



Transboundary hydro-politics and climate change rhetoric: an emerging hydro-security complex in the lake chad basin

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The likelihood of conflict and consequent need for cooperation are soaring with increasing pressures on scarce and often exploited water resources in shared hydrologic units. Questions of equitable water allocation and distributions of social-ecological costs and benefits—who gets what, how much, and why—are important for fostering cooperation and managing conflict in transboundary water management. Hydropolitics is an analytic tool for understanding how power shapes water claims and uses in transboundary hydrologic units. Through the lens of hydropolitics, I show how various forms of power explain water claims and uses by riparian nations within the Lake Chad Basin (LCB). I explain how rhetoric, including the rhetoric of climate change, mask local human-driven causes of social-ecological degradation, thereby misappropriating agency and responsibility for sustainable water management within the LCB. I show that water is a security issue within the basin and closely related to other regional security issues, and argue that the inter-linkages of security issues, together with the differential evolution of state capabilities, may facilitate the emergence of a hydro-security complex within the basin. A more nuanced understanding of hydropolitics, including rhetoric and hydrosecurity, is necessary for sustainable transboundary water management and water use security. © 2014 Wiley Periodicals, Inc.

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INTRODUCTION

There are increasing concerns^{1,2} that climate change, and growing freshwater demand and scarcity will prompt impending conflicts within and among member states in shared hydrologic units. Therefore, it is important to enhance cooperation among member states in transboundary waters.^{3,4} In developing world semi-arid areas, such as the Lake Chad Basin (LCB), Africa—the focus area for this article—the likelihood of conflict and consequent need for cooperation are increasing with pressures on scarce and exploited water resources of the basin.⁵

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Politically, the LCB is unstable due to the intra-state disputes over competing water-use interests, border disputes among states, and wars within several riparian states. This political instability threatens water security and necessitates interstate cooperation. Judicious understanding of the forms of power at play in the allocation and use of scarce water resources is a necessary element for successful cooperation among riparian nations.³ Questions about the equitable allocation of water and associated distributions of social and ecological costs and benefits—who gets what, how much, and why—are important considerations for cooperation and conflict in transboundary water management.

Hydropolitics—the authoritative claims, allocation, and use of water values/resources⁶—is a unique analytic tool for understanding how power and politics determine who gets what, how much, and

why in transboundary hydrologic units. Additionally, hydropolitics helps us better understand and manage the security underpinnings of transboundary water management. Hence, the notion of ‘hydropolitical security complex’⁷ (hydro-security complex) highlights the simultaneous codependence of shared and rival interests, and the complex and dynamic nature of cooperation and competition among riparian nations over time. In a hydro-security complex, riparian nations might consider shared waters as a national security issue, especially when diminished water supply threatens economic security,⁸ a major source of state power. When state power is threatened, the potential for conflict is heightened. Thus, hydropolitics and hydro-security are important underutilized conceptual analytic tools to better understand and, hence, contribute to effective management of conflict and cooperation in transboundary waters.

In this focus article, I show how various forms of power, including rhetoric—the persuasive use of language to disguise reality or advance particular social-ecological agendas—explain how water is claimed and used by member states within the LCB. In the following sections, I present the human-environmental context of transboundary water management within the LCB, followed by a hydropolitical analysis, and show how the rhetorical framing of climate change disguises issues and misappropriates agency and responsibility for the sustainable management of LCB waters. Then, I discuss how various forms of power and their dynamics may facilitate the emergence of a hydro-security complex within the LCB. I provide concluding thoughts on how a more nuanced understanding of hydropolitics, including rhetoric, can help facilitate cooperation, prevent conflict, and inform sustainable water management and water use security in transboundary waters.

HUMAN-ENVIRONMENTAL CONTEXT

Lake Chad is the fourth largest lake in Africa, and the largest in Western and Central Africa.⁹ Cameroon, Algeria, Central African Republic (CAR), Chad, Niger, Nigeria, Sudan, and Libya share its basin (Figure 1).

The lake itself is relatively small in volume, shallow, and has an average depth of 1.5 m.⁹ Wetlands and floodplains extend widely from the lake, making it the second largest wetland complex in the continent. The lake is not saline despite substantial year-round net evaporation and has a history of hydrologic extremes—surface area variation of 2,000–25,000 km² between 1973 and 2003. The lake dried out completely in the late 1400s and

returned to high levels by the 1600s. Today, the lake is approximately 6% of its size in 1968.

Two major subbasins, the Chari-Logone and the Kamadugu-Yobe basins comprise the LCB. The Chari River flows northward from the highlands of CAR to southern Chad, supplying approximately 95% of the lake’s surface water input.⁹ Human consumptive use from the Chari basin is estimated at less than 3%.⁹ The Komadugu-Yobe surface water system flows from northern Nigeria into Chad; the current water contribution of this subbasin is considered to be ‘of minor hydrologic significance’ to the whole basin. However, this subbasin is locally important to the northern reaches of the lake’s wetlands.⁹ Most of the water from the Kamadugu-Yobe subbasin is held in reservoirs within Kano, Nigeria, where pumping and diversion for irrigation are prevalent. Consequently, for the past 20 years, there has not been a natural regime flow from the Kamadugu-Yobe subbasin into Lake Chad.⁹

The biodiversity of the basin is globally significant—a third of the over 370 bird species inventoried in the basin are migratory.⁹ Concerns related to bird life include reductions in nesting areas for the black-crowned crane (*Balearica pavonina*) and wintering grounds for intercontinental migrants such as the ruff (*Philomachus pugnax*). The basin supports many other wildlife species.

Institutional setting

The Lake Chad Basin Commission (LCBC) was established in 1964, when Cameroon, Chad, Niger, and Nigeria signed the Convention of Fort-Lamy (now D’jamena).⁹ In 1994, CAR was admitted as a fifth member and the ‘basin’ expanded to include the upstream part of the Logone-Chari and Komadugu-Yobe subbasins. Due to aquifers underlying its western border shared with Chad, Sudan was added as a sixth member in 2000, and Libya became a member in 2007. The present conventional basin is 967,000 km² in area encompassing almost all water resources that supply the lake, its floodplains, wetlands, and aquifers. The LCBC’s budget is contributed by five member countries in the following proportions: Cameroon 26%, CAR 4%, Chad 11%, Niger 7%, and Nigeria 52%.

The LCBC’s roles are to ensure the most efficient use of the basin’s water resources, address issues of regional (as opposed to national) development, and help address potential conflicts within and among basin states.⁹ The Fort-Lamy Convention recognizes the sovereign rights of member states over the basin’s water resources, but prohibits independent exploitation of the Lake’s water, especially if exploitation negatively impacts the interests of other states. The

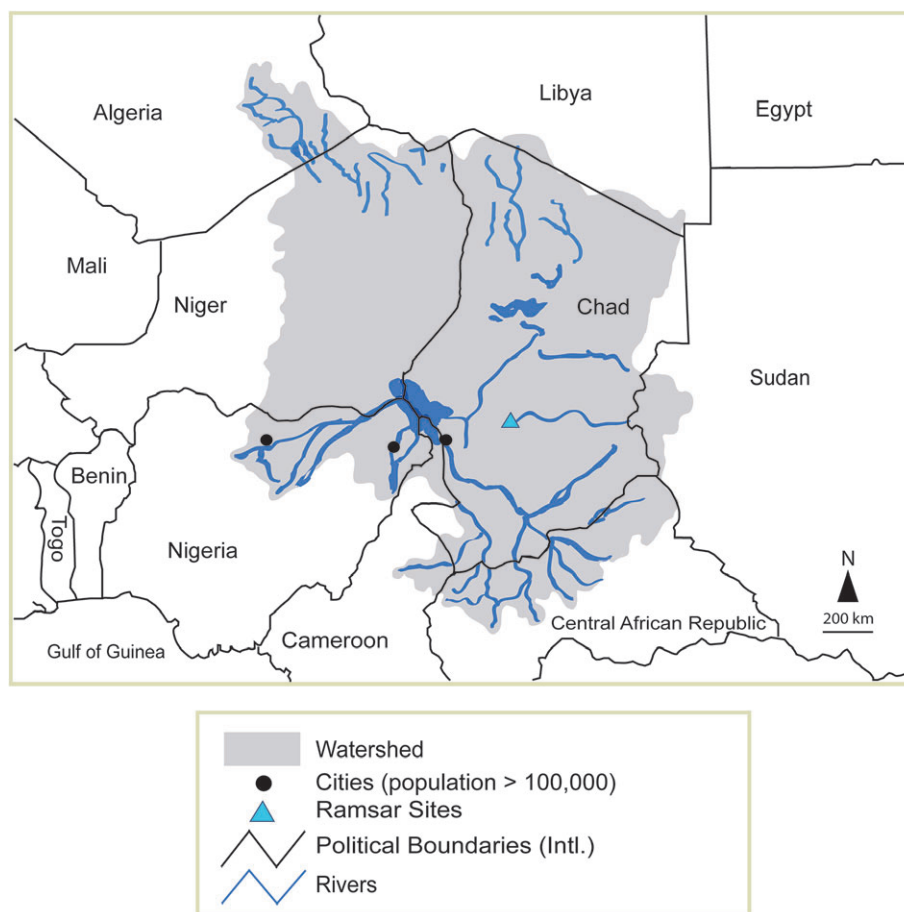


FIGURE 1 | The Lake Chad Basin, showing the conventional basin (Grey), riparian nations, and tributaries of the two major subbasins, the Kamadugu-Yobe (Nigeria) and the Chari-Logone (Central African Republic, Chad, Cameroon), with surface flow into the Lake. Source: <https://waterjournalistsafrika.wordpress.com/tag/lake-chad-basin/>.

convention also recognizes the rights of basin states to plan projects if they consult the LCBC in advance. Member states are also expected to avoid actions that may alter the lake's water balance, its exploitation by other riparian nations, water quality, and the flora and fauna of the basin. The current social-ecological condition of the basin suggests that the LCBC has been an ineffective institution.¹⁰ Water overuse and ineffective cooperation among riparian nations are some of the reasons for reductions in the size of the lake.¹¹

Techno-hydrologic adaptation

Water diversion and large dams for hydroelectricity and mono-cropped irrigation agriculture are common in this area with severe effects on LCB hydrology. The Maga Dam, an 80-km dyke in the Logone-chari River, initiated by French colonists before Cameroon's independence,¹⁰ was completed by Cameroon government in 1979. The dam, like all others within the basin, was intended to 'improve local livelihoods', contribute to 'food self-sufficiency',

and teach modern agricultural techniques to local people. The local residents' income generation capacity was predicted to increase through the production and supply of 'good quality' rice. The unexpected and devastating socio-economic and ecological impacts of this dam are well documented.^{9,11,12} The dam significantly reduced annual flooded areas, inflow to the lake, cattle fodder decreased, and some species were extirpated.

Similar effects have been observed as a result of dams on the Jama'are and Hadeja rivers of the Kamadugu-Yobe subbasin in Nigeria. Nigeria is experiencing difficulties acquiring sufficient water for its large-scale irrigation projects.⁹ Through the Southern Chad Irrigation Project (SCIP), hundreds of kilometers of unlined canals were built which led to water seeping into the desert.¹³ Essentially, the irrigation project helped drain and spread the lakes water to facilitate desiccation. The dry canals within the SCIP were invaded by an exotic species of plant, *Typha australis*, which is the preferred nesting habitat for the Quelea

bird (*Quelea quelea*).¹⁴ The *Quelea* has led to rice crop loss and prompted the spray of chemical deterrents on rice paddies by state irrigation authorities. Most, if not all, of these irrigation schemes are monocultures as opposed to multiple cropping, which was the traditional indigenous practice within the basin that conformed to the concept of agro-diversity and had survived centuries of hydrologic fluctuations.¹⁵

The social-ecological consequences of these large-scale irrigation schemes have been dire. Basin fisheries have suffered.⁹ There are several conflicts among competing water-use interests (e.g., farmers and pastoralists¹⁶) and between large-scale irrigation schemes and downstream communities who depend on flood recession agriculture.¹⁷ Disagreements over water use among administrative jurisdictions within nation states occur. In Nigeria, the downstream states of Borno and Yobe are opposed to the construction of yet another dam, the Kafin Zaki Dam.¹⁷ The mosaic of communities that relied on the basin's water resources to sustain livelihoods, including fishermen, herders and farmers, were forced to migrate sometimes across state boundaries. Food self-sufficiency has not been achieved, local livelihoods are worse, and there is significant biodiversity loss with reported extinct species. These projects are alleged to have failed because the locals were not involved in the initial stages of planning and development.¹⁸ The IUCN led rehabilitation project (re-flooding the once flooded plains) shows some promising results,¹² with the land starting to recover some of its original vegetation.

The failures of dams and irrigation schemes led to the transition to water scarcity which triggered formulation of states' 'hydraulic missions'⁶—rationalizing the mobilization of more water. This phase is referred to as that of 'hydraulic miracles'.¹⁹ Accordingly, large-scale water impoundment and diversion is still the preferred approach of the LCBC. Led by Nigeria, who already contributed half of the required cost for feasibility studies²⁰ and urged other member states to follow suit, the LCBC requested funds to finance the diversion of water from the Ubangui River in CAR.²¹ In the interest of saving the lake, the then president of Nigeria (2004) announced efforts to divert water through a 120-km canal from two basins of the river Congo in the Democratic Republic of Congo.^{20,21} The project titled 'Lake Chad replenishment project' is expected to fix the problems caused by other dams and unlined canals within the basin. It is expected to generate energy, and to facilitate the transfer and trade of goods and services via the canal. These proposed benefits of large-scale water diversion are not very different from the arguments made for existing dams within the basin, the effects

of which has been mostly devastating. If completed, the canal from the Ubangui River to the Lake Chad will be the largest water diversion project in African history. The current social-ecological condition in the LCB suggests that the Congo Basin might become the next arena for techno-hydrologic maladaptation in the name of saving conditions created by similar maladaptation in the LCB, the vicious cycle of resource management in this part of the world. There is a need to understand the role that power and hydro-security plays in perpetuating the degraded social-ecological conditions within the LCB.

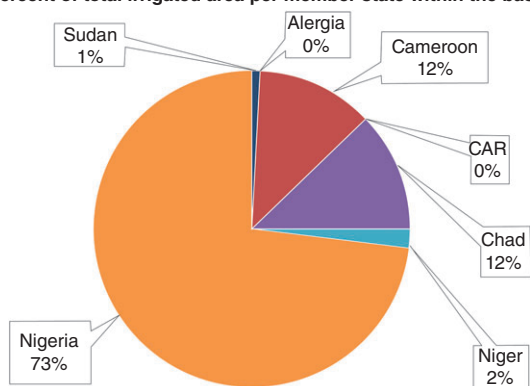
HYDROPOLITICS IN THE BASIN

Defined as 'authoritative claims', allocation and use of water values/resources,⁶ hydropolitics within LCB implies that water is claimed, allocated, and used in an authoritative manner which may favor some states more than others and may lead to conflict. Thus, it is important to understand who gets what, how, and why in the authoritative claim, allocation, and use of water resources of the LCB. Without this understanding, efforts to sustainably manage the LCB waters will be ineffective.²² Regarding who gets what and how much, Figure 2 shows member state proportions of total irrigated area within the basin.^a

Besides drought, a major cause of water scarcity and associated social-ecological degradation in the LCB is irrigation.⁹ Intergrated biosphere models showed that human water use—mostly for irrigation—accounts for 50% of the decrease in lake area since the 1960s.²³ In literal terms, Figure 2 shows that Nigeria is the primary human cause of fresh water scarcity and consequent social-ecological degradation in the LCB. Thus, to help address the challenges of sustainable water resources management in the LCB, a hydropolitical analysis of this situation is needed.

In hydropolitical terms, Nigeria is a pivotal riparian state. It has a high level of social and economic development, and is heavily reliant on the Lake Chad waters for economic development.²⁴ Nigeria's population of 168M people is three times the total population of all the other three lake shore nations. Nigeria has over twice as many institutions of higher education than the other three lake shore nations combined. These institutions provide Nigeria with more human resource base, scientific and technological expertise, and social ingenuity to organize and execute water development. Nigeria's Gross Domestic Product (GDP) and Gross National Income (GNI) are over five times the total GNI, and over six times the total GDP, of all the other three lake shore nations. According to the then (2004) managing director, of the

Percent of total irrigated area per member state within the basin

**FIGURE 2 |** Percentage of total irrigated area per member state within the basin.

Chad Basin Development Authority (CBDA), Nigeria will benefit more from the Lake Chad water transfer from the Ubangui River in CAR.²⁵ The CBDA is Nigeria's government agency designed to significantly increase food and cash crop production through development of large-scale modern irrigation and drainage infrastructure using water from the Lake Chad.²⁵ Engr. Bukar stated that the Nigerian sector of the Lake Chad is 'well-endowed with enormous agricultural and fishing potentials which can benefit the entire country if attention is given to the revival of SCIP and the transfer of water to re-charge the drying Lake Chad'. Clearly, water development of the Lake Chad is a national, and therefore, high-profile political issue in Nigeria.²⁴ It is therefore not surprising that Nigeria contributes over 50% of the operating budget of the LCBC, and pledged to provide 50% of the overall cost of the feasibility study to divert waters from the Ubangui River.

Nigeria also has other forms of power, including a large military. The Executive Secretary of the LCBC is customarily from Nigeria, with significant implications on the conduct of hydropolitics within the basin. The Executive Secretariat of LCBC, and therefore Nigeria, sanctions and legitimizes data about the hydro-ecological status of the LCB. The other relatively less economically developed riparian states have less capacity to generate independent data and, therefore, to rely on data provided by Nigeria. Pivotal states in hydropolitical complexes often control data to foster their strategic access to transboundary water resources.²⁴ Nigeria also lead and sanctioned the rhetoric about the social-ecological status of the LCB which considerably influence the conduct of hydropolitics and water management within the basin.

Other basin member states have more benign forms of power. Geographically, the CAR has considerable latent bargaining power²² because

of the proposed damming of the Ubangui River which is located in CAR. The CAR is in the strongest position because it is the uppermost member state and could substantially alter the quality and quantity of water flowing into the Lake through the proposed canal. Thus, the CAR could dictate terms to other basin member states in negotiations about the damming and diversion of the Ubangui River. The deepest section of the lake is in Cameroon, most likely, the last riparian state to suffer from complete loss of water in the lake. This position may undermine Cameroon's political commitment to cooperate with other member states.

Hydropolitical rhetoric in the LCB

Various forms of rhetoric are used to disguise reality, advance particular social-ecological and political agendas, and misallocate agency and responsibility for the causes and potential solutions to hydrologic and social-ecological degradation in the LCB. It is stated in a report by the World Bank and the Global Environmental Facility (GEF), sanctioned by the LCBC, that the Kamadugu-Yobe River subbasin from Nigeria contributes only 5% of the total river inflow into the Lake; the contribution of this subbasin to the overall water balance is said to be minor.⁹ Yet, it is claimed in the same report that the groundwater hydrology of the basin is incompletely understood, suggesting that not enough is known to judge the overall contribution of the Kamadugu-Yobe river system to the Lake's hydrology. More interestingly, the Famine Early Warning System (FEW), reports that the Kamadugu subbasin contributes 10% of river inflow to the Lake.^{10,26} This difference in contributions from these two sources and the rhetoric of hydrology, de-emphasizes Nigeria's contribution to water scarcity in the basin and may shift attention away from maladaptive water use practices within the Kamadugu-Yobe subbasin.

The rhetoric of victimization as justification for continuous large-scale water development has been used to foster Nigeria's strategic interests and dependency on the water resources of the basin. In an appeal to UNDP to save the Lake Chad by diverting water from the Ubangui River in CAR, President Obasanjo of Nigeria stated that: '*Your vision for the people of the Lake Chad must have at its core the security and well-being of the suffering masses as well as the unity of the member nations*'.²⁷ In announcing Nigeria's pledge to contribute half of the cost of the feasibility study to divert the Ubangui River's waters to the Lake Chad, President Obasanjo stated that '*the next generation might not find the lake if nothing is done to save it*'.²⁸ Nigeria, through SCIP, has 667.73 km² of land prepared for irrigation, of which

only a third is irrigated due to water shortages from the Lake; Nigeria needs water to match this enormous infrastructural investment. However, the request for UN support for water diversion is argued on the basis of ‘suffering masses’ and the ‘next generation’ and not on Nigeria’s strategic interest in modern agricultural development. Thus, it is not surprising that communities relocated from territories ceded to the neighboring state, Cameroon, by the International Court of Justice following a border dispute with Nigeria, were concurrently expressing their grievances at state neglect.²⁹ These communities claim that the state and local governments have ‘*transformed the financial and material support for these communities into a tool for political campaign*’.³⁰

Despite evidence that large-scale irrigation is responsible for a large portion of the social-ecological deterioration in the basin, climate change as the reason for the ‘dying’ of the Lake Chad is the predominant rhetoric among local populations within the basin. The following quotes demonstrate such rhetoric:³¹

“Africa is being cheated again by the industrialized west”; “Africa does not produce any significant amount of greenhouse gases, but it’s our lakes and rivers that are drying up. America has refused to ratify Kyoto and it’s our lakes that are drying up”; “I don’t know what global warming is, but what I know is that this lake is dying and we are dying with it.”

This rhetoric of deferred causality has considerable implications on the conduct of hydropolitics. First, it serves to defer agency and responsibility to developed nations, away from member states, particularly Nigeria, whose large-scale irrigation projects facilitate the dying of the lake. Second, it serves the function of victimization; member states and local populations are victims of the actions of developed nations. These rhetorical functions feed domestic politics. It makes it difficult for local populations to blame state entities for loss of their livelihoods, and shifts focus away from immediate practical solutions such as irrigation efficiency. These shifts create dependency on developed nations for solutions to locally caused problems.

EMERGENCE OF A HYDRO-SECURITY COMPLEX

The LCB is in essence, a Regional Security Complex⁸—a group of nations with sufficiently interlinked security concerns. The hydrodynamics, the dynamics of water claims and uses within the LCB, and the socio-political evolution of member states might reveal latent additional interlinked security

issues caused by water scarcity and unequal allocation. Despite cooperating through the LCBC in the management of the LCB waters, oil, and water shortages are already creating tension among basin member states. The services of the International Court of Justice have been sought twice by Cameroon to resolve border disputes with Nigeria. One dispute within the LCB; the other within the oil-rich Bakassi Peninsula in the Gulf of Guinea. In both cases, the court ruled in favor of Cameroon with territory ceded to Cameroon. In a presentation to the Nigerian presidential committee on national security, the Governor of Borno State in Nigeria, stated that the disputed areas are ‘plagued with an influx of armed rebels and large scale trafficking in arms and children’.³² Chadian rebels are accused of widespread banditry in northeastern Nigeria. The recent emergence of the terrorist militant group, Boko Haram, in Nigeria, adds to the security complexity within LCB as their activities transcend national boundaries. These security issues are potential pretexts for military interventions and war, which undoubtedly will varyingly affect the availability of water for different interests within the LCB.

There are also matters of political instability within riparian nations. Regime changes through military interventions are common in Chad, Niger, and the CAR, in addition to recent wars in the Sudan and Libya. There are also disputes over water use and rights within member states. In Nigeria, the downstream states of Borno and Yobe are opposed to the construction of the Kafin Zaki Dam. Within riparian states, there are ongoing conflicts among local water user groups, fishermen, farmers and herders, over increasingly scarce water resources. Unmistakably, hydro-security within the basin is strictly tied to other national security issues, and therefore is a matter of high politics.

An important element of an emerging hydro-security complex within the LCB is the differential evolution of various forms of power—economy, democracy, civil society freedoms, education, and awareness—among member states. These differential evolutions may lead to differences in evoking the hydro-social contract, which is the unwritten contract between the public and government that emerges when there is insufficient water.⁶ This contract serves as a mandate for government to take action; it determines what the public deems fair and legitimate practice to which politicians react. This differential evolution is problematic; it leads to temporal differential sensitivity to unequal allocation of water resources, and ecological costs and benefits because of the temporal variation in civil society’s ability to trigger the hydro-social contract, that is, to formerly

and publicly express their desires about water claims and uses. Thus, differential evolution implies that states might have different degrees of willingness to engage in negotiations of water claims and uses at different times in their political history. Differential evolution adds complexity to the potential for conflict and/or cooperation by instilling the need for continuous re-negotiation of water claims and uses as the hydro-social contract is triggered within each member state.

Additionally, uncertain consequences and manifestations of climate change, might improve water availability. For example, there are reports of returning water in the basin and the shrinking of the Sahara Desert. If these favorable conditions continue and coincide with large water diversions to the Lake Chad, issues with flooding, human displacements, and new claims and uses of water may arise. Although absent in current rhetoric and actions of the LCBC and international donor organizations, these issues could be important considerations in planning for water development projects within the basin.

Various international entities such as the World Bank, UNDP, and the GEF, influence the rhetoric in this basin. Many of the rhetoric from these entities acknowledge the human causes, particularly irrigation, of social-ecological degradation in the basin. A World Bank, UNDP and GEF funded project to reverse ecological degradation within the basin characterizes the 'supply-driven' approach—notably irrigation—to water management as a key driver of degradation.⁹ In rehabilitating the Waza Logone floodplains in northern Cameroon, IUCN points to the negative social-ecological effects of the Maga Dam that was constructed for rice irrigation. These international entities possess considerable power, in the form of knowledge, funding, and neutrality, to influence the conduct of hydropolitics within the basin. The IUCN is leading multi-stakeholder participation to create new institutions and legal frameworks to manage water within the Kamadugu-Yobe subbasin.³³ This project is jointly funded by the Dutch, British, and Nigerian governments as well as GEF and the LCBC. Although these legal frameworks may be unnecessary and be considered 'top-down',³⁴ they have significant implications for the stability and adaptability of water management measures within the basin.

CONCLUSION

Increased water demand and scarcity, partly fueled by climate change, will increase potential for conflict and cooperation in shared hydrologic units. Questions about the equitable allocation of water and associated distributions of costs and benefits are important considerations in efforts to understand conflict and foster cooperation in transboundary water management. The LCB is an emergent regional hydro-security complex in which various forms, and differential evolution, of power influence water claims and uses, which may amplify security issues within the basin. Water use is unequally distributed among riparian nations. Nigeria is a pivotal state—it has more power to mobilize water use. Some of that power is through rhetoric, used to sway agency and responsibility away from the true causes of social-ecological impacts, foster the state's national water and security agendas, and mobilize public support for those agendas. Unequal allocation of water and related costs and benefits may lead to the emergence of a hydro-security complex. This is the case because despite cooperating through the LCBC with the common interest of managing the Lake's resources, inter-state territorial disputes persist, together with political instability in riparian states, intra-state user group contests over water, and differential evolution of riparian states' capabilities to mobilize water. These capabilities include the level of social freedom that civil society needs to trigger the hydro-social contract that mandates state action regarding water claims and uses. Current efforts in the LCB to foster sustainable water resources management and achieve equitable allocation and use through cooperation must examine and accordingly deal with power imbalance among riparian nations and the security underpinnings of water claims and uses. A hydropolitical and hydro-security analysis is needed to understand and foster cooperation among member states in transboundary hydrologic units.

NOTE

^a Data used to compute percentages of irrigation areas were from FAO. Available at: <http://www.fao.org/docrep/w4347e/w4347e0j.htm#the%20lake%20chad%20basin>

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