

The Cameroon-Nigerian Border Conflict in the Lake Chad Region: Assessment of the Resource and Conflict Management Capacities of the Lake Chad Basin Commission

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Key Words: Lake Chad Basin Commission, environmental conflict, resource conflict management

ABSTRACT

With the increasing impact of global climate change, a great deal of recent writings has analyzed the link between environment and conflict. Whereas some researchers warn that growing scarcity of renewable resources can lead to violent clashes, others concede that environmental scarcity alone does not trigger violent conflicts. Instead, insufficient institutional capacity to deal with resource scarcity is seen as a major predictor for resource conflicts.

In the mid 1990ies a violent environmental conflict arose between Nigeria and Cameroon in the Lake Chad river bed in response growing water and land scarcity. Even though an institution, the regional Lake Chad Basin Commission, was charged with settling the conflict, an armed clash arose.

The aim of this study is to analyze this environmental conflict in the Lake Chad region and to understand the capacity of the Lake Chad Basin Commission to manage the conflict. For this purpose, a two-step analysis is conducted: First, the linkages between environmental degradation and conflict risks are identified by applying Homer-Dixon's environmental security model to the Lake Chad region. Second, the LCBC's resilience is tested based on common pool theory, which regards insufficient institutional capacity to deal with resource scarcity as a major predictor for resource conflict.

Based on these insights environmental degradation can be characterized as the necessary condition for conflict risk, but the outbreak of the conflict largely depends on the presence or absence of resilient institutions. The findings of this case study underline the importance of international basin organizations in times of increasing climate and societal pressures on African waters. In order to prevent future climate change related conflicts it is important to understand the characteristics of resilient basin organizations.

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INTRODUCTION

Academics and policy-makers have warned of conflicts over shared waters. Indeed, physical, political, economic and social differences between countries bordering the same lake or river can render the relations of co-riparian states conflictive. However, researchers at Oregon State University found that cooperation has largely outnumbered conflicts over common water resources. It seems that water has served as a tool for unification, particularly where institutions exist between riparian countries. According to Giordano and Wolf, the “presence or absence of institutions has proven to be one of the most important factors influencing co-riparian water relations [...]” (2002: 4). In fact, within the world’s 263 international basins, 106 water institutions have been created among states bordering common waters. These basin commissions manage internationally shared waters such as lakes or rivers in a cooperative way to adapt to adverse changes, mitigate the likelihood of conflict as well as to resolve existing conflicts (Giordano, Wolf 2002: 2 -5). The idea behind this institution-building has been formulated by the tragedy of the commons, according to which individuals, acting rational, deplete resources if unconstrained by institutions. So resource conflicts can be seen as a result of institutional failure to effectively combat resource over-use and thus, socially produced scarcity (Turner 2004: 865). However, 158 of the world’s 263 international basins miss any type of management framework for cooperation. In addition, most of the existing water agreements are often characterized by institutional weakness since they do not have the tools to advance comprehensive water management on the long term (Giordano, Wolf 2002: 7 -8).

Consequently, this paper seeks to assess the capacity of water basin organizations to mitigate conflict risk. The following general research questions are guiding this research:

What is the linkage between environmental degradation and conflict risk? Do water basin organizations have the capacity to adapt to environmental degradation and thus to mitigate conflict risk or to resolve existing conflicts?

Context

Lake Chad is the only large source of surface freshwater in the Sahel zone, but has shrunk by 90 Percent compared to its size in 1960 (Onuoha 2010: 26). Nigerians, who economically depend on the Lake, followed the receding water and built 30 villages on Cameroonian territory. To tackle the arising border dispute, Cameroon reverted to the Lake Chad Basin Commission (members: Chad, Cameroon, Nigeria, Niger) which has the mandate, among others, to examine complaints and promote dispute settlement. However, the Commission did not succeed in settling the conflict and an armed clash arose in the mid 1990s.

To understand the linkage between these adverse environmental changes and conflict, the eco-region and not the nation state or a politically defined territory has to be analyzed (Ziermann 2003: 86). Consequently, this inquiry is geographically confined to the eco-region of Lake Chad. We point out how environmental degradation of the Lake Chad basin interrelates with different conflict lines in the eco-region. However, to understand how conflict management functions, we have to limit the inquiry to one conflict line. The focus is

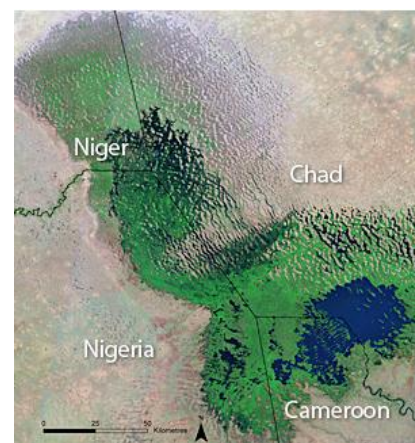


Chart 1: Lake Chad 2007. Source: UNEP

therefore on the border conflict between Nigeria and Cameroon.

The timeframe for this study is from 1960 to today, because the four riparian countries gained independence in 1960 and have started building up their nation states since then. Furthermore, the shrinkage of the lake has steadily increased since the 1960s, too (Coe, Foley 2001: 3349).

The aim of this study is to understand the outbreak of the border conflict between Nigeria and Cameroon. For this purpose, the characteristics of the Lake Chad Basin Commission (LCBC) have to be analyzed in order to assess its potential to manage the conflict.

The following research questions are addressed:

RQ 1: How is environmental degradation in the Lake Chad region linked to conflict risk?

RQ 2: Does the LCBC have the capacity to manage environmental degradation and to provide for conflict management?

Theoretical Background

Peace research has been analyzing the linkage between environmental degradation and conflict since the 1970s. At the time, the international community debated whether to broaden the concept of security from a pure military state-centered approach to an interdisciplinary people-centered concept. The theory of human security thus emerged comprising political, economical, ethnic, social, cultural and environmental aspects. Most prominently the Brundtland-Report from 1987 contributed to perceive the increasing environmental problems as threats for people and states. Consequently, systematic research about environmental changes as cause of conflict has started in the 1990s (Ziermann 2003: 43). The focus of research was to identify the conditions under which adverse environmental change can lead to violent conflict and to draw from these insights models of causality. Two main schools of environmental conflict research have evolved.

First, the environmental security theory argues that scarcity of natural resources can create resource-related violent or nonviolent conflicts (Turner 2004: 865). This theory has mainly been developed by two researcher groups, the Toronto Group around Homer-Dixon and the Zurich Group around Bächler and Spillmann. Both groups came to the conclusion that degradation of renewable resources contributes to armed conflict. However, Bächler and Homer-Dixon approached the issue in a very different manner. Whereas ENCOF uses many different theoretical approaches such as theories of over- and underdevelopment, consumption and modernization and applies them to different case studies, the Toronto Group has developed an own model establishing a causality between environmental scarcity and armed conflict. The latter apply this model constantly to different case studies (Hauge, Ellingsen 1998: 301). The Toronto Group's causality model has been chosen for this research because it is a helpful tool that can be applied to the present case.

Second, common pool theory also conceptualizes the resource-related conflicts as scarcity driven, but explains the genesis of conflicts as an institutional failure in response to collective action problems. The most prominent proponent of the common pool theory is Elinor Ostrom, who won the Nobel prize in Economic Sciences in 2009 for her book *Governing the Commons: The Evolution of Institutions for Collective Action* (1990). Similar to Garrett Hardin's "tragedy of the commons" concept (Hardin 1968), common pool theory holds rational individualistic behavior responsible for scarcity and degradation of shared natural resources. If this downward spiral of resource overuse and socially produced scarcity is not constrained by institutions, the risk of violent conflict increases.

Hence, resource conflict is seen as a sign of competition over ill-defined or ill governed property and is a result of dysfunctional and weak governance (Turner 2004: 864). Likewise, the state failure hypothesis argues that scarcity conflicts are most likely where institutional capacity is weak or nonexistent (Giordano, Giordano, Wolf 2005: 47). Or in other words *“[an] important factor in understanding resource conflict is understanding the characteristic that make up resilient institutions (Giordano, Giordano, Wolf 2005: 58).”*

Research Design

The above outlined insights from the two main schools of environmental conflict research are both applied to the Lake Chad case in order to understand the link between environmental degradation and conflict, on the one hand, and, on the other hand, to assess the capacity of the regional lake basin institution to peacefully manage environmental conflicts, thus, reducing the risk of violent conflicts.

In this regard, the following hypothesis is formulated:

The likelihood of a violent conflict outbreak is determined by the capacities of institutions to respond to environmental degradation and to manage environmental conflicts.

An environmentally induced conflict² is defined in this paper as a violent or non-violent contradiction between actors competing over scarce natural resources in the context of historically unprecedented degradation of renewable resources caused by human interference (Bächler, Spillmann 1996: 334). We define conflict management undertaken by water basin organization here as actions, which aim at mitigating environmental conflicts as well as at resolving existing conflicts. Institutions are defined as formal legal structures between nation states designed to facilitate cooperation between states with regard to shared natural resources.

The method applied is a qualitative case study. The aim is to understand the outbreak of the border conflict between Nigeria and Cameroon in the Lake Chad area.

In the first place, the linkages between environmental degradation and conflict risk are explained by applying Homer-Dixon's environmental security model. The model is built on four levels of analysis: First, the damage of an ecosystem, second the harmful socio-economic effects resulting from the environmental degradation, third other political, economic and social contextual conflict-aggravating factors, and fourth, the eventually resulting conflicts (Homer-Dixon 1999: 178).

In the second place, this paper seeks to understand the capacity of the Lake Chad Basin Commission to provide for conflict management between Nigeria and Cameroon by applying common pool theory to the LCBC. More precisely, the LCBC is analyzed according to four criteria which characterize resilient and adaptive basin organizations. These criteria have been identified by the help of a conceptual approach to resource conflict management as laid down in the paper

² Conflict, in general, is defined here with reference to Johan Galtung. He has identified three elements common to all conflicts – the so-called “conflict triangle” (Galtung 1998: 136). Thus conflict is defined, firstly, by a *contradiction* of goals, values, interests or needs, which articulates, secondly, in a conflict signaling and intensifying *behavior* such as concurrence, aggressiveness, hate or violence. Thirdly, the conflict parties' *attitude* justifies both their own position and the conflict itself. This attitude is built on emotions and perceptions of the conflict.

"International Resource Conflict and Mitigation" written by Giordano, Giordano and Wolf (2005). In this article insufficient institutional capacity to deal with resource scarcity is seen as a major predictor of resource conflict. The identified four criteria are proposed to analyze institutions for resource management. They will be applied to the Lake Chad Basin Commission in order to evaluate the commission's general capacity and its performance with regard to conflict prevention and management.

This study has been written as a deskwork analysis by using document data and primarily scientific literature, such as journal articles, reports and books, as information source. To fully understand how conflicts related to the shrinkage of Lake Chad, it would be necessary to undertake field research. However, this was not possible because the underlying paper was written in the framework of a Master's thesis which was very limited in terms of time and financial means.

The following analysis is divided into four parts. First, the model of Homer-Dixon is illustrated and, second, applied to the case of Lake Chad. In the third part, the analytical framework, with its four criteria, for assessing the capacity of basin organizations is presented and applied to the Lake Chad Basin Commission in the fourth part.

ANALYSIS

1 Interplay between Environment and Conflict in Theory

To examine the linkage between environmental degradation and conflict, four levels of analysis have to be distinguished according to Homer-Dixon: First, the damage of an ecosystem, second the harmful socio-economic effects resulting from the environmental degradation, third other political, economic and social contextual conflict-aggravating factors, and fourth, the eventually resulting conflicts (Homer-Dixon 1999: 178).

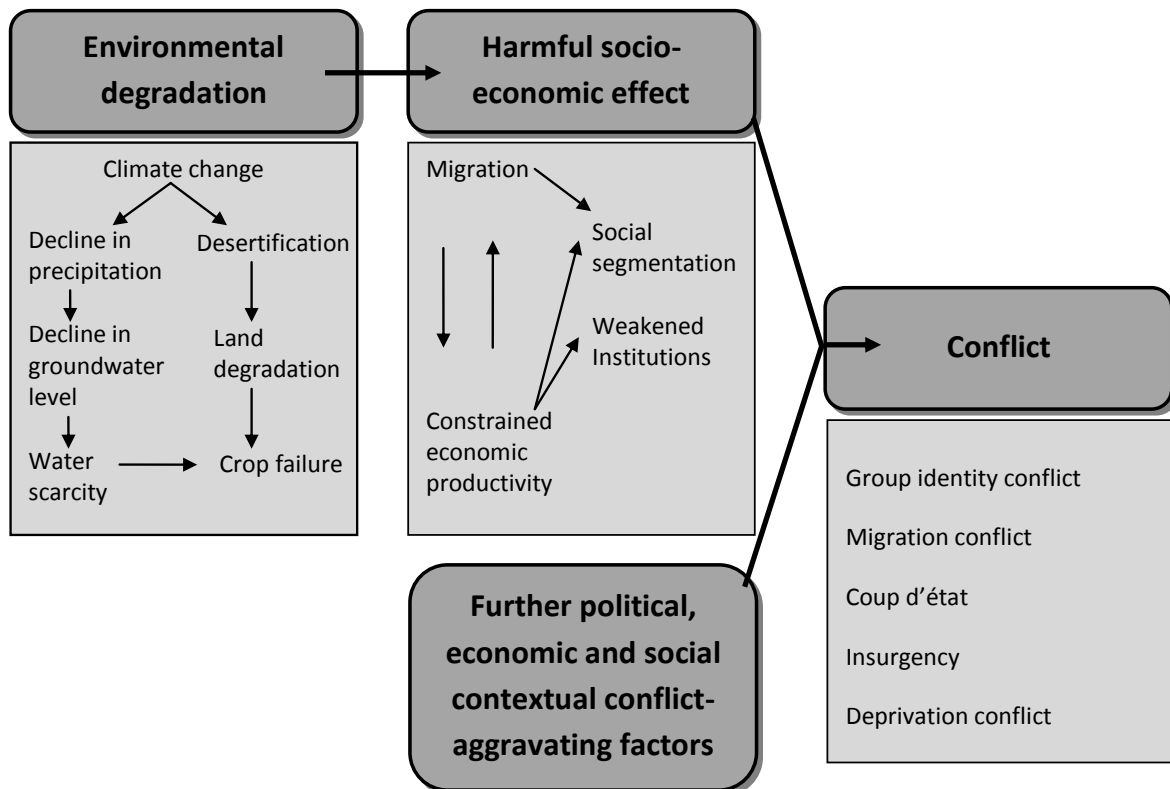


Chart 2: Causality Model: Interplay between environment and conflict. Source: own adaptation to Homer-Dixon 1999: 134.

More precisely, one can describe the causality of an environmentally induced conflict as follows: Adverse environmental changes have effects on humans and societies. As developing economies largely rely on natural resources for their economic productivity, the damage of the environment can severely constrain agriculture, lead to hunger and poverty and negatively affect the whole economy. Thus, people depending on the natural resources for their livelihood are forced to migrate. Moreover, environmental scarcity can strengthen ethnic, class or religious group identities, thus enforcing social segmentation, which reduces social trust and useful intergroup relations. The effects of environmental degradation increase furthermore the demands on the state, but simultaneously decrease state tax revenues. Consequently, a state's administrative capacity can be constrained, which can cause legitimacy gaps, thus weakening the state. A weakened state, in turn, faces increased vulnerability to insurgencies, ethnic clashes and coups d'états. Declined economic production can also lead to deprivation conflicts such as upstream downstream riparian conflicts. In addition, migrating groups can trigger conflicts in the new areas they moved to (Homer-Dixon 1999:

178). So, environmental degradation produces negative socio-economic effects, which, in turn, can lead to conflicts, violent or non-violent, but do not necessarily have to. Whether or not conflicts occur, depends on further conflict- aggravating political, social and economic factors (Homer-Dixon 1999: 178). Because environmental factors interrelate with the political, social and economic context, environmentally induced conflicts could also be labeled as ethnic, political or economic conflicts. However, it should not be underestimated that the environment is at the root of various social stresses (Homer-Dixon 1999: 179).

2 Link between Environmental Degradation and Conflict Risk around Lake Chad

2.1 *Environmental degradation of the eco-region Lake Chad*

Lake Chad used to be one of Africa's largest freshwater lakes. The lake's water level has diminished and expanded over thousands of years. However, in 2001 its decline has reached an unprecedented low level (Mayell 2001). Even though recent water levels have increased slightly (UNEP) a clear shrinkage of the lake can be observed from a long-term perspective (Krings 2004: 98). Whereas the lake accounted for an area of more than 26.000 square kilometers in 1960, only some 532 square kilometers were covered by water in 2004 (Onuoha 2010: 26). Within that time period the "lake water receded for more than 150 km from its northern and eastern shores, and by more than 80 km from its western shoreline" (Odada et al. 2006: 82). The researchers Foley and Coe have determined the causes of the shrinkage as a mixture of climatic changes and human activities (Coe, Foley 2001: 3355). Annual monsoon rains historically filled the lake with water. Back-to-back droughts in the 1970s and 1980s and missing rains led to desertification of the region with the Sahara moving more than 100 km south (Odada et al. 2006: 82). As people could not rely anymore on monsoon water, they became more and more dependent on the lake (Mayell 2001). Thus irrigation projects and the construction of dams significantly reduced water from both, the lake and the two main rivers that drain into Lake Chad, the Logone and Chari River, and hastened the shrinkage. At the same time, the vegetation needed for grazing livestock began to disappear because of the ongoing desertification and overgrazing (Mayell 2001). A domino effect began: Depleted vegetation reduced the ecosystem's ability to recycle moisture back into the atmosphere. This, in turn, contributed to reduced monsoon rainfalls and increased dependence on the lake's water (Mayell 2001). In addition, the loss of canopy cover led to soil erosion and loss of soil fertility (Odada et al. 2006: 75).

2.2 *Socio-economic effects of the environmental degradation*

Fishing, livestock rearing and farming are the main economic activities of the region (Odada et al. 2006: 78). Environmental degradation leading to collapsed fisheries, livestock dying and crop failure have severely threatened the livelihood of the 22 Million people living in the lake basin. Since the households around Lake Chad have lost their economic basis, migration can already be observed (Odada et al. 2006: 82). Either farmers, belonging to many different ethnicities, migrate into the lakebed, or they move into the inland where they compete for scarce arable land resources (Ziermann 2003: 105 - 106). Migration flows are likely to increase in the future because of huge population growth, worsening climatic conditions and falling crop, fishing and pastoral output

(Onuoha 2010: 32). If migration reached a critical size and such migratory mass movements started crossing borders or ethnic territories in the future, international conflicts could occur (Ziermann 2003: 106; Onuoha 2010: 32). All in all, the socio-economic situation of the people in the eco-region has worsened significantly because of the shrinkage of Lake Chad (Ziermann 2003: 103).

2.3 Further conflict-aggravating factors

Several political, social and economic factors increase the risks of violent conflict escalations in the eco-region: Even though the riparian countries do have different political systems, their political context shows many similarities: Nigeria, a former British colony, has a federal political structure. In Cameroon, Niger and Chad, the centralized system of the former French colonial power has been adopted. Nevertheless, limited popular participation, low governmental legitimacy and weak democratic institutions are similar to all these countries (Ziermann 2003: 104). In fact, the four countries are all judged as critical by indices measuring state fragility (the Failed States Index 2007, World Bank Governance Indicator 2008, Corruption Perceptions Index 2009 Human Development Index 2009, the Freedom House Index 2010). Moreover, acute political crises such as coups d'états as well as internal and international violent conflicts have repeatedly taken place since the independence of Nigeria, Niger, Chad and Cameroon. However, effective conflict management mechanisms are absent in these countries (Bächler, Spillmann 1996: 222; Odada et al. 2006: 76). With regard to the social context, it can be said that huge population growth (2,5 to 3 percent growth rate in the basin during the last decades; Fortnam, Oguntola 2004: 4) increases the demand-induced scarcity of natural resources. Between 1960 and 2007, the basin population has nearly tripled from 13 million to 37 million (Fortnam, Oguntola 2004: 4; Onuoha 2010: 27 – 28). The resulting hardship could increase the risk of social segmentation and interethnic clashes between the numerous different ethnicities living around Lake Chad (Ziermann 2003: 105). It is estimated that the Nigerian part of the basin alone assembles about 150 ethnic groups (Onuoha 2010: 30). In addition to the heterogeneity of the region, an illiteracy rate of 90 percent, low health standards, low life expectancy, high infant mortality and undernourishment exacerbate the potential to violent escalations (Ziermann 2003: 106; Odada et al. 2006: 78 - 79). Finally, economic underdevelopment, dependence on the world market for food delivery and the exposure to severe food and hunger crises contribute to the conflict-prone setting of the region (Bächler, Spillmann 1996: 222). As has been shown, the eco-region of Lake Chad fulfills the conditions for a potential violent environmental conflict to break out. Thus, the eco-region of Lake Chad has to be classified as a war-prone area.

2.4 Conflict lines in the eco-region of Lake Chad

In fact, the changing environmental conditions led to different sorts of conflicts among people around Lake Chad who compete for the increasingly scarce water and land resources (Odada et al. 2006: 75). Conflicts arose between upstream and downstream riparian communities because of dam or irrigation projects, between fishermen about fishing rights and between nomadic herders and sedentary farmers. In addition, border conflicts between the riparian countries emerged.

- *Upstream / downstream riparian user conflicts*

Because of severe droughts, large irrigation projects have been launched either taking water directly from Lake Chad or from rivers flowing into the lake (Bächler, Spillmann 1996: 229 – 230). Thus, these irrigation schemes have contributed to the shrinkage of the lake and to severe water shortages. As a result communal uprisings between downstream and upstream riparian users took place. Likewise, improperly designed dams and uncoordinated operation of the dam reservoirs have triggered conflicts between and within countries bordering the lake (Odada et al. 2006: 82 - 83).

- *Competition over dwindling fish stocks*

Fishing is for different reasons a complex issue around the lake. First, the access to water has not been regulated. Consequently, fishermen from the four riparian countries have crossed invisible borders permanently. Second, in the absence of regulations over fishing rights, fisheries have been over-exploited, causing a particular tense competition over dwindling fish stocks. Even though regulations of fishing activities have been recently enacted, they have either not been enforced or they are too complicated, thus creating further confusion (Odada et al. 2006: 84). Hence, conflicts over fishery still carry on. There are, for instance, “allegations of serious infractions and dehumanizing treatments meted out to Nigerian fishermen by Cameroonian gendarmes (Onuoha 2008: 52).”

- *Nomad-herders conflicts*

Interethnic tensions between sedentary farmers and nomadic herders have become frequent in the Lake Chad basin. The lack of water and fertile land leads to the encroachment of farmers into pasture land and vice versa causing violent conflicts (Odada et al. 2006: 83; Onuoha 2010: 34).

- *Border conflicts*

The drifting of the lake away from Nigeria and Niger towards Chad and Cameroon led to territorial conflicts (Niasse 2005: 11). People who are economically dependent on the lake such as fishermen or farmers followed the receding water without considering national borders. In the mid 1990s over 30 new villages have been founded by Nigerian migrants with 70,000 inhabitants on Cameroonian territory. Nigeria then established state control over the new territories by deploying military forces and integrating the villages into Nigerian state administration (ICJ 1994: II, 3, 4, 5, 7). This Nigerian encroachment into

foreign land led to border skirmishes, which turned into an armed conflict in the mid 1990s between the armed forces of Cameroon and Nigeria (Wirkus, Böge 2005: 40).

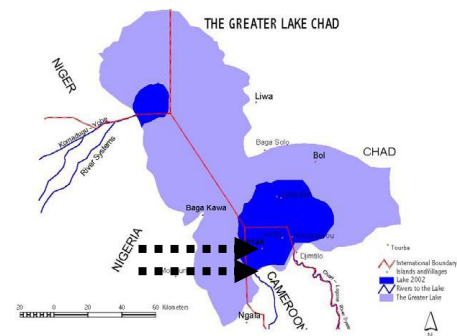


Chart 3: Migration of Nigerians to the Cameroonian part of Lake Chad. Source: Niasse.

To sum up, a clear link between environmental degradation and conflict risk has been analyzed in the Lake Chad eco-region. This is due to the alarming degree of environmental damage as well as to further political, social and economic conflict-aggravating factors. It has been shown that the shrinkage of the lake led to different conflict lines. However, in the following section, the impact of the LCBC is constrained to the conflict between Nigeria and Cameroon.

3 Characteristics of resilient water basin organizations in theory

Giordano and Wolf (2002) undertook a review of the international environmental conflict management literature and examined the state of knowledge about international water institutions. This assessment delivers broad insights about the critical factors in predicting long-term institutional success. The following four criteria have been compiled in order to understand the resilience of water management institutions (Giordano, Giordano, Wolf 2005: 58 - 59):

- *Adaptable management structure.* In order to be effective in the long run, institutional structures need to be flexible, because hydrological, economic, political or social conditions might change. Consequently, the institution has to be able to adapt to changing needs, priorities or new (monitoring) technologies and to incorporate new member states.
- *Clear and flexible criteria for water allocation and quality.* Allocations are at the heart of most water conflicts. At the same time, allocations serve to guarantee water quality and political reliability. Therefore, effective institutions must comprise clear allocation schemes and water quality standards. The provisions should provide for extreme hydrological events such as droughts and for changing values or dynamics. Moreover, binding regulations which are harmonized in the whole catchment help to prevent interriparian conflicts over water use. Despite the importance of clear provisions concerning resource allocations, nation states tend to create “open” resource institutions with symbolic, non-legally binding commitments.
- *Equitable distribution of benefits.* This concept is based on the idea that allocating benefits is more successful in mitigating conflicts than allocating absolute quantities of resources. Dividing the water itself between riparian countries creates inequalities, zero-sum outcomes and thus potential for conflict. But, distributing the benefits from water use allows for positive-sum solutions, creates dependencies and thus provides the ground for stable relations.
- *Detailed conflict resolution mechanisms.* After the creation of an institution, new (hydrological) circumstances or problems can develop into conflicts between the involved states. To resist new sources of tension, institutions must comprise a precise definition of conflict resolution mechanisms. Conflict management bodies should be incorporated into the institution and granted substantial authority to settle transboundary water resource conflicts. Moreover, it is a prerequisite to integrate clear mechanisms for conflict resolution to ensure effective, long-term peaceful relations between the basin states.

4 Analysis of the Lake Chad Basin Commission

In the following case study analysis the just described criteria are applied to the LCBC in order to examine two aspects: On the one hand, the general institutional capacity of the LCBC has to be assessed to understand its potential to contribute to resource management and adaptation measures. On the other hand, the Commission’s conflict management capacities with regard to the conflict between Nigeria and Cameroon are studied.

4.1 *Structure of the LCBC: Adaptable management structure?*

On May 22, 1964, the heads of the four riparian countries Cameroon, Chad, Niger and Nigeria established the Lake Chad Basin Commission (LCBC) with the signature of the Fort Lamy (now Ndjamena) Convention. Thus the LCBC is the oldest basin commission in Africa. In 1994, the Central African Republic became a member of the LCBC. In 2000, Sudan was admitted as an observer and will be granted full membership once the Convention and the Statute of the commission are ratified (Wirkus, Böge 2005: 40). The LCBC is a separate legal entity enjoying the status of an international body. It is composed of two Commissioners per member country and meets at least once a year. The highest body is the meeting of the heads of states and government. Here, decisions are taken by consensus. Day to day work is done in the Executive Secretariat located in Ndjamena (Chad), headed by the Executive Secretary, and consisting of four departments: Administration and Finance, Planning and Project Execution, Documentation and Information and Water Resources. Personnel are recruited from the ministries of the member states. The member states fund the LCBC with one million US Dollar per year (Wirkus, Böge 2005: 41 - 42; Burchi, Spreij 2003: 2-3).

However, the work of the LCBC has not been very effective (Ziermann 2003: 131). One structural problem has been that the Central African Republic (CAR) was not a member of the LCBC until 1994. Even though the CAR does not directly border the lake, its membership is decisive for an integrated water management. The Logone-Chari-River System originating in the CAR provides 90 percent of the inflow to the lake (Coe, Foley 2001: 3349). Any withdrawal or contaminations of the rivers' waters by the CAR directly affect Lake Chad. With the membership of the CAR such problems can be addressed within the LCBC. The admission of new member states shows that the LCBC's structure has been flexible and it represents one of the major successes of the LCBC.

An additional adaptation measure of the LCBC is the foundation of the Regional Parliamentary Committee by the parliaments of the five member countries in 2004 (Onuoha 2010: 29). The aim is to provide legislative support to the Lake Chad Basin Commission.

Despite these positive developments and attempts to adapt the structure of the LCBC to new circumstances, numerous structural deficits remain. First, funding is poor and delayed or missing, which considerably constrains the commission's capacities and hinders confidence building. Especially, Niger and Chad fall behind with their payments (Wirkus, Böge 2005: 42). Nigeria's Minister of Defense Theophilus Danjuma complained in the year 2000 that [the] "commission lacks money. Member Countries, therefore, have to pay their contributions on time (Ziermann 2003: 132)." Second, there are not enough qualified personnel. Third, hydrological data just as capacities of monitoring and evaluating such datasets seem to be weak (Odada et al. 2006: 84). Consequently, the LCBC cannot advise the member states with regard to water protection nor can it establish any early warning system. Fourth, the spillover effects of tense relations between the riparian states resulting from other political issues hinder cooperative work within the LCBC. Sixth, frequent political instability in some member states of the LCBC hampers the proper management of the lake. For example, the Executive Secretariat of the LCBC had to be temporarily relocated from Ndjamena to Maroua (Cameroon) between 1981 and 1982, because of the severe crisis in Chad. During the relocation very little was achieved and important documents had to be left behind (Wirkus, Böge 2005: 42; Adenle 2004: 179). Lastly, there is neither a legal instrument, nor a monitoring or

sanctioning body that could ensure or enforce compliance with the LCBC's decisions. Thus, agreements remain voluntary and a number of past agreements have not been implemented in the member states (Ziermann 2003: 133; Odada 2006: 83). The intergovernmental LCBC indeed lacks the power to verify compliance with its provisions. A supranational commission, however, would have much more authority.

4.2 *Tasks of the LCBC: Clear and flexible criteria for water allocation?*

According to the treaty establishing the LCBC, the *Convention and Statute Relating to the Development of the Chad Basin*, the objectives of the member states are to promote cooperation and development (LCBC Convention and Statutes 1964: Statutes Article 1). According to its statute, the task of the LCBC is to control and regulate the sustainable utilization of the natural resources in the lake's basin (IMF 2002). To fulfill this job, the LCBC can, in theory, prepare joint rules and ensure an effective implementation of such rules (LCBC Convention and Statutes 1964: Statutes Article 9a). Besides ensuring a sustainable use of the lake, the commission has to initiate, promote and coordinate joint research and natural resources development projects (LCBC Convention and Statutes 1964: Statutes Article 9b). Finally, the LCBC can examine complaints and promote the settlement of disputes (LCBC Convention and Statutes 1964: Statutes Article 9g).

Even though there is a catalogue of different tasks of the LCBC, clear criteria for water allocation or fishing rights are lacking in the convention (Odada et al. 2006: 83). To fill this major gap, the FAO was requested to assist the LCBC in formulating common regulations for the share of surface water among the riparians. The FAO's legal office prepared a draft agreement on water utilization and conservation, which was then passed on to the legal departments of the member states. However, the procedure has not yet been accomplished and the problem of unclear water allocation remains unsolved (Odada et al. 2006: 83). With the shrinkage of the lake, determining allocation rules became a particular conflictive issue, because users, sectors or states compete for an allocation rule in favor of their interests and needs. Cameroon, for instance, insists on the withdrawal of minimum quantities of water per year to sustain its irrigation projects (Ziermann 2003: 128).

Besides the failure of the Convention and Statutes to prescribe any water allocation rule, there is the problem of national water laws and policies that are not harmonized in the basin (Wirkus, Böge 2005: 42; Odada et al. 2006: 77). Consequently, the riparian states pursue their water policies independently from each other. There have been attempts to harmonize fishing rights, for instance. In 1977, the member states signed the Agreement on Common Regulation of Flora and Fauna. But the agreement was ratified only eleven years later and there is still no compliance with it until today (Odada et al. 2006: 79, 83; Wirkus, Böge 2005: 42). The work of the LCBC cannot be traced here in detail, because it is very difficult to understand which projects have been launched, at what stage they stranded and why.³ Furthermore, long inactive phases of the LCBC alternated with short active phases (Wirkus, Böge 2005: 42). Generally speaking, several research or resource projects have been initiated by the LCBC with the help of foreign institutions, but all too often the outcome of such projects was in the end not implemented by the member states. One example is the analysis of

³ For more information about the different projects of the LCBC see: IMF 2002; Odada et al. 2006: 79; Wirkus, Böge 2005: 42.

maximum water quantities that can be withdrawn from the lake without any major effects. This research project resulted in a regulation about the allowed water withdrawal. However, member states have not complied with it (Ziermann 2003: 133). Thus, the work of the LCBC did not contribute to a more sustainable utilization of the lake's water as prescribed in the statute. All in all, the LCBC's Convention and Statutes are an example for an open resource institution with symbolic character lacking legally binding commitments, clear allocation rules and harmonized water laws.

4.3 *Equitable distribution of benefits*

As stated before, international water management institutions are more successful if they distribute benefits, rather than absolute quantities of water. The idea is to create a situation of dependence where it is in every state's interest to protect the integrity of the natural resource or in other words to overcome a tragedy of the commons dynamic.

One could think that the states bordering Lake Chad are by nature a community of interests, since it is in their common interest to safeguard the water resources as an important economic factor. In this regard, the convention of the LCBC forbids any exploitation of the lake that has a negative impact on the water balance, the fauna and flora and on other states interests. Moreover, all member states have to inform the LCBC of its projects within the basin:

"In particular, the Member States agree not to undertake in that part of the Basin falling within their jurisdiction any work in connection with the development of water resources or the soil likely to have a marked influence upon the system of the water courses and levels of the Basin without adequate notice and prior consultations with the Commission [...]" (LCBC Convention and Statutes 1964: Statutes Article 5).

In reality, however, member states did not inform the commission about projects in the basin. Dams were built and irrigation projects were launched even though these interferences had considerable impacts on the lake's water level (Wirkus, Böge 2005: 41; Onuoha 2010: 27). Between 1983 and 1994 the volume of water diverted for irrigation accounted for 50 percent of the decrease in the lake's size (Coe, Foley 2001: 3355). So instead of acting in the common long-term interest, states bordering the lake have above all followed their own short-term national self-interests by unilaterally exploiting the lake's water (Ziermann 2003: 128). The reason for this unilateralism lies in the fact that the convention of the LCBC failed to create dependencies which would have fostered cooperation regarding the protection of the lake.

Circumventing this unilateralism would be possible if the LCBC succeeded in allocating benefits. If all riparian countries would share the benefits of the exploitation of the lake's resources, no matter in which territory the resource lies, water use would be used more sustainable. Concretely this means that the members of the LCBC would share benefits of irrigation projects or fisheries made in one part of the lake. Thus, it would be in everyone's interest to sustain the overall resource instead of being interested in exploiting the largest share. Up to now, however, individual zero sum games prevail over common positive sum games.

It has been shown in the last three sections that the capacity of the LCBC to provide for sustainable resource management and adaptation measures is weak and largely constrained by the lack of regulatory mechanisms just as the institutional weakness of the commission.

4.4 Detailed conflict resolution mechanisms

As mentioned above, the LCBC has a mandate to examine complaints and to promote the settlement of disputes (LCBC Convention and Statutes 1964: Statutes Article 9). The following case shows exemplarily which difficulties the LCBC faces with regard to settling disputes: Boundaries have been fixed by the colonial powers at a time when the water covered a much larger territory. When the lake diminished new territory was freed and boundaries blurred (Onuoha 2008: 52). A violent conflict emerged between the armed forces of Nigeria and Chad, which culminated in 1983 (Wirkus, Böge 2005: 40). Even more severe was the border conflict between Cameroon and Nigeria, which turned violent in 1993 (see chapter 2.4). In order to terminate this conflict, the riparian states resorted to the LCBC. The heads of state tasked the LCBC with the creation of a security committee and a border demarcation committee. As a result of these two committees, a joint patrol system was adopted consisting of security agents of all member states who jointly patrolled on demarcated areas of Lake Chad (Odada et al. 2006: 83).

Beyond that, the LCBC has not been active enough to manage the conflict between Cameroon and Nigeria. The reason is that appropriate mechanisms are lacking (Wirkus, Böge 2005: 45). It is not clear how the member states can make use of the LCBC's mandate for conflict settlement, since the LCBC's Convention and Statutes do not stipulate a specific procedure or mechanism for conflict management. When this forum turned out to be inappropriate for conflict management, Cameroon turned to the International Court of Justice (ICJ) in 1994. The ICJ ruled in favor of Cameroon in 2002.⁴ Thereupon, the Cameroon-Nigeria Mixed Commission was founded outside of the LCBC structure in 2002. This Commission set up a sub-committee to delimit the borders between Cameroon and Nigeria (Wirkus, Böge 2005: 45). In 2004, Nigerian governmental agencies started to draw back from the contested area. The ICJ succeeded in quickly resolving the acute border conflict between Cameroon and Nigeria. However, the exact course of the border within the lake is still not clear. In this matter the LCBC has undertaken a boundary survey. Niger, Chad and Cameroon accept the results of that boundary survey, but Nigeria does not. Nigeria still discusses with Chad and Cameroon about the delineation of the common border. To prevent future border conflicts, the LCBC has urged its member states to finally ratify a treaty about the border demarcation within Lake Chad region (Wirkus, Böge 2005: 45).

All in all, the LCBC has the potential to provide for a vital forum for conflict management. However, the fact that the conflict between Cameroon and Nigeria was resolved by the International Court of Justice and was also addressed on the bilateral level by the Cameroon Nigeria Mixed Commission shows that deficits still remain with regard to the regional LCBC approach. Moreover, the fragility of the commission itself and of the states party to it questions the capacity of LCBC to provide for conflict management. This is problematic, because if "existing political institutions and structures are incapable of resolving these competing claims, the tendency for violent intergroup conflicts over access to shared resources becomes more likely (Onuoha 2010: 33)".

⁴ For more information about the consequences of the ICJ ruling on the people see: Borzello (2004).

DISCUSSION AND CONCLUSION

Main findings

The analysis presented here reflects the traditional debate about conflict causes. Whereas the security model of the Toronto Group suggests that environmental deterioration can lead to conflict, common pool theory stresses the importance of institutions to manage conflicts as a decisive predictor for a violent conflict to break out.

In this regard, three main findings were made in this paper:

In order to answer the first research question, the link between environmental degradation and conflict risk was explained in the case of Lake Chad. It has been shown that the serious damage of the Lake Chad ecosystem led to harmful socio-economic effects, notably serious decrease in economic productivity, loss of livelihood, migration and competition over scarce land and water resources. Consequently, the political, social and economic context was analyzed and found as being similar in all four countries with regard to state weakness, huge population growth, multi-ethnicity and economic underdevelopment. These conflict-aggravating factors lead to an increased risk of violent conflicts over the dwindling water and land resources. Indeed, different conflict lines related to the environmental degradation can already be observed.

Even though the link between environmental degradation and increased conflict risk has been explained in this study, it was difficult to establish a direct link between environmental degradation and one specific conflict. The insights from the case study allow identifying two reasons that account for this difficulty:

First, the present research suggests that environmental change does not directly lead to conflict, but indirectly: By affecting the parameters which are common causes of conflicts such as poverty, social segmentation, migration or state weakness, environmental change can trigger a chain of multiple conflict causes. It is this multi-causality of environmental conflicts that makes it difficult for researchers to agree on the causal pathway from environmental degradation to conflict and to trace this causal pathway in a specific case study.

Second, it can be deduced from this analysis that, for the outbreak of an environmental conflict a necessary and a sufficient condition has to be met. The necessary condition consists of environmental degradation that deteriorates or destroys the livelihood of humans. The incidence of the necessary condition can be the root cause of a conflict, but does not necessarily trigger its outbreak. For a violent escalation the sufficient condition has to be met, that is the institutional capacity of resource management institutions to manage adverse environmental changes and conflicts. The presence of the necessary condition has been approved in the Lake Chad eco-region in form of water and land scarcity. In addition, the sufficient condition for the outbreak of environmental conflicts materialized around Lake Chad through the weakness of the Lake Chad Basin Commission.

The aim of the second research question was to assess the potential of the LCBC to manage the changing environmental conditions and to provide for conflict management. In this regard, it has been found that the riparian states provided for a regional conflict management forum via the Lake Chad Basin Commission, which has a mandate for dealing with the settlement of conflicts. However,

the study revealed a general lack of regulatory mechanisms and institutional capacity of the LCBC, which inhibits adaptation to environmental changes and peaceful conflict management.

The hypothesis of this paper was that the likelihood of a violent conflict outbreak is determined by the capacities of institutions to respond to environmental degradation and to manage conflicts. This hypothesis can be confirmed here. Because the LCBC failed to deal with the shrinkage of the lake and to assure a peaceful conflict discharge, the violent conflict between Nigeria and Cameroon broke out. It can be concluded that the capability of water basin organizations to deal with adverse environmental changes is decisive for a violent or peaceful discharge of a conflict. Conflict risks are thus particularly high where conflict management capacities are weak. In this regard Giordano and Wolf wrote that “international resource conflict is most likely to occur where there exist both resource scarcity and insufficient institutional capacity to deal with that scarcity (Giordano, Giordano, Wolf 2005: 61)”. The case of Lake Chad seems to support this observation.

This insight is interesting from a theoretical point of view as it demonstrates that institutions are a powerful indicator for determining regions most at risk with regard to environmental or climate-change related conflicts. Consequently, common pool theory is a helpful approach to identify conflict risk, but it is still not quite clear which characteristics resilient resource management institutions should have to prevent violent conflicts. The scientific community could contribute to lowering the risk of violent environmental conflicts by identifying the characteristics of resilient resource management institutions and mechanisms for resource-related conflict management. As can be concluded from the case study, conflict management should be built on two pillars: On the one hand, the environmental degradation, the root cause of the conflict, has to be addressed and, on the other hand, the eventually resulting conflicts have to be managed in a peaceful manner. This means that research could develop on an integrated conflict and resource management framework, in which sustainable resource protection and conflict management mutually reinforce one another.

Since the underlying research was made in the framework of a Master’s thesis, the limitations of this work are obvious. This study can be seen as a first attempt to understand the impact of environmental and institutional variables on conflict risk in the Lake Chad eco-region. Further research on this topic is needed though. If the member states manage to strengthen the LCBC in the future, it would be interesting to reassess the impact of the LCBC on conflict risk after reforms are undertaken.

Possibilities for Reform

It has been elaborated above that the Lake Chad Basin Commission could be a well-suited framework for resolving regional conflicts between the riparian states, if reforms are undertaken to strengthen the commission. For the purpose of reforming the LCBC, three measures are proposed here, namely participation, cooperation and legislation.

The LCB can be strengthened through broadening its level of participation. An institutionalized dialogue between the representatives of the LCBC and the local population could be a good measure to establish a connection between the local and the regional level. On the one hand, people would have the possibility to express their needs, their sense of ownership and their view of a conflict. The

LCBC, on the other hand, would obtain detailed insights about the situation in the basin. Moreover, the commission would get the possibility to reconcile the various interests and to increase its visibility and legitimacy on the ground. Thus, such a participatory approach would contribute to sustainable adaptation just as the prevention of conflicts.

Moreover, the mandate of the LCBC needs to be revised since it was formulated long before severe droughts and climate variability affected the region and before population explosion took place. With the changing environmental and social conditions, the ill-defined resource sovereignty inhibits huge potential for conflicts today. Therefore, clear, but flexible criteria for allocations should be integrated into the LCBC's statute. With the shrinkage of the lake, land issues have emerged in the former lakebed. Consequently, the LCBC's statute should not only clarify water, but also land allocation rules. In the interest of the people suffering from the harsh environmental conditions, it could be worthwhile to envisage very flexible allocation agreements. Allocation schemes which change with the size of the lake could promote peace, because they would guarantee land and water access to as many people as possible in the eco-region. However, to make such regional approach work, member states have to cooperate and relinquish from their absolute principle of sovereignty. Cooperation is not only needed with regard to the formulation of allocation principles, but also for the functioning of the LCBC in general. In the past, bilateral agreements or unilateral actions have undermined the regional approach. However, it is obvious that a regional organization needs regional synergic cooperation to fulfill its tasks. In order to strengthen the LCBC, the member states have to show political will for cooperation and engage in concrete legislative measures. Hence, the capacity of the commission could be sustained by enhancing funding, technical and staffing capacities.

Furthermore, member states could enact legislation which vests the LCBC with sufficient power to ensure compliance with its provisions and to stop unilateral projects with adverse effects on the basin. Likewise, the commission should be conferred more authority to resolve water and land disputes or conflicts (Odada et al. 2006: 87) and clear conflict management mechanisms should be agreed upon. Thus, development aid could also contribute to increase the commission's capacity to act via capacity building, technical assistance or funding, for instance. In addition, foreign development agencies could enhance LCBC's political weight by collaborating closely with it when it comes to resource projects in the basin.

To sum up, a strong commitment of the riparian states to regional cooperation within the framework of the LCBC is crucial for the conservation of Lake Chad and for successful conflict management. This demands a paradigm change away from short-term national interests towards a common interest to protect the shared natural resources (Ziermann 2003: 141). People living in the Lake Chad area face a very difficult political, environmental and economic situation and the potential for conflict is huge. However, conflicts can be prevented and peacefully managed. For this purpose "peace through regional integration" seems to be the adequate formula.

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