa Goulden) will have access to the data. They agree (through signing this form) to treat the information as confidential by not discussing it or passing copies of it to anyone else and to abide by their commitments to maintaining participants' anonymity. She will also be required to keep the data on the computer, in notebooks and audio recordings safe (for example through coding the data, applying passwords, keeping notebooks in a locked filing cabinet or room). Data may only be passed on to other persons, where appropriate, once it has been anonymised.

All possible efforts to maintain confidentiality and anonymity will be sought in the event of a Freedom of Information request regarding the data by seeking advice from the University Freedom of Information Officer and relevant codes of conduct.

12. THIRD PARTY DATA: Will you require access to data on research participants held by a third party? In cases where participants will be identified from information held by another party (for example, a doctor or school) describe the arrangements you intend to make to gain access to this information.

n/a

13. PROTECTION OF RESEARCHER (Applicant): Please state briefly any precautions being taken to protect your health and safety. Have you taken out travel and health insurance for the full period of the research? If not, why not. Have you read and acted upon FCO travel advice (website)? If acted upon, how?

The researcher (a German national) will register her stays in the fieldwork locations with the German Embassy internet registration service ELEFAND and check and follow the UK Foreign Office country advice. In addition, the supervisor (Marisa Goulden) will always be informed of the location and activity of the researcher. The researcher will carry a mobile phone and emergency telephone numbers. Wherever possible interviews will be conducted in public places or offices where other people are around rather than in private homes or otherwise potentially risky locations. The safety of the researcher will be an important consideration in the choice of the public transport used and the accommodation chosen.

14. PROTECTION OF OTHER RESEARCHERS: Please state briefly any precautions being taken to protect the health and safety of other researchers and others associated with the project (as distinct from the research participants or the applicant).

n/a

15. RESEARCH PERMISSIONS (INCLUDING ETHICAL CLEARANCE) IN HOST COUNTRY AND/OR ORGANISATION: The School's staff and students will seek to comply with travel and research guidance provided by the British Government and the Governments (and Embassies) of host countries. This pertains to research permission, in-country ethical clearance, visas, health and safety information, and other travel advisory notices where applicable. If this research project is being undertaken outside the UK, has formal permission/a research permit been sought to conduct this research? Please describe the action you have taken and if a formal permit has not been sought please explain why this is not necessary/appropriate (for very short studies it is not always appropriate to apply for formal clearance, for example).

The researcher is currently applying for research permits in Kenya, Tanzania and Uganda. The process is expected (according to the authorities in the three countries) to take two months. However, in case the permit is not issued before March, the researcher will follow up the process in person in the respective countries. In-country ethical clearance is part of the application for the research permits.

Time Schedule:

December 2011: Seek affiliation to East African research institutions and apply for research permits

January-February 2012: Issuing of research permits

March 2012: Starting of fieldwork; following up research permits in person if necessary

16. MONITORING OF RESEARCH: What procedures are in place for monitoring the research (by funding agency, supervisor, community, self etc.)

The researcher will maintain contact with the supervisors during the fieldwork and report back on the progress of the research. An analytical paper will be written before embarking on fieldwork with the data collected from a previous scoping trip. Also, comments received during the Procedural Paper presentation will be incorporated in the research design.

In addition, as part of the research permit requirements, the research will submit a report on the outcome of the fieldwork to the respective host countries.

<p>17. ANTICIPATED USE OF RESEARCH DATA ETC: What is the anticipated use of the data, forms of publication and dissemination of findings etc.?</p> <p>The findings will be incorporated in the researchers PhD thesis and subsequent publications and conference presentations.</p>	

<p>18. FEEDBACK TO PARTICIPANTS: Will the data or findings of this research be made available to participants? If so, specify the form and timescale for feedback. What commitments will be made to participants regarding feedback. How will these obligations be verified?</p> <p>All published reports, journal articles and conference papers arising from the research will be made available to participants who express interest. Participants will be given the chance to ask questions on specific areas of interest, opening up the opportunity for information sharing and discourse between parties. Details enabling participants to make future contact with the researcher (Nina Hissen) will be provided on an information sheet handed out at the interview.</p>	
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<p>19. DURATION OF PROJECT*</p>	
START DATE	Approx. 01/03/12 Start of fieldwork
END DATE	01/09/12 End of fieldwork

* the start date should not be within the 2 months after the submission of this application, to allow for clearance to be processed.

<p>20. PROJECT LOCATION(S): Please state location(s) where the research will be carried out.</p> <p>Kampala and Entebbe, Uganda Nairobi, Kisumu and the Mara Basin, Kenya Musoma, Dar-es-Salaam, and the Mara Basin, Tanzania Possible visits to Kigali, Rwanda Visits to communities in Kenya and Tanzania (Mara Basin)</p>	
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Signature (Proposer of research)	Date
Nina Hissen	10/11/11

<p>Where the proposal is from a student, the Supervisor is asked to certify the accuracy of the above account. If the supervisor is out of the country at the time of submission they should send an email to the Chair of the ethics committee (j.seeley@uea.ac.uk), copied to Mrs Esther Palin (dev.pa@uea.ac.uk) stating that they have seen and approved the application.</p>	
Signature (Supervisor of student)	Date



Study on decision-making over water resources in the Equatorial Nile Basin

RESEARCH PROJECT INFORMATION SHEET

The aim of this research is to gain an understanding of factors influencing political decision-making over transboundary water resources. The study explores these factors in the context of the possible impacts of climate change and multiple dimensions of water resources on the decision-making process. To comprehend possible factors influencing the process, the role of water management institutions, including formal or informal institutions, is analysed. The research centres on the Equatorial Nile Basin. It is hoped that the findings can be used to enhance the sustainable use of water resources and improve future institutional adaptive capacity to climate change.

The research is part of a PhD dissertation project undertaken at the University of East Anglia in cooperation with the Tyndall Centre for Climate Change Research, UK. The primary data for the research will be collected through this study.

In order to assess in how far climate change and scarce water resources influence decision-making, the relevant formal and informal water management institutions will be identified and selected individuals will be interviewed.

In a second step, through interviews, major factors affecting decision-making over water resources are explored and identified.

Interviews will take place one on one with the researcher in a semi-structured interview. Some of the participants might be asked to fill in a questionnaire using multiple statements to be evaluated by the participant. Interview participants will be encouraged to state their opinion freely.

All information given by participants in the interview will be treated confidentially and participants will be asked how they would like to be identified in any of the reports or publications that are written from this research (i.e. by

organization name or type, or simply as informant). The participant has the option to withdraw from the research within a period of 30 days after the interview has taken place. In case of withdrawal, the information provided will not be used in the research. Participation in the research is entirely voluntary and participants must give their consent to participate. The results of the research will be shared with participants.

Contact information for the researchers involved in this project:

Nina Hissen

PhD Researcher	T +254 741 913 483
School of International Development	(Kenya) or
University of East Anglia,	+44 7984 429379 (UK)
Norwich Research Park	
Norwich	E-mail to:
NR4 7TJ	nina.hissen@gmail.com
UK	

Supervisors:

Dr. Marisa Goulden	E-mail:
Lecturer	m.goulden@uea.ac.uk
School of International Development	
University of East Anglia,	
Norwich Research Park	
Norwich	
NR4 7TJ	
UK	

Dr Henry Neufeldt

Leader, Global Research Project – Climate	
Change	E-mail:
United Nations Avenue, Gigiri	h.neufeldt@cgiar.org
PO Box 30677	
Nairobi 00100, Kenya	

Nina Hissen, University of East Anglia, UK

Study on decision-making over water resources in the Nile Basin

Interview ID:

Date:

CONSENT FORM

**Please tick
to confirm**

I confirm that I have read the information sheet provided to me by the researcher, Nina Hissen, and understood the purpose of the study.

I agree to participate in the interview.

I agree for the interview to be recorded and for notes and transcripts to be made from recording to be used in the research.

I understand that any information which I provide will be treated confidentially and will not be released to persons outside the research team (specified on information sheet) except where it is a completely anonymised form such as the final thesis.

I understand that my participation is voluntary and that I am free to withdraw, without giving any reason. If I decide to withdraw, it needs to be within the first 30 days after the interview. I understand that the information provided will not be used in the study if my withdrawal was within this period.

I wish to be identified in the research report, by (Please select):

- a) Referring to my organisation name.
- b) Referring to the type of organisation I work for only (e.g. academic, NGO, government).
- c) Referring to me as a 'research participant/informant/ respondent' only.

Name of participant

(optional) :

Contact details for receiving feedback (e.g. email address, phone number) (optional):

Appendix 2 – List of Interview participants

Short ID	Participant Information
Donor1 (a)	Technical Advisor, Donor Agency 1
Donor1 (b)	Senior advisor, Donor Agency 1
Donor1 (c)	Technical Advisor, Donor Agency 1
Donor1 (d)	Project Director, Donor Agency 1
Donor1 (e)	Programme Officer, Donor Agency 1
Donor2	Policy Advisor, Donor Agency 2
Donor3	Senior policy advisor, Donor Agency 3
IC2	International consultant
IC3	International consultant
IC4	International Consultant
INGO1 (a)	Senior policy advisor, International NGO 1
INGO1 (b)	Technical Expert, International NGO1
INGO1 (c)	Programme Manager, International NGO 1
INGO2 (a)	Technical Coordinator, International NGO 2
INGO2 (b)	Senior policy advisor, International NGO 2
INGO3	Senior advisor, International NGO 3
INGO4	Programme Officer, International NGO 4
IO1	Programme Manager, International Organisation
Journalist	Journalist
KE Consult1	Researcher, Kenyan University
KE Gov (a)	Programme Manager, Ministry of Water and Irrigation, Government of Kenya
KE Gov (b)	Senior policy advisor, Ministry of Water and Irrigation, Government of Kenya
KE Gov (c)	Policy Advisor, Ministry of Finance, Government of Kenya
KE Gov (d)	Programme Officer, Ministry of State of Development of the Northern Kenya and other Arid Lands, Kenya
KE NGO1	Senior Advisor, NGO, Kenya
KE Private Sec1	Independent Expert, Private Sector Kenya

LVBC(a)	Policy advisor, Lake Victoria Basin Commission
LVBC(b)	Senior policy advisor, Lake Victoria Basin Commission
NBI (a)	Technical expert, Nile Basin Initiative
NBI (b)	Senior policy advisor, Nile Basin Initiative
NBI (c)	Technical expert, Nile Basin Initiative
NBI (d)	Senior economic advisor, Nile Basin Initiative
NBI (e)	Programme Manager, Nile Basin Initiative
TZ Gov (a)	Senior policy advisor, Ministry of Water, Government of Tanzanian
TZ Gov (b)	Technical Expert, Ministry of Water, Government of Tanzanian
UG Gov (a)	Programme Officer, Vice President Office, Uganda
UG Gov (b)	Programme Director, Ministry of Water and the Environment, Uganda
UG NGO	Director, Environmental NGO, Uganda

Appendix 3 – Interview questions

Examples for interview questions for the semi-structured interviews.

Water policy process and involved actors

- In your opinion, what are important topics and challenges here in the region for water management?
- Which issues relating to water management does your organisations currently address?
- What issues do you think will be important for future water management in the region?
- What are current developments in terms of cooperation between Nile Basin countries?
- What are current political developments between Kenya and Tanzania in regards to management of the Mara River Basin?
- Which actors/ institutions are involved in water management in the basin?
- Which are the important stakeholders?
- How does your institution interact with ... (name another relevant actor)?
- In your view, what is the role of the ministry/ NBI/ LVBC/ communities/ NGOs ... (or other relevant actors) for policy formulation/ local water resources management ... (or other relevant activity)?

Climate change impacts and climate change adaptation

- In how far do you consider climate change in your work/ for water resources management/ ... (other relevant activity)?
- Do you think the climate is changing?
- In how far do you consider climate change an important factor for water resources management/ in your work as ... ?
- What do you think would be a good strategy to adapt or to address climate change?

To what extent do you see climate change adaptation included in policies (other frameworks or regulations)?

Appendix 4 – Focus Group Interview Material



Four future scenarios for changes in water flow and water demand for discussion

	Greater river flow	Lesser river flow
No change in demand	A	B
Greater demand for water	C	D

Questions for discussion:

- How likely do you think each scenario is?
- How would the scenario affect your community?
- How would this change the relationship between communities/WRUAs?
- How would you adapt to this scenario ?
- Are there any impacts that are not considered in the scenario?

Photos used for ranking exercise with focus group participants

Instructions:

- Discuss each photo in the group. What do you think each photo represents?
- What type of water uses do you see in the photos?
- Do the photos relate to your personal experiences with water where you live?
- Please link each photo to one issue surrounding water.
- Please rank the photos in order of importance from 1 – very important to 5 – least important.







Appendix 5 – Example Crib Sheet for Factor 1

Items ranked at +3

9 It is important to increase the adaptive capacity for climate change in order to solve other current problems, e.g. poverty..

10 Climate change adaptation should be included in policy development to guarantee sustainable economic growth in the future.

Items ranked at -3

14 Impacts from climate change are not yet evident.

27 A riparian country should be allowed to develop its water resources in its own interests without consulting the other riparians

Items ranked at +2

1 Adaptation to climate change should not just be about survival but should improve the quality of life.

6 Measures for climate change adaptation should be developed by the county governments and communities to meet their needs.

18 To be water secure means to meet all human (e.g. economic, social) and environmental needs for water.

26 Because water is such an important resource, water management should be an issue of national security.

Items ranked at -2

5 Climate change will have positive effects on the social and economic development in East Africa through for example increasing crop productivity.

13 Because the impacts of climate change on the ground are too uncertain, policy makers should wait with climate change adaptation until there is more information on specific impacts.

15 Africa should develop economically first before worrying about global warming.

22 Because a physical lack of water is a constraint for economic development, a country should use all its water resources available for improving economic development despite the negative environmental impacts this might have.

Items ranked at +1

7 It is important to limit the emissions of CO2 and other green house gases even if it will harm economic growth.

11 To adapt to climate change an integrated ecosystems approach and benefit sharing should be applied.

16 The construction of large dams is a good solution to adapt to climate change impacts, such as more frequent droughts and floods.

24 Member countries should even further strengthen cooperation in the EAC over natural resources management, even though this will mean giving up part of their sovereignty.

28 Downstream riparians only consider their own interests when demanding more water and don't see the sacrifices upstream riparians already make to protect shared resources.

Items ranked at -1

4 It is adequate to take identical measures against climate change and environmental degradation, since both phenomena are similar.

17 The greater the quantity of water available, the higher is water security.

20 Protecting humans from water related hazards (e.g. floods) should be the first concern when thinking about water security.

21 Less water availability will bring countries and groups together to equitably share the water resource.

25 Climate change adaptation funds should be open to any organisation or country which needs more finances to fund important development projects, regardless of their focus.

Items ranked at 0

2 Adaptation to climate change means to respond to change in the environment.

3 To create a better future for Africa, climate change adaptation should be the first priority.

8 Adaptation efforts should focus on the most frequent climatic events.

12 East African countries should focus on the developing policies and practices to adapt to climate change, rather than trying to reduce CO2 emissions.

19 Compared to other challenges (e.g. climate change) reducing high population growth is the most important factor when it comes to improving and guaranteeing sustainable water management.

23 A River Basin Organisation should have a strong mandate and be able to punish riparians who violate agreements.