

## **Driving forces behind African transboundary water law: internal, external, and implications**

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*While it may be commonly assumed that transboundary water law is driven by water related concerns revealed in the texts of international agreements, external, textually invisible factors often influence the formation and realization of treaties as well. Using both textual and contextual analysis, this study provides an initial assessment of the drivers of international water law in Africa’s post-colonial period. The authors first develop a typology of major drivers and then use that typology to examine the development and implementation of transboundary water law in four African basins: the Nile, Senegal, Niger, and Volta. The analysis reveals that, while virtually all agreements are driven by a combination of internal and external factors, external drivers have played a major role in agreement orientation and realization and in some cases are even responsible for treaty formation. Importantly, these external drivers generally reflect global paradigms that have been imported to Africa regardless of whether conditions on the continent warrant their use.*

*Keywords: transboundary, water, law, Africa, drivers, external, internal*

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### **Introduction**

Africa is a land of transboundary waters, with international river basins covering fully 62 percent of the continent’s land mass. Africa is also a continent with a long history of transboundary water management and a voluminous body of transboundary water law, which at least partially regulates the use of many of its basins (Lautze and Giordano, in submission)<sup>1</sup>. While an understanding of the scope and nature of the continent’s transboundary water law supplies an important tool to improve future management of the its shared waters, an examination of the factors which have driven the formation, orientation, and realization of that law can help to understand both why it evolved, in whose interests, and the likelihood for its meaningful implementation.

Although there exists some literature on trends in international water management and international development (World Commission on Dams, 2000; Hajer, 1996; Saleth and Dinar, 2000) and a growing body of research on conditions in Africa’s transboundary waters (Godana, 1985, Hirji and Grey, 1998; Ilomaki, 1999; IUCN, 2004; Okaru-Bisant, 1998; Rangely et al, 1994; Sadoff et al., 2002; UNECA, 2000), there is as yet no work which systematically examines the drivers of international water accords on the continent. This study aims to partially fill this knowledge gap. The paper first defines drivers and develops of typology for their consideration based on an analysis of the corpus of African transboundary water law<sup>2</sup> and relevant literature (Allan, 1999; Godana, 1985; Okaru-Bisant, 1998; Hajer, 1996; Saleth and Dinar, 2000; World Bank, 1995; World Commission on Dams, 2000). The paper next presents case studies from four African basins—the Nile, Niger, Senegal, and Volta—to illustrate and substantiate the role of drivers on treaty formation, orientation, and realization with special reference to the post-colonial period.

The findings indicate that a range of factors have driven transboundary water law in Africa in the post-colonial period. Internally, these factors include joint management, water development, and water sharing and division. Externally, they have included a range of factors emanating largely outside the African continent including geopolitics, the concept of hydraulic mission, cultural ties, international environment agendas, and global concern with water conflicts. The results show an evolutionary change in the way these external factors have influenced African transboundary water law. More importantly, analysis of the way internal and external drivers interact suggests that both must be considered by basin states and the outside actors if either is to achieve their objectives.

## Drivers and Treaties: Definitions and Distinctions

Drivers are defined in this paper as the goals and interests which lead to the formation of transboundary water accords. Drivers should be distinguished from the actors who attempt to realize these goals or interests. To identify the drivers of Africa's transboundary water agreements, an analysis of the largest known collection of transboundary water law related to Africa was conducted.<sup>3</sup> The collection includes all known agreements concerning "water as a scarce or consumable resource, a quantity to be managed, or an ecosystem to be improved or maintained..." and excludes those dealing "only with boundaries, navigation or fishing rights" (Wolf, 1999: 160).

In examining African transboundary water law, it is clear that agreements are generally brought about through a combination of drivers rather than one single force. These drivers can be conceptually divided into two categories: internal and external. Internal drivers are defined here to be those goals or objectives contained in transboundary water agreements; e.g., extension of basic water supplies, hydropower development to facilitate economic growth, or dam construction for irrigation projects. External drivers are defined as those which are not explicitly contained in agreements but nevertheless wield substantial influence on the formation and orientation of treaties. As explained further below, examples of external drivers include a basin's geostrategic importance, global paradigms in water and environmental management, a perceived religious or cultural affiliation, and recognition of the potentially conflictive nature of transboundary waters.

In the case of Africa's transboundary water law, another important distinction is made between treaties which are primarily driven by water-related issues or and those primarily motivated by non-water factors. Approximately two-thirds of African agreements concluded between or among colonial powers<sup>4</sup> were in fact precipitated by non-water factors such as territorial division and recognition of traditional land use customs. These customs often included transhumance and movement of people, and water use needs, across newly formed boundaries (Lautze and Giordano, in submission).

An example of a treaty which included water issues only secondarily is the 1906 *Agreement between Great Britain and the Independent State of the Congo, modifying the Agreement signed at Brussels, May 12, 1894, relating to the Spheres of Influence of Great Britain and the Independent State of the Congo in East and Central Africa*, signed in London. The primary objective of the treaty was mutual recognition that the boundary between the Congo and Sudan should extend "from the point of intersection from the south of the meridian of 30 degrees longitude east of Greenwich with the watershed between the Nile and the Congo...until it reaches the frontier between the Independent State of the Congo and French Congo." Since a portion of the Nile watershed was shared by the Congo and Sudan according to the newly drawn boundaries, agreement on water division also became necessary. Thus followed a secondary provision: Congo agreed "not to construct, or allow to be constructed, any work on or near the Semliki or Isango River, which would diminish the volume of water entering Lake Albert, except in agreement with the Soudanese Government" (2 Hertslet 584; UNLS 99).

Unlike most agreements signed between and among colonial powers, water-related interests constitute primary drivers in almost all transboundary water treaties involving at least one independent African state. Because of this fundamental difference, and more importantly because drivers of colonial treaties were primarily related to the concerns of now defunct colonial governments, the remainder of the paper concentrates on post-colonial agreements in order to identify drivers more reflective of current African conditions and therefore more relevant to future accords.

### Post-Colonial treaties: internal drivers

Textual analysis of post-colonial African agreements reveals a number of internal drivers as shown in Table 1.<sup>5</sup> The most common of these is joint management of shared water resources. Joint management implies agreement on a set of principles or structures through which the shared water resources of involved countries are collectively managed. Joint management appears an extremely common goal in agreements between or among independent states, and is generally (and noticeably) absent from agreements involving at least one colonial power.

**Table 1. Internal drivers of post-colonial African transboundary water law**

Internal driver
Joint Management
Water Development for Hydropower and Agriculture
Environmental Sustainability
Water Allocation/Division

The second most-common driver in post-colonial agreements is water development. Water development indicates that countries seek to harness more water—generally through the construction of dams—as a means for hydropower or irrigation expansion. While this driver is well evidenced in Africa’s international water agreements throughout the post-colonial period, water development is most commonly found in accords concluded in the first two to three decades of independence period. Reflecting the influence of this driver, two water management bodies—the *Senegal River Development Organization (OMVS)* and the *Gambia River Development Organization (OMVG)*—were established in the 1970’s which expressly sought to “put into value” or develop, as evidenced in their titles, the perceived societal potential of these shared waters (FAOLEX, 2004).<sup>6</sup>

While the international water agreements from post-colonial Africa’s first two to three decades placed much emphasis on water development, the last one to two decades have seen increasing importance placed on environmental sustainability (Lautze and Giordano, in submission). Indeed, environmental concern has been a principal driver for several agreements in the 1990’s and 2000’s. For example, the *Protocol for Sustainable Development of Lake Victoria Basin*, signed at Arusha on November 29, 2003, contained as its major goals “protection and conservation of the basin and its ecosystems”, implementation of “environmental impact assessment” by signatories, “prevention of pollution”, and “environmental audits” (FAOLEX).

A final internal driver<sup>7</sup> in post-colonial transboundary African water law is water allocation or division between or among countries. Not surprisingly, most treaties which divide water apply to the Nile river basin and the basins in southern Africa where water demand frequently approaches supply. One of the most prominent examples of a treaty internally driven by water division is the 1959 *Agreement between the Republic of the Sudan and the United Arab Republic for the Full Utilization of the Nile Waters*, which explicitly allocated Egypt 48 billion cubic meters of water each year and Sudan 4 billion cubic meters of water per year (453 UNTS 63).

## Post-Colonial treaties: external drivers

Examination of the larger context within which African transboundary water law has developed suggests that external drivers wield substantial influence on treaty formation, orientation, and realization. Unfortunately, external drivers are rarely stated in agreements, and there is little to no literature which attempts to systematically identify them. The authors therefore use a review of related literature (Allan, 1999; Okaru-Bisant, 1998; Andreini et al., 2000; Andreini et al., 2002; World Commission on Dams, 2000; Hajer, 1996; Saleth and Dinar, 2000; Giordano, 2002; Godana, 1985; Nakayama, 2003; World Bank, 1995) to conceptualize the likely factors and then use the case studies which follow for initial confirmation. The review suggests that the major external drivers of Africa’s transboundary water law are a country’s geostrategic importance, prevailing paradigms in water resources management and development in general, perceived religious or cultural affiliation, and international recognition for the special nature of transboundary waters—in particular their perceived conflict potential.

The most important external driver in the early days of post-colonial Africa’s transboundary water law development appears to be the perceived geostrategic importance of countries involved. Upon achieving independence from colonial nations, most developing world states were immediately thrust into the power politics of the Cold War, in which the quantity and source of aid depended on political ideology professed and relative importance of a country’s location (Allan, 1999). For example, unlike most of sub-Saharan Africa, Egypt had an important geostrategic position, containing the Suez Canal, bordering on Israel, and situated in

the heart of the geostrategic nerve center of the Middle East. It should therefore come as little surprise that the country benefited from many early post-colonial developments in African transboundary water law<sup>8</sup> (Godana, 1985).

**Table 2. External drivers of post-colonial African transboundary water law**

External driver
A Country or Region's Geostrategic Importance
Global trends in Water Resources Management and Development
Religious or Cultural Affiliation
International concern with transboundary waters

While the quantity of aid provided to realize treaty objectives was often influenced by the perceived importance of a country's location, the form that aid took was generally driven by the prevailing paradigms in water resources management and development. From early 20<sup>th</sup> century through the 1970's and 1980's, the "hydraulic mission" paradigm pervaded water resources management policies (Allan, 1999; World Commission on Dams, 2000). Engineers generally sought to use dam construction to harness rivers' waters in order to facilitate economic and social development, giving little attention to the externalities of this approach (World Commission on Dams, 2000). Similar to projects undertaken elsewhere in the world, African projects and the agreements which supported them reflected this strategy.

The "hydraulic mission" paradigm began to give way to environmental concerns emanating from the US and Europe in the 1970's. By the mid to late 1980's, international lending agencies such as the World Bank—which had assumed a large role in Africa's economic development—were increasingly influenced by concepts such as environmental and economic sustainability and began to explore how these notions could be incorporated into more comprehensive approaches to water resources management. In 1989, the World Bank Operational Directive (OD) 4.00 concerning environmental policy for dam and reservoir projects was released. It stated that "adverse environmental impacts should be avoided, minimized, or compensated for..." (World Bank, 1995). By 1992, two additional OD's were released, with the net effect that World Bank and other donors would thereafter exercise serious caution when undertaking water development projects (World Bank, 1995; Allan, 1999; Saleth and Dinar, 2000). It now appears that environmental concerns and water development may actually be experiencing a role reversal. That is, whereas the World Bank and other donors initially envisioned an environmental constraint on projects driven by desires for water development, there are now cases in which the environmental conservation is the goal and future efforts to develop water may actually be seen as a constraint (Okaru-Bisant, 1998; see also recent agreements applying to Lake Victoria).

Another factor which has driven the formation and realization of transboundary water agreements is cultural or religious affiliation. Be it a common historic connection from colonialism, a common religious identity, or regional solidarity due to a similar cultural base, common ties have at least occasionally driven treaty formation and content. Examples of this can be found in the Senegal river basin, where a common Muslim identity with Arab states resulted in aid to support treaty concepts (LeMarquand 1986; LeMarquand 1990).

Finally, while geostrategic location has diminished in importance as a driving force in transboundary water accords following the end of the Cold War, a new external driver has come to spark the formation of transboundary water agreements: international recognition for the potentially conflictive nature of transboundary water resources. By the early 1990's, discussions of 'water wars' were common both academically and in the popular press (e.g., Starr, 1991) and by the end of the decade at least some authors believed that resource competition would replace the Cold War conflict (Klare, 2000). Transboundary water agreements were seen as one mechanism to minimize the potential for such conflict, and the World Bank released an OD in 1990 which stated "projects on international waterways require special handling" and "the Bank...attaches the utmost attaches to having riparians enter into appropriate agreements..." (World Bank, 1995). Thus the Bank and other organizations sought encourage states which might not otherwise do so to create transboundary institutions codified in agreements.

The interesting finding here is that the external drivers discussed—geopolitics, hydraulic missions, environmental concerns, cultural affiliation, and water wars—are all primarily related to events and concerns emanating outside of Africa. However, as shown in the case studies below, they clearly impacted the orientation and realization of African transboundary agreements. One may even contend that in many cases these external drivers led to the formation of the agreements themselves.

## The Nile

An examination of post-colonial transboundary water treaties applying to the Nile river basin reveals a rich and evolving set of drivers. Clear correlations are evident between internal agreement drivers, the time in which an agreement was signed, and the portion of the Nile to which a treaty applied. As shown in Table 3, developments concerning downstream portions of the basin—generally Egypt—occurred earlier and were very often focused on harnessing additional water to facilitate increases in irrigation and hydropower. Upper basin developments occurred later and were driven much more by a desire for joint management and environmental sustainability.

**Table 3. Temporal and Spatial Variation in Nile Basin International Water Agreements<sup>9</sup>**

	1925-1960	1977-2003
Number of Agreements	9	6
Portion of the Nile to which agreement applies	100 % downstream	83 % upstream
Creates or Assumes Joint Management Structure	22 %	83 %
Provision for Water Development	89 %	33 %
Environmental Sustainability	0 %	50 %
Water Sharing/Division	44 %	0 %

In total, fifteen substantive transboundary water agreements<sup>10</sup> were signed between 1925 and 2003 which apply to portions of the Nile river basin; notably, not one of these applies to the entire basin.<sup>11</sup> Nine agreements were signed between 1925 and 1960. All of these agreements included downstream Egypt as signatory and were chiefly concerned with water development and water allocation by which Egypt's needs were satisfied. Between 1977 and 2003, six additional agreements were signed. Five applied to upstream portions of the basin while one was signed between Egypt and Ethiopia concerning downstream areas. Of the five treaties applying to upstream portions of the basin, three were concerned with joint management to achieve environmental preservation of Lake Victoria. Two agreements sought to install a joint management structure to facilitate water development in the Kagera river basin, a tributary of the Nile.

It can be asserted that the temporal trends in Nile basin treaty drivers reflect a common phenomenon in upstream-downstream river basin relations. For example, several authors (e.g., Molle, 2003; Turton, 2003) have identified a recurrent pattern in which upstream water abundance leads to downstream establishment of a historic use of a river's waters. Then as water abundance turns to water scarcity, downstream riparians seek to codify and enhance their position vis-à-vis upstream counterparts. Egypt epitomizes the downstream country seeking to preserve and advance its claim to prior use.

While this theory contains important points, it fails to explain how Egypt mobilized substantial international support for its position. That is, not only was outside backing necessary for Egypt to codify its historic water allocations, substantial foreign aid was required to construct the dams which increased the country's water endowment. Clearly, external forces intervened to advance Egypt's position. The country's geostrategic importance, initially as controller of the Suez Canal and later due to its proximity to Israel and the centrality of the Arab-Israeli conflict in the Cold War, helped to make power brokers in the USA, the USSR, and Western Europe more inclined to favor Egyptian interests (Godana, 1985). The country's location led outside powers to make allowances for what most would consider a disproportionately large share of the Nile's waters.

In addition, as the “hydraulic mission” water management paradigm was very much in force between 1925 and 1960, foreign aid provided to obtain Egypt’s favor is manifested in agreements (Allan, 1999) in the form of dam construction projects, such as those at Owen Falls and Aswan (207 UNTS 277, 453 UNTS 63). The “hydraulic mission” paradigm similarly impacted the two agreements applying to the Kagera sub-basin of the Nile watershed. Signed in 1977 and 1981, both of these agreements sought to jointly manage and develop—i.e., though water harnessing—the resources of the Kagera river basin (1089 UNTS 171; World Commission on Dams, 2000; Allan, 1999).

Between 1994 and 2003, three agreements were signed which applied to Lake Victoria in the Nile’s upper reaches. Consistent with the evolving paradigm in water resources management, these treaties were all driven by a desire to promote better management of environmental resources. These environmental agreements were largely facilitated if not directly initiated by international actors such as the World Bank and the Global Environmental Facility (GEF) (Okaru-Bisant, 1998). Indeed, increasing international concern with the environment has sparked much of the legal development in the upper reaches of the basin. Okaru-Bisant (1998), for example, has noted how external interests exerted pressure on African countries to sign agreements over water so as to obtain financial or other support for their national goals.

A final note should be made concerning recent efforts to form a basin-wide management structure for the Nile within the framework of the Technical Committee for Promotion of the Development and Environmental Protection of the Nile (TECCONILE). The TECCONILE, formed in 1993, initiated a series of 10 Nile 2002 conferences which can be seen largely as the result of four separate drivers: one internal and three external. Internally, there was a desire to collectively manage and share the benefits of the Nile’s waters—particularly among upstream countries disgruntled with their disproportionately small water allocations. Yet such complaints from upstream countries were nothing new (Godana, 1985). What was new was an international (donor) community increasingly concerned with the potential for conflict over scarce water resources, a post-Cold War international community in which Egypt’s geostrategic importance had declined,<sup>12</sup> and an international community increasingly concerned with the environment (Ilomaki, 1999; Allan, 1999; Okaru-Bisant, 1998). Hence these external drivers substantially influenced the process of dialogue on the collective management and environmental protection of the Nile’s waters and may eventually result in a new agreement.

## The Senegal

Six transboundary water agreements have been signed in the post-colonial period applying to the waters of the Senegal river basin.<sup>13</sup> All of these agreements were signed between 1963 and 1978, and all possess as their major internal drivers joint management and water development. While these goals can be seen as closely linked with the post-colonial development priorities of the riparian states of Guinea, Mali, Mauritania, and Senegal, which strongly relied on water resource use to promote agriculture and increase power output, it is nevertheless interesting to note that these states sought to pursue joint development programs rather than independent agendas.

Several factors combine to explain the fact that a joint approach was taken. First, all four riparian countries were ruled by the same colonial power, which in fact did not treat these territories as distinct until just prior to independence; hence there was a tradition of cooperation. Second, although no tangible progress was made, colonial French initiatives for water development often took a basin-wide approach—laying the groundwork for such initiatives in the post-colonial era.<sup>14</sup> Third, the fact that a significant portion of the Senegal river actually constitutes a border necessitates some level of cooperation if structures such as dams are to be built. Fourth, the limited financial and technical capacities of riparian states at the time of independence made countries inclined to cooperate with each other in order to amass as much local financial and technical capital as possible as well as to maximize their chances of attracting foreign investment (Reichshold, 1978, LeMarquand, 1986, LeMarquand, 1990, Meublât and Ingles, 1997).

Indeed, limited financial and technical capacities of these young African states engendered a linkage between internal and external drivers. Riparian states could agree on a development program, but international actors were needed to supply the means to implement that program. Immediately after independence, international donors were in fact called upon to support basin development both financially and technically. Following the

creation of the “Inter State Committee” in 1963 with the collaboration and financial support of UNEP and the FAO, riparian countries approached the UN to obtain support for basin research and planning development projects (Reichhold, 1978) in order to implement an integrated development program of the basin’s water resources. This collaboration was codified in 1968 with the creation of the “Senegal River Riparian Countries Organization”, though it is unclear how much was tangibly accomplished. Confronted with too ambitious objectives and political disagreement between Guinean government and other riparian countries, the organization collapsed after four years (Fox and LeMarquand, 1979, Ndao and Sall, 2002).

A strong will for cooperation nevertheless persisted among Mali, Mauritania and Senegal. The severe drought from 1968 to 1973 reinforced the need for jointly managing basin resource use (Feckoua 2000, Lahtela 2003, Kipping 2004), and led to the creation of the Senegal River Development Organization (OMVS) in 1972. The organization initially released an ambitious program which included the “promotion of inter-country cooperation; coordination of technical, economic studies and other activities related to Senegal river development such as...irrigation, hydropower generation, environmental protection and conservation; regulation of river flow for irrigation, flood control, power generation and other purposes”. Following negotiations with donors at the beginning of the 1980’s, however, the organization’s action program was reduced and focused mainly on two dam projects completed between 1980 and 1987: Manantali Hydropower dam on the Bafing River in Mali and Diama anti-salt Dam in the Senegal River delta. The construction of the two dams was financed by a grant of US\$820,000 by a consortium of over fifteen donors and funding agencies (OMVS, 2004; Fox and LeMarquand, 1979, Ndao and Sall, 2002).

It therefore seems that the OMVS’s creation and goals reflect a combination of factors: internal drivers such as water development to increase electricity production and expand irrigation as well as external drivers like donors’ willingness to lend. This arrangement is codified in the OMVS’s institutional and juridical framework, in which external donors are responsible for OMVS projects while member states supply only organizational functioning costs (OMVS, 2004). The major donors for the OMVS development program are various Arab oil-exporting states or related financial institutions (48%), Germany (14%), European Union (12%) and France (7%) (OMVS, 2004; LeMarquand, 1986).

These entities had various interests in participating in Senegal River basin development by financing OMVS projects. In the case of the OMVS development program, donors have been primarily motivated by a desire to maintain or expand political influence over the region; this is particularly true in the case of Arab donors, who may be motivated by their religious affiliation with basin inhabitants (LeMarquand 1986, 1990). While some economic drivers can also be listed, Germany and France may have expected to profit from raw material extraction for instance, it is unlikely this had significant impact (Kipping 2004). Finally, Western donors may have had incentive to contribute given the political impact of the 1970’s Sahelian drought and the subsequent famine on public opinion. (Reichhold 1978, LeMarquand 1986, LeMarquand, 1990, Meublat and Ingles 1997, Kipping 2004).

## The Niger

Ten international water agreements have been signed in the post-colonial period which apply to all or part of the Niger river basin.<sup>15</sup> Like the Senegal, the idea to promote basin-wide development in the Niger had its roots in the colonial era. The first post-colonial agreement applying to the Niger river in fact abrogated a colonial-era treaty. This agreement, the 1963 *Niamey Act relating to transportation and economic cooperation*, acknowledged the Niger River’s international nature and need for international regulation on basin resources use. As a result, the Niger River Commission was established between Upper Volta, Dahomey, Cameroon, Chad, Guinea, Ivory Coast, Mali, Niger and Nigeria by agreement in 1964.

Similar to six of the ten post-colonial agreements applying to the Niger, the internal drivers of these first two Niger treaties (concluded in 1963 and 1964) were joint management and water development. In addition, there were two agreements which concentrated mainly on hydrologic monitoring and data collection and one agreement focused on appropriate financial contributions by member states. The most recent agreement applying to the Niger basin, concluded in 1990, was primarily concerned with sustainable development and environmental conservation. Interestingly, of the ten Niger basin agreements, eight included all major riparians.<sup>16</sup>

Nevertheless, despite the substantial body of transboundary water law applying to the Niger, very few of the goals embodied in the agreement have been realized. The Niger River Commission (NRC) suffered from a lack of human, technical and financial means in both its executive secretariat and member countries' national administrations. Although it mobilized the financial support of UN agencies to conduct various studies, few made tangible impacts (IUCN, 2004).

Disappointed by the NRC's inadequate results and encouraged by donors to adopt a new approach, member states decided to replace the Commission with a new water management body possessing a broader mandate. In 1980, the Niger Basin Authority (NBA) was conceived during a meeting in Faranah, Guinea. Endowed with a stronger executive secretariat based in Niamey, more funding from its member states, and a mandate for the entire basin rather than merely the Niger river itself, the NBA was formed to promote regional cooperation and implement integrated basin development in various sectors<sup>17</sup> (ABN, 2004).

Like the NRC, the NBA realized few of its stated goals in its initial two decades. Although it theoretically undertook many projects under the financial supervision of various donors, only the Documentation Center supported by UNESCO and the Hydroniger hydrological monitoring and forecasting project funded by World Meteorological Organization were in fact implemented. Many analysts, including some within the NBA itself, have commented on the organization's inefficiency. Milich and Varady (1999), for example, note that "little had been achieved beyond the stockpiling of reports and action plans." By the 1990's, most member states stopped paying their contribution to NBA and participating in NBA meetings. Confronted with this lack of political will, donors reduced their involvement in NBA projects (IUCN, 2004).

Nevertheless, the period from the 1998 NBA Ministry council in Abuja has been called the NBA renaissance (IUCN, 2004). It was at this time that the NBA executive secretariat conducted an environmental and transboundary "sensibilization" campaign among governments of its riparian countries. In 2000 and 2002, at the Bamako and Abuja heads of states summits, the NBA set the objective of developing a shared vision for integrated basin development. Since then the NBA has begun to regain donors' interest and trust. Capitalizing on recent international awareness for environmental water issues, the NBA has been able to attract new funding and may finally be realizing the goals set forth in the numerous agreements applying to the basin (UNECA, 2000). Supported by various donors, many projects are finally being undertaken: an institutional and organizational audit funded by the World Bank, French and Canadian governments, a technical and operational capacity building supported by the World Bank, the Netherlands Bank, OPEC, French government and development agency, a project against land degradation financed by UNEP and the World Bank, a project against erosion supported by the African Development Bank, and two IWRM supported projects funded by the French and Canadian Development Agencies and the European Union (Bello Tuga, 2004).

While factors such as geography<sup>18</sup> may have worked to inhibit cooperation in the Niger Basin (Madiodio, 2004), the fact remains that ten agreements were signed between 1963 and 1990 to create or modify joint management frameworks—and six of these ten were intended to develop water resources as well. Why were these agreements signed if there was little will to implement them? One wonders if the short-term gains of signing an agreement constituted incentives in themselves. Whatever the case, the Niger River Basin is one of the poorest in the world, and one which generally avoids the international spotlight (IUCN, 2004). As such, past developments in the basin were unlikely to have been strongly driven by outside factors as the region is of minimal economic interest and little international attention is paid to it. That said, the recent progress in transboundary environmental issues in the basin may indicate that external drivers have finally arrived to motivate consideration for these issues.

## **The Volta**

The Volta basin contains the Akosombo dam, one of the largest in the world. The dam can be considered a prime example of the "hydraulic mission" philosophy and was largely funded the American public and private finance; in particular, the American aluminum company Valco (Andreini et al., 2002). Interestingly, though the dam, located in Ghana and built in the mid-1960's, relied on large influxes of water from upstream countries to generate power, no agreement was concluded between and other Volta basin riparians to ensure that such water would arrive. It was not until thirty years later that outside involvement in national water strategies of the

basin's riparian countries led to considerations of transboundary issues. In the mid-1990's, the World Bank took an active role in the water affairs of Ghana and Burkina Faso and invoked its transboundary waters policy whereby a country "proposing to execute any project which will regulate, abstract or otherwise change river flows must notify co-riparian states of its intentions so that each state may consider whether it wishes to lodge an objection" (Ministry of Works and Housing, 1998; World Bank, 1995).

This policy led to the Volta's first post-colonial agreement concerning water as a limited and consumable resource. In 1996, Burkina sought World Bank support to construct a dam at Ziga, which would alter the flow of water into Ghana. To satisfy the Bank, a Ghanaian delegation visited Burkina and signed a "no-objection" document agreeing to the dam's construction. This event produced discussion about more coordination and collaboration between Ghana and Burkina in the management of the Volta's waters. A Volta Basin Water Management Initiative was then launched with the help of national and international donors to serve as a medium for communication and dialogue on transboundary water issues; the initiative was short-lived (Ministry of Works and Housing, 1998; van Edig et al., 2003; van Edig et al., 2001).

Interest in transboundary management of the Volta did not intensify again until reduced water levels at the Akosombo dam led to an energy crisis in Ghana in 1998. Exacerbated by conditions of drought in parts of the basin, downstream Ghana accused upstream Burkina of withdrawal increases and obstruction of Volta river flow (van Edig et al., 2001). Although it has been shown that Burkinabe withdrawal had little to do with reduced flow in Ghana (Andreini et al., 2000), the need for some degree of cooperation and information exchange became evident. International organizations responded *en masse* to this presumed need in the years which followed.

The GLOWA Volta project was one of the first to contribute to transboundary water cooperation, aiming to develop a scientifically sound Decision Support System (DSS) for the assessment, sustainable use, and development of the Volta basin's water resources (Van Edig et al., 2003; Van Edig et al., 2001; Andreini et al., 2002). In 2002, Green Cross International identified the Volta basin as potentially conflictive, so the organization engaged civil society representatives across the basin to develop commonly accepted principles and cooperative governance policies for management of the shared water resources (Curtin and Charrier, 2004). In 2001 and 2002, the Global Environmental Facility (GEF) funded projects, which identified major environmental problems in the basin and presented ways to address these areas of environmental concern (Global Environmental Facility, 2002a; Global Environmental Facility, 2002b). Several others, such as UNEP, the EU, and the IUCN, have also emerged to promote sustainable and equitable governance of the Volta basin (UCC, 2004; International Office for Water, 2004; IUCN, 2004).

Concurrent with the recent increase in international actors, two international agreements have been signed with the aim of creating a path for construction of a significant transboundary water management institution. In April of 2004, the governments of Ghana and Burkina signed the *Ghana-Burkina Joint Declaration* which acknowledged common water and environmental issues and stated a desire to collaborate on management of shared water resources through a Volta Basin Technical Committee involving all riparian countries. This work was followed by a conference in Ouagadougou July 29 and 30, 2004, attended by representatives from Benin, Burkina Faso, Cote d'Ivoire, Ghana, Mali, and Togo. All six countries accepted a series of agreements which acknowledged the need for a transboundary management institution and accepting a timeline for its creation. The process was to begin with the launch of a Volta Basin Technical Committee (VBTC) in November of 2004, which would hold its first meeting in December of the same year (Direction Générale de l'Inventaire des Ressources Hydrauliques, 2004).

In sum, three agreements have been signed concerning the waters of the Volta basin. The first of these three was quite directly motivated by the World Bank which was seeking to mitigate the potentially conflictive nature of transboundary water resources. The two which followed were also closely linked to outside influences. Although there likely was local desire to collectively manage the shared water resources of the Volta basin, particularly after the 1998 energy crisis, the fact that the latter two agreements were signed in the years just after numerous international actors arrived in the basin, and more generally that such agreements were signed in the precise time period in which attention is being paid to concerns of transboundary water conflict and environmental issues, leads one to deduce that external drivers have played the dominant role in agreement formation.

## Conclusions

While any analysis such as that presented here leaves room for interpretation, the results strongly suggest the presence of an evolving set of internal and external drivers behind both treaty orientation and formation. From the 1950's to 1980's, numerous agreements were signed applying to the waters of the Niger, Nile, and Senegal. Virtually all of these agreements embodied an agenda of water development, which seems to have reflected both local ambitions and prevailing global paradigms. In the Nile, such development, aided by geostrategic factors, was largely achieved and much of the basin's water was captured for human use. In the Senegal, progress in terms of stated treaty objective was made as well: two dams were constructed, funded largely by outside states with colonial or cultural ties, and water was harnessed for societal benefit. Even in the Volta, which did not sign an agreement to develop water in its early days, a major dam to harness the basin's waters was constructed using funds from private and public American sources—probably reflecting a desire to establish political influence on one of sub-Saharan Africa's first independent countries. While the development aims of Niger basin agreements were similar, lack of internal will and failure to mobilize external support meant that little was in fact achieved on the ground.

In more recent years, environmental agendas and concerns over transboundary conflict have come to the fore, attracting international attention and aid. Most of the upper Nile agreements, the TECCONILE process, the NBA “renaissance”, and the Volta basin agreements reflect environmental and transboundary conflict prevention concerns and all were influenced by outside forces and finances. In all likelihood, the World Bank's directive on transboundary water cooperation and a global agenda of environmental conservation were behind the formation of recent agreements and related negotiations in the Nile, Volta and Niger.

The interesting issue is the degree to which the formation, content, and realization of transboundary water law in post-colonial Africa is determined by external drivers. Such drivers, it should be noted, are not only external to treaties—they are external to Africa itself. They are in fact generally the product of international—read: developed world—agendas. While Africa may benefit from knowledge and lessons acquired elsewhere in the world, it can also be argued that the external drivers often encourage ideas which do not conform to local conditions and interests. Environmental concerns and conflict prevention, in particular, may have been imported to Africa before the continent's levels of economic and water resources development warranted. Indeed, while the environment is important no matter the level of development, the form that environmental protection takes and the desired tradeoffs between the environment and growth are also, at least in part, a function of income. Encouraging environmental norms from the developed world may be more in the interest of Western environmentalists than poor African farmers. Similarly, levels of water scarcity in Africa, the Nile excepted, are generally less than those of other regions of the world, suggesting that resources spent to avoid conflict could in fact be better employed to augment the quantity of water available—an approach which might accomplish the same ends while improving human welfare.

Nevertheless, while external drivers may not always have led to optimal outcomes for Africa, analysis of their role and impact does suggest promising paths for the development of future transboundary water law in that meets both the internal desires of underfinanced basin states and the wishes of external actors. In particular, it suggests that those agreements in which internal desires coincide with external forces have the highest chances of meeting objectives of all parties involved. For example, aware of the strategic necessity to collaborate in order to benefit economically from the basin resources, Senegal, Mauritania and Mali were able to attract donors and use international concern for poverty alleviation after the 1970's drought to attract outside finance. This finance was a reflection of real concern for the welfare of the region. However, it did come primarily from countries with colonial or cultural ties wishing to maintain standing in the region. And while the ensuing projects could not have been completed without external finance, they also could not have been implemented without OMVS member states' strong internal political will.

The primary point is that it may often be necessary for poorly financed African states to orient their transboundary agreements towards external interests if they are secure the means for realization. At the same time, external actors should ensure that the agreements they influence and finance are also locally relevant if they wish to have long-term impact. Clearly, that which attracts water investment is not identical to that which meets local needs. Likewise that which outside actors wish to finance is not always a local priority. Skilled

policy-makers and negotiators should construct agreements broadly enough to accomplish both ends or they risk accomplishing neither.

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### Notes

<sup>1</sup> A catalog of transboundary water agreements related to Africa is available at [www.africanwaterlaw.org](http://www.africanwaterlaw.org).

<sup>2</sup> References are available on line at [www.africanwaterlaw.org](http://www.africanwaterlaw.org) and in Lautze and Giordano (in submission)

<sup>3</sup> Further explanation of the process used to compile this collection can be found in Lautze and Giordano (in submission).

<sup>4</sup> Colonial agreements in this paper are considered those agreements between or among colonial powers and exclude agreements between colonial powers and independent states.

<sup>5</sup> To determine the principal drivers of Africa's transboundary water agreements, the authors analyzed the texts of all agreements in the African Transboundary Water Agreement Collection for stated goals. Based on the work of others and our understanding of African agreements, the goals were divided into seven general categories: joint management, water development, water sharing and division, financial arrangements, sustainable development and environmental protection, and hydrological monitoring and data collection, and issues related to access to water resources.

<sup>6</sup> Note that translation is the authors' own from *L'Organisation pour la mise en valeur du fleuve Sénégal*.

<sup>7</sup> Note that other treaty goals (e.g., financial arrangements) occurred too infrequently and are therefore not considered major internal treaty drivers to post-colonial African agreements.

<sup>8</sup> Note that Egypt is assumed to have benefited from various transboundary laws which awarded the country generous water allocations. The country also benefited from substantial outside investment to realize the capacity to withdraw the water to which it was entitled by such agreements.

<sup>9</sup> Note that our classification system allows for a treaty to be motivated by multiple drivers, e.g., water development and water sharing/division. Hence the percentage values for each of the four drivers may sum to more than 100.

<sup>10</sup> Note that only transboundary, and not transnational (i.e. involving a non-riparian state), agreements are considered here. That is to say, agreements signed by one riparian state on one non-basin state are not considered unless the non-basin state was signing on behalf of a territory in the watershed. Further, all agreements considered involve at least one post-colonial power.

<sup>11</sup> Note that titles, dates, signatories, sources, and other details of these agreements can be found at [www.africanwaterlaw.org](http://www.africanwaterlaw.org)

<sup>12</sup> It is probable that Egypt's geostrategic location, while still important, nevertheless declined with the end of the Cold War. Hence international actors were likely less inclined to protect Egyptian interests under the provisions of previous Nile basin agreements.

<sup>13</sup> Note that four transnational agreements were signed with outside countries as well. These agreements, however, are not included in the analysis of this study.

<sup>14</sup> This may have resulted from the fact that France controlled all of the Senegal basin. The watershed did not become transboundary until Guinea gained independence in 1958.

<sup>15</sup> All of these agreements, with relevant details and citations, can be found at [www.africanwaterlaw.org](http://www.africanwaterlaw.org).

<sup>16</sup> Note that Algeria is not considered a major riparian.

<sup>17</sup> agriculture, energy, fishery, forestry, hydraulic, transportation, industry, communication, pisciculture, sylviculture, livestock farming as mentioned in NBA conventions

<sup>18</sup> Note that the basin contains a relatively large number of riparians, perhaps adding difficulties to the implementation of agreements. Further, only a small portion of the river actually comprises a boundary, which may engender transboundary cooperation to construct a dam.