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Trans-boundary river governance in West Africa: A case of the Volta river

Abstract

With the population of the countries within the Volta River basin extrapolated to increase by 80% in 2025, the demand for water resources in the Volta basin is also projected to increase dramatically. It is against this background that the study seeks to examine the structural changes in the transnational institutional setting of the governance of the Volta River basin and the relevant driving forces behind such transformation. The study showed that the level of participation, though exists, is weak and therefore does not promote the dissolution of contested water rights and its associated problems. The Volta basin's water management institutions and policies have undergone many changes between the late 20th and early 21st centuries. These changes can holistically be understood when discussed within the context of political modernisation, multilevel governance, Polycentrism, and the Institutional Bricolage frameworks.

Keywords: *Trans-boundary, River governance, political modernisation, multi-level governance*

Introduction

The Volta River lies in West Africa and transcends the boundaries of six countries: Ghana, Burkina Faso, Côte d'Ivoire, Togo, Benin and Mali. The water shed covers an area of about 417,000km² and generates more than 35,000 million cubic metres in annual runoff. About 83% of the downstream basin is within the territorial boundaries of Ghana while 43% of the upstream is in Burkina Faso. As a result, these two countries are considered the most important in terms of population, water use and economic activity (Rodgers, van de Giesen, Laube, Vlek, & Youkhana, 2006). These countries, to a larger extent, rely on the availability of this freshwater to meet the water demands of their respective economies. Each state follows different trajectories in terms of water demand patterns. This could be due to the differences in colonial experiences which in turn led to the adoption of different post-independence trajectories of development and political settings (Lautze, Barry & Youkhana, 2008).

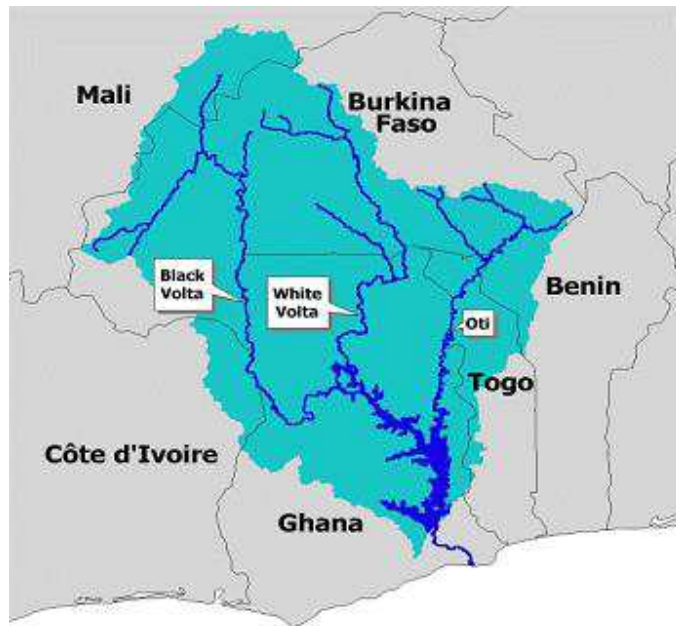


Figure 1: Map of the Volta Basin

With the availability of several water resources come competing water resource uses among different sectors of the economy within each country and between the upstream and downstream countries. Irrigation, the dominant consumptive use of water in the northern and central basin, competes directly with hydro-power generation in the south for available water resources. The demand for water to serve these and other purposes is projected to increase dramatically over the next two decades (Rodgers et al., 2006). The upstream country mainly uses freshwater from the Volta River for agricultural purposes while the downstream country primarily uses it for hydropower generation. Besides these, there are other competing water resource uses within each country. These include domestic water supply, livestock watering, sand sediments for construction, and fishery. Trans-boundary water resource use conflicts exist between Burkina Faso (upstream country), who wants to expand its irrigation by extracting more water from the river, and Ghana (downstream country), who wants to generate more hydropower to fuel its economy.

According to Andahand Gichuki, (2005) the Volta basin population has been extrapolated to increase by 80% in the next 25 years which would make water resources scarcer. In Rodgers et al. (2006), the domestic water demand in year the 2000 was 56 million cubic metres per year but this figure is expected to increase to 448 million cubic meters by the year 2025. A similar trend could be seen in all the other uses including irrigation water demand which in 2000 was 152 million cubic meters per year but extrapolated to increase to 1600 million cubic metres by 2025. This scarcity could also be attributed to falling water tables, reduction in river flows, an increase in the amount of evapo-transpiration, inefficient use of water resources and uncoordinated trans-boundary governance. All these issues imply one thing; that the economic development of the nation-states conflicts with preservation and conservation of the ecosystem. These issues have led to the enactment and transformation of several policies, laws and institutional structures (nationally and trans-nationally) over the last three decades, aimed at curbing the ongoing or anticipated water related problems. Thus, the objective of this paper is to examine the structural changes in the transnational institutional setting of the governance of the Volta River basin and the relevant driving forces behind such transformation. The paper will allure from the theoretical insights of the political modernisation and multilevel governance as well as Elinor Ostrom's polycentricity and Frances Cleavers institutional bricolage frameworks or theories.

Theoretical perspectives

Political Modernisation

Political modernization is the shifting of relationship between the traditional politics of left and right towards novel, where hybrid arrangements are formed among states, market players and civil society which leads to the production and redistribution of resources and the formation of new rules aimed at shaping society (Arts & Van Tatenhoven 2006; cited in Arts, Leroy, &Tatenhove, 2006). The political modernisation in the context of this paper, refers to structural processes of institutional change and their impacts on the governance of the Volta Basin. Due to all kinds of socio-economic and political processes and ideas such as transnationalism, reflexive modernisation, ecological modernization, individualisation, commercialisation and globalisation, new relationships are coming into being with different ideas and policy formulations and practices. These processes are said to provoke political changes, characterised by changes in the predominant discourses and practices on governance (Leroy, 2001). Key elements of these discourses and practices are: (a) a change of the state's role, in brief, from providing to enabling or facilitative; (b) a greater reliance on the problem solving capacities of non-governmental agencies, especially within the private market sector; and (c) a greater reliance on the self-steering capacities of 'civil society'.

The concept of political modernization as an analytical tool enables the distinguishing of political development into phases. These phases according to Arts, Leroy, &Tatenhove (2006) include early political modernization, anti-modernisation, and late modernisation. These phases are differentiated based on the dominant views about politics and policy practices, certain relationships between state,market and civil society. In early modernisation (Figure 2) the state was deemed to be empowered to bring the good society closer by pursuing good policies. Statist and neo-corporatist arrangements provided a sufficiently reliable thread linking state, market and civil society (Arts, Leroy, &Tatenhove, 2006). Scientific knowledge and technology, including planning, were important strategic instruments in this phase. Anti-modernisation phase was characterised by serious doubts on that optimism and public mistrust in government and science (Jamison, 2001: In Arts, Leroy, &Tatenhove, 2006). The late modernisation is characterised by a discourse of governance, interdependence and inevitable cooperation between government, market and society (Figure 2). There can be no monopoly of knowledge, problem-solving, or steering capacity. Divided responsibility, which takes many forms, is cited as an inherent risk of late modernity (Arts, Leroy, &Tatenhove, 2006).

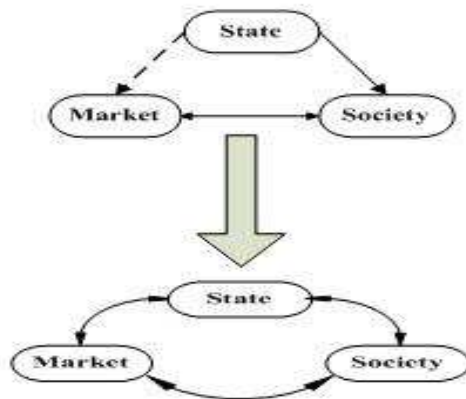


Figure 2: Schematic diagram of the path to institutional transformation in the context of political modernization. Source: Authors' construct

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Most of these political developments have been the subject of much comment, such as the privatisation of tasks that used to be carried out by the government (Arts, Leroy, & Tatenhove, 2006). According to Arts, Leroy, & Tatenhove (2006) other shifts are much less visible and more insidious, such as the formation of all kinds of quasi autonomous non-governmental organisations in the environmental circles and other fields, which have a political role and responsibility that is often scarcely amenable to policy practices. These shifts have chiefly been studied as the strategic responses of players acting rationally, especially of players involved in the policy field itself. Less attention has been paid to structural political changes and their impact on environmental policy and other areas. The approach presented here aims to link structural institutional changes and transformations in basin governance.

It is often observed that contradictory trends and traditional discourses and practices exist alongside new or contemporary ones, giving rise to the co-existence and juxtaposition of different styles of governance (Leroy, 2001). The concept of political modernisation is used in this paper as an analytical concept for a better understanding of changes in the Volta basin politics, more specifically the changes in the institutional structure and policy practices. The theory was chosen to enable the discussion on how the interplay between structural changes in institutions and the day-to-day policy practice shape the governance of the basin's water resources.

Multilevel governance

An early explanation referred to multilevel governance as a system of continuous negotiation among nested governments at several territorial tiers and described how supranational, national, regional, and local governments are enmeshed in territorially policy networks. Multi-level governance, in recent times, also looks at the changing relationships between actors situated at different territorial levels, both from the public and the private sectors. The multi-level governance theory crosses the traditionally separate domains of domestic and international politics and highlights the increasingly fading distinction between these domains. The theory emphasizes both the increasingly frequent and complex interactions between governmental actors and the increasingly important dimension of non-state actors that are mobilized in cohesion policy-making.

According to Hooghe & Marks (2003b) these interactions could be viewed in two dimensions, the vertical and the horizontal dimensions. The vertical dimension refers to the linkages between higher and lower levels of government, including their institutional aspects. Here, local capacity building and incentives for effectiveness of sub-national levels of government are crucial issues for improving the quality and coherence of public policy. The horizontal dimension refers to cooperation arrangements usually between states and non-state actors. These agreements are increasingly common as a means by which to improve the effectiveness of local public service delivery and implementation of environment and development strategies.

Hooghe & Marks (2003a; 2003b) distinguish two types of multilevel governance. The first, termed type 1, conceives of the dispersion of authority to jurisdictions at a limited number of levels and these jurisdictions are general-purpose i.e. they bundle together multiple functions including a range of policy responsibilities. The membership boundaries of such jurisdictions do not intersect. The second, Type 2, is alternative forms of multilevel governance in which jurisdictions are inclined not on just a few levels, but operate at numerous territorial scales in which jurisdictions are task-specific rather than general-purpose. Here, jurisdictions are intended to be flexible rather than durable. Under Type 2 governance, the capacity to take collective decisions, and make them stick, is diffused among a wide variety of actors at different scales. That is the choice of a resource management policy lies among an array of stakeholder institutions all of which are subject to weakness and failures. These institutions tend to be lean and flexible i.e. they come and go as demands for governance change (Hooghe & Marks, 2003b).

Type I governance predominates in conventional territorial government up to the national level (Hooghe & Marks, 2003a). Sub-national dispersion of authority follows the logic of Type 1. Type 2 governance is ubiquitous in efforts to internalize transnational spill-overs (problems) in the absence of authoritative

coordination. Most target specific policy problems ranging from ozone layer protection, to shipment of hazardous waste, to migratory species, to transnational water management. Task specificity is a common feature of international regimes. Type 2 governance at the national/international frontier is more fluid than Type 1 governance. While public-private partnerships are found in Type 1 jurisdictions, they are more common in Type 2 (Hooghe & Marks, 2003b). The role of public-private partnerships in the international arena is contested. In some cases, private actors negotiate on an equal basis with governmental actors, or bypass states altogether. However, many Type 2 transnational jurisdictions coordinate governments, not private parties or they open up public decision making to private actors to different degrees. The merging of these two types of governance leads to the hybridisation of institutions. This framework would enable the discussion on type of governance prevalent in the basin. That is, whether it is a type 1, type 2 or a hybrid form of governance.

Polycentricism

Water governance issues in Ghana have metamorphosed and continue to shape water utilisation and management in the country. Since independence water governance has attracted the attention of the various governments, and from time to time amendments are made to the regulation and management of the water sector. For instance the New Patriotic Party (NPP) government (2000-2008) instituted a management of urban waters under the Aqua Rands Vitens Company limited and now Ghana Water Company Limited (GWCL) to ensure efficient supply and management of the water resources. In the same vein the (National Democratic Congress(NDC) government of Ghana in its effort to ensure efficient distribution and allocation of water in the urban centres have proposed the introduction of prepaid metres in the various work places and for household consumption of water. The country also adopted the World Bank's proposed framework (hereafter I call it the 'Water Framework') which has widely been applied in many poor countries. The six key elements of the Water Framework include: community participation, decentralization, cost recovery, good governance, strict enforcement and monitoring and appropriate use of technology. The Framework aims to bring about water efficiency, social equity and poverty reduction, without compromising ecological sustainability (World Bank, 2004). Lemos and de Oliveira (2004) argue that, the Bank's water model is ambitious, touching not only upon policy. There are other water resource management frameworks designed on the principle of Ostrom (1992) that highlights the importance of clear definition of boundaries and specifications of users' rights over resources. The whole philosophy is based on supposition that collective action dilemma is caused by the size and the open access to natural resources (FAO, 1999). The unclear ownership and failure of excluding other users create inevitable complications involved in monitoring the use of natural resources and 'balancing one use against another, make exclusion or restrictions on access intrinsically problematic (Gibson, McKean and Ostrom, 1998). The Ostrom (1961) view on resource use has been written as the polycentric principles which states that;

"Polycentric" connotes many centers of decision making that are formally independent of each other. Whether they actually function independently, or instead constitute an interdependent system of relations, is an empirical question in particular cases. To the extent that they take each other into account in competitive relationships, enter into various contractual and cooperative undertakings or have recourse to central mechanisms to resolve conflicts, the various political jurisdictions in a metropolitan area may function in a coherent manner with consistent and predictable patterns of interacting behaviour. To the extent that this is so, they may be said to function as a "system" (Ostrom, Tiebout, &Warren 1961: 831–32).

Institutional Bricolage

Merrey and Cook (2012) define institutional bricolage as "an active, conscious, creative process of adapting norms, values and social arrangements to fit new purposes, while also reflecting and being shaped by deeply embedded unconscious principles". To the authors social scientists often accept the popular dichotomy between 'modern' and 'traditional', 'formal' and 'informal' institutions. Formal modern (bureaucratic) institutions are seen as more effective at resolving conflicts and rationally managing resources compared to informal or traditional institutions. This dichotomy is a false one: institutions formed through a messy bricolage process often survive both because they are perceived as legitimate and 'moral',

and because they are often dynamic and effective as judged by the participants' expectations. On the other hand, bureaucratic institutions designed on the basis of abstract external principles lack legitimacy, their operational principles are unacceptable from the perspective of many of the people they are supposed to service, and they often prove ineffective when imposed from outside Merrey et al, (2012). Or they may work to some degree; but as is the case for externally imposed forms of local government, they may also be reshaped over time through a bricolage process. Unfortunately, imposed institutions may also have unintended consequences, such as reinforcing and even magnifying local power relationships.

The definition above therefore suggest that, institutional arrangements for multiple social purposes (from practical resource management to religious life) and the multiplicity of livelihood strategies that people pursue are all to a considerable degree integrated, and the ways in which they are integrated are also dynamic, have moral value, and are constantly negotiated, hence there is a need for coordination between and among countries and state to manage resources for the benefit of all the nation. There is also the need to recognise the social dimensions and institutional integration, and find ways to encourage innovation that is consistent with peoples' existing standards and life blueprints. The bricolage process was adopted by Franks and Cleaver (2007) to analyze water governance. They based their framework on a number of key concepts: 'resources', 'actors', 'mechanisms', 'processes' and 'outcomes'. Based on their principles they were able to properly critique other frameworks. To Franks and Cleaver (2007) water is linked to multiple sectors, organisations and uses; and social values and norms, power and gender relationships, and diverse livelihood strategies are so complex and obscure that no complete analysis or clear model is realistic and therefore came up with the generalised principle that seem logical to both scientists and policymakers. The application of this theory is vital due to the fact that, water resource management and use is multifaceted or multidimensional and different stakeholders have a purpose and strategy of making use of the resource. In this case, the purpose of utilisation or management may conflict with the others users in a way, this is the situation that surrounds the Volta River basin.

Trans-boundary governance in the Volta River basin

The trans-boundary character of most water resources poses special problems. Worldwide more than 45 % of the land surface is located within international river basins and many groundwater aquifers are shared by more than one country (Wolf, 1999). Unilateral action by one country concerning these resources is often ineffective (e.g. fish ladders in an upstream country only), inefficient (e.g. hydropower development in a flat downstream country) or simply impossible (many developments on boundary stretches) (Mostert, 2005). Moreover, unilateral action can significantly harm the other countries and may result in serious international tension. Trans-boundary water governance for the purpose of this paper refers to the institutions and policy practices geared towards the conservation or preservation of freshwater resources shared by nation-states and comprising rivers, lakes and aquifers. This form of governance goes beyond ecological, political, and social boundaries. Going beyond these forms of boundaries permits both the identification of problems and solutions that otherwise could not be easily dealt with. Two kinds of trans-boundary problems could be distinguished; reductions in environmental externalities like air and water pollution, and responsible access to and use of resources like water use and its regulations. In both situations appropriate governance arrangements at and between appropriate scales and jurisdictions are required.

Governance of water resources within the Volta River basin have witnessed several institutional and policy transformations during and after European colonisation. Prior to the colonial era, water, among all the indigenous groups, was not only deemed a physical thing but an expression of the divine, its love and gift to earth, and its character as a sustainer of life (White, 1965). In Ghana and Burkina Faso, customary institutions and laws, also known as Indigenous African Knowledge Systems (I.K.S.) (Kuupole & Botchway, 2010), existed for the management of water resources among the traditional societies. These customary water management approaches epitomised the practices of ethnic groups which pre-dated the superimposition of the modern nation states (Lautze, Barry & Youkhana, 2007). These groups evolved various rules to govern water resources that veined their land (Sarpong, 2004). Chiefs and priests and priestesses were in charge of enforcing the traditional rules/customary laws which were intended to protect

and regulate use of the water resources. Rivers, in general, were considered resting abodes for river gods and goddesses and their “children” and desecration in or around rivers, as well as farming on riverbanks, was prohibited (Lautze, Barry & Youkhana, 2007). Some of the rules enforced by these political and religious authorities included the demarcation of particular forest as sacred groves where anthropogenic activities were not allowed.

Another common character of the local practices to preserve the sanctity of water was that water gathering was only allowed at the upstream, while other activities that had implication for water quality were allowed downstream. The extraction of water resources was also not allowed on particular days of the week (Odame-Ababio, 2002a). According to FAO (1996) and Lautze, Barry & Youkhana (2007), adherence to these rules meant that every local had the right to extract the water resource in as much as it did not affect other users. Faced with the phenomenon of dwindling water resources (due to climate variability, economic globalization, and population pressure), governments during and after the colonial era intervened to regulate the water sector through the instrumentality of legislation and other policy measures (without coordination with other riparian countries). Thus customary water management mechanisms have either been poorly nurtured or supplanted by “modern” statutory norms in line with the changing socio-economic and political environment.

After the independence of Ghana and Burkina Faso (the focus of this paper), both countries followed different paths in terms of water-related governance with little concerns about external consequences of unsustainable usage. From the period after independence up until the mid-1990s, there were only two international agreements concerning the Volta basin waters, and neither effectively integrated the water management and development plans of all riparian countries (Lautze, Barry, & Youkhana, 2008). The first international agreement was signed in 1962 between Togo and Benin on the one hand and Ghana on the other, to purchase hydropower from Ghana. The second was in 1975. The latter was signed by all the six riparian nations to curb the spread of onchocerciasis in the basin. This agreement was facilitated by World Health Organisations (WHO) and was aimed at controlling water borne diseases, but not water sharing or management. During this period, each of the riparian nations had a unique set of laws and institutions regarding the management of water resources in the basin (Rodgers et al. 2006). According to a document by the Ministry of Works and Housing, Ghana (1998a), apart from the lack of coordinated approach to water management among stakeholder states, there was also uncoordinated water management among the institutions within these states. Barry et al. (2005) found that coordination of activities among the institutions was generally weak, and in some cases it was only on ad hoc basis for crisis situations.

Despite the construction of major hydraulic works and severe draughts with considerable international implications beginning in the 1960s, it appears that trans-boundary issues began to constitute a major concern in the Volta basin only in the mid-1990s (Lautze, Barry, & Youkhana, 2008). It was during this period that World Bank and the International Monetary Fund (IMF) took an active role in promoting collaboration between these two countries (thus Togo and Ghana). The World Bank, as a facilitator, invoked trans-boundary water policies between these nation-states, 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, 1998c). As a result, in 1996, when Burkina Faso proposed to build another dam at Ziga, it consulted Ghana this time. A Ghanaian delegation visited Burkina Faso and signed a "No-Objection" agreement on the construction of the Ziga Dam. This event provoked discussion about more collaboration between the two countries in the management of the Volta's waters.

A Volta Basin Water Management Initiative (VBWMAI) was launched with the help of international donors to serve as a medium for communication and dialogue on trans-boundary water issues in the mid 1990s. It appears that the collaborative efforts did not persist as the initiative was short-lived (van Edig et al., 2001). Latent conflicts between the two countries surfaced in 1998 when the drought and energy crisis hit Ghana. This situation re-intensified trans-boundary management of the Volta. Burkina Faso's water consumption was suspected to be the main reason for the reduced water level at Akosombo (Barry et al.,

2005). Ghana then offered to supply Burkina Faso with energy with expectation that it will not build dams at the Volta tributary which could reduce water flow considerably. Burkina Faso, however, refused this offer and insisted on being nationally autonomous in energy supply.

The current efforts targeted at trans-boundary governance of the Volta basin are driven by both external and internal factors. The international research institutes and development agencies are the external driving forces of cooperation and institutional and policy transformation among the six countries. Rising water demand and conflict and the emergence of more environmental issues are the internal driving forces. Many research institutes and development agencies, such as GLOWA-Volta, Green Cross International, United Nation Environment Programme, WANI and partners and the World Bank, observed the emerging conflicts in the basin. These institutes and agencies funded several projects and initiatives on sustainability and governance in the basin in an attempt to ameliorate the situation (Lautze, Giordano, & Borghese, 2005). They also organized conferences to engage stakeholders across the basin to develop commonly accepted principles on trans-boundary water governance.

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 trans-boundary water management institution. These projects were a very important driving force for the launching of the Volta Basin Technical Committee (VBTC) in November 2004 and a series of follow-up meetings among the six riparian countries. As a result of all these efforts, the six riparian countries signed an agreement for the establishment of the Volta Basin Authority (VBA) in July 2006. All six countries accepted a series of agreements which acknowledged the need for a trans-boundary management institution and accepted a timeline for its creation. The VBA is composed of National Water Directorate representatives of the six countries and has its headquarters in Ouagadougou. With only seven years in existence, the Volta Basin Authority's influence in the basin and its effectiveness has yet to be seen. The VBA is certainly facing many challenges such as dealing with flood warning issues (an example is the recent overflow of the Bagre Dam) and meeting rapidly growing water demand and conflicting water uses with limited water resources in the future. These challenges are attributable to the fact that VBA is not well integrated at all levels of the water sector in each stakeholder state. Figure 3 below gives a summary of the institutions and inter and intra-relations that existed between and among stakeholder institutions before the 1990s. The dashed arrows in Figure 3 and 4 depict weak relations between institutions. The one sided arrows imply just single directional relationship. The thick arrows in each box in figure imply interaction within.

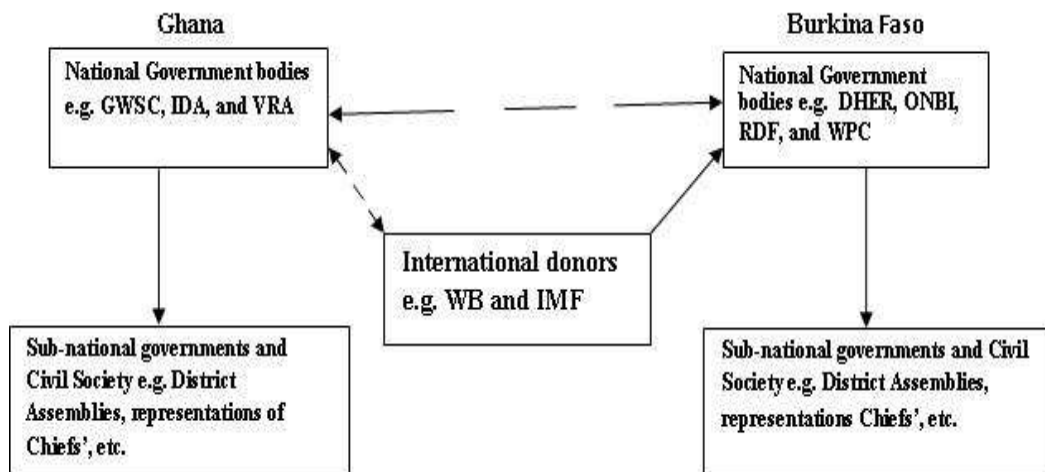


Figure 3: Institutions and relations in the Volta basin (Situation before the 1990s)

Note: broken arrows mean weak linkage. Where there are no arrows it means no linkage. One sided arrow means one way interaction.

In the 1970s and 1980s, Ghana's water-related institutions often implemented plans which ignored the aims of other institutions as well as applicable laws. Despite the existence and applicability of the 1903 River Ordinance and 1949 Forest Ordinance, the three major government institutions acted as if these rules did not exist in order to achieve their goals (Mensah, 1999: In Lautzte, Barry, & Youkhana 2008). These institutions were (Figure 3) the Volta River Authority (VRA), the Ghana Water and Sewerage Cooperation (GWSC), and Irrigation Development Authority (IDA), all created with the assistance of World Bank. Though there was a theoretical hierarchy between these three water management institutions, there was virtually no practical integration (Lautze, Barry, & Youkhana 2008). Burkina Faso had a similar situation during this period. The governances of the Volta basin in Burkina Faso looked very much like that in Ghana, though Burkinabe institutions were forced to adapt to the conditions of water stress that the country endured following the severe droughts that hit the Sahel region in the 1970s (Lautze, Barry, & Youkhana 2008). The Centre for Hydraulic and Rural Supply (DHER) was created in 1965 with the primary goal of extending water supply for domestic purposes. Again in response to the drought situation, the National Office of Dams and Irrigation (ONDI) was created in 1976 with the aim of harnessing the irrigation potential of the country (Ministère de l'Environnement et de l'Eau, 2001). In the late 1970s and the whole of the 1980s, there was a proliferation of new water related-institutions with little or no regard for coordination or integration. The Rural Development Fund (RDF) and the Water Point Committee (WPC) were created in the 1980s to strengthen the state's capacity to combat droughts and to facilitate extension of portable water supplies to rural areas.

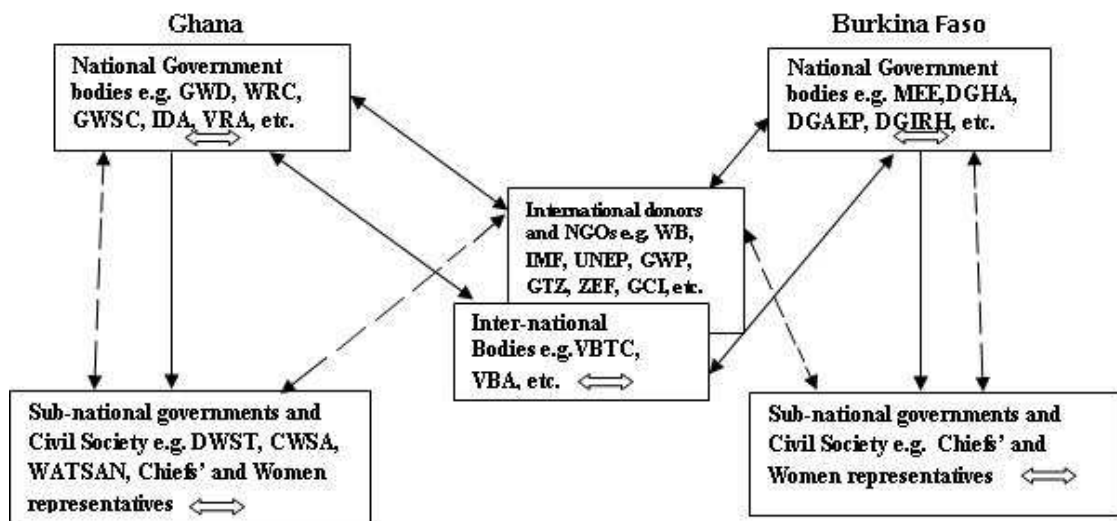


Figure 4: Current institutions and relations in the Volta basin (After the 1990s)

Note: broken arrows mean weak linkage. Where there are no arrows it means no linkage. One sided arrow means one way interaction.

The current trans-boundary linkages and relationship strength in the Volta basin as depicted in figure 4 shows that there is still room for more collaboration. For instance there is no relationship between sub-national government institutions (and Civil Society) and the transnational bodies like the Volta Basin Authority. To coordinate the activities of Ghana's water institutions, the Water Resource Commission (WRC) were established in 1996. It has the overall mandate of regulating and managing water in Ghana. Community Water and Sanitation Agency (CWSA) was launched in 1998 to extend domestic water supplies in rural areas. To facilitate this process of water supply provision, villages were expected to form Water and Sanitation (WATSAN) Committees, which partner with a government District Water and Sanitation Team (DWST). This new programme of action has been much more effective than its

predecessor in extending water supplies, thanks in part to increased external support (Ministry of Works and Housing, 1998b). The Ghana Water Directorate (GWD) was the last institutional setup to be added. Its responsibility was to provide an overall policy for the Ghanaian sector and represent Ghana's water interest on the global stage and to ensure coordination among institutions.

In Burkina Faso, following the Johannesburg World Summit on Sustainable Development in 2002, water institutions underwent major restructuring. This restructuring established the country's current institutional framework. The goal of this restructuring was the implementation of the Integrated Water Resources Management (IWRM) programme (Ministère de l'Agriculture de l'Hydraulique et des Ressources Halieutiques, 2003). The MEE was now made up of four permanent departments, one new department and the other three were simply rebirth of those created during the restructuring in the 1990s (Figure 3). These permanent institutions were the General Directorate of Agricultural Hydraulics (DGHA), the General Directorate for Provision of Potable Water (DGEAP) and the General Directorate of the Inventory of Hydraulic Resources (DGIRH). The newly created addition was the General Directorate for Fishing Resources (DGRH). It was entrusted with establishing strategies for the sustainable extraction of fish resources and to ensure competent management of the fishery industry. With regards to water laws in 1996, Ghana adopted a Water Resources Act that established the Water Resources Commission (WRC), an umbrella institution responsible for the regulation and management of water resources (Welling, Cartin, Baykono, & Diallo, 2012). In Burkina Faso, a new Water Framework Law was adopted in 2001 and under this legislation; the Directorate of Water Resources (DGRE) is responsible for managing the country's water resources. With these laws and institutions in place, both Ghana and Burkina Faso had plans to pilot test their water policies in selected sub basins. The above scenario attest to the fact that conscious efforts are been made by the countries to find a lasting solution to the water management problems that had bedevilled them for centuries. The concerns were validated by Wong (2009) that, the water governance policies established by Ghana and Burkina Faso had a number of success stories though the participation of local people in the project was limited, and as determined by the project designers, participatory governance structure set up by the project. He stressed that the project was effective in making villagers aware that water-related problems in their own communities were not unique and therefore demanded their full participation. Through intercommunity meetings and sharing, community representatives and participants had a deeper understanding of the interdependence of communities. The sense of 'togetherness' was also generated by a constant comparison between communities over the project's progress.

According to Welling, Cartin, Baykono, and Diallo, (2012) the Volta basin was deficient in formal legal and institutional arrangements to manage disputes over resources. As a result tensions between Burkina Faso and Ghana stemmed from misconceptions about the causes of climate variability and changes in flow patterns of water resources. For example, downstream floods in Ghana were attributed to spillage from dams in Burkina Faso and at times when the amount of water in the dams in Ghana was low (due to climate variability and changes in flow patterns of the river) water consumption in Burkina Faso was suspected to be the main reason for the reduced water levels. It is therefore reasonable to recognise that climate change is among the global scale process that is affecting the supply, quality, and distribution of water. Water resources are also affected by changing policies and management practices as the result of economic globalization (Karen & Robin, 2008). Under globalisation, water is increasingly viewed as an economic resource to be managed through marketisation and privatisation. To the authors, though climate change and globalisation may each transform water resource availability and access, the impacts of these changes will not be evenly distributed. Some regions, sectors, ecosystems, and social groups are more vulnerable to the consequences of climate change, particularly to changes in precipitation patterns. Wong (2009) assert that Climate change affects people both locally and regionally, and participatory approaches need to take a regional as well as local perspective, and provide for better coordination between communities. Expanding the focus beyond an individual community can create a common vision between communities and help local people to be more aware of the cross-border impact of climate change. Karen and Robin, (2008) are of the view that, the Ghana and Burkina Faso project had some success in setting up transboundary water governance structures and the embracing social needs of the neighbours. In the same vein Altman, Kerins,

Hunt, Emilie, Katherine, Russell, and Fogarty (2011) are of the view that the issue of capacity to deliver NRM and climate change outcomes is important if Indigenous peoples are going to manage the growing Indigenous estate as well as the growing number of Indigenous Protected Areas in accord with their nominated International Union for the Conservation of Nature (IUCN) criteria.

Discussion

Environmental politics emerged and gradually institutionalised in most western European countries, roughly speaking, either from the 1970s (northern Europe) or from the 1980s (southern countries) onwards (Weale et al., 2000; In Leroy, 2002). Obviously, from both the environmental issues at stake and the political context, tradition and culture differ from country to country, giving their typical national flavour to discourses and practices (Leroy, 2001). Yet one can distinguish predominant styles and practices of environmental governance over time, and establish substantial changes therein.

Within trans-boundary governance, the concepts of ‘multilevel governance’ characterise recently institutionalising patterns of governance. This concept also provides the institutional context and perspective from which one can understand recent trends in policy-making with regards to the Volta Basin management. In this regard the recent development in the basin’s institutional governance raises both theoretical and empirical questions, particularly on their actual contribution to participation. As could be seen, the level of participation, though exists, is weak and does not promote the dissolution of contested water rights and its associated problems. Within the customary landscape of most West African countries, indigenous peoples’ understanding of the intricate power relations at work between relational spheres is the substance of everyday life which everybody can engage in. Yet this reality is entrenched in official discourses in favour of contemporary management agenda/practices (that are mostly sub-sectoral based instead of cross-sectoral) that have the tendency to estrange the very people it is supposed to benefit. It is therefore important to recognise that full engagement/participation within a diverse society is enabled when local people are able to draw on and activate their own understandings of water resources management based in customary processes (Palmer, 2011).

On the issue of how water management is linked to land rights, allocation of land and traditional authorities (Chiefs, *Tindanas*, priestesses, and priest) a twofold argument ensues. There is an argument that the support and approval of these traditional authorities was important to the success of any water-related project (Wong, 2009). Also, since most land was owned by the chiefs or *Tindana* their support would ensure a smooth confiscation of land from farmers to create buffer zone. However, Laube’s (2007) argues that the chieftains and *Tindana* in Ghana for example are blamed for causing poverty. Laube opines that the chieftains prefer to lease land to less-poor farmers because they own cattle and can provide a free ploughing service. To safe-guard their own interests in the trans-boundary water project, the chiefs and *Tindana* influenced the process of selecting community representatives, ensuring that members of their family were chosen. In this way, the project has helped consolidate their authority, and the voices and interests of poorer farmers have been marginalised in the decision-making process (Wong, 2008). This case study offers a good example of the ‘paradoxes of participation’ identified by Cleaver (2004).

Again the Ostrom’s social-ecological models example draws attention to the need to broaden management of water resources and ecosystem services in the Volta river basins. Currently, institutional disintegration leads to misdirected investments (for example, over-investment in irrigation, under-investment in improving rain-fed agriculture), inequitable sharing of benefits and risks, and continuing low levels of production. A more creative approach to encouraging collaborative management, through encouraging institutional creativity and bricolage processes is urgently needed. This observation is the prime nature of the basin; hence massive attention is needed to ensure proper management.

The Volta Basin in the last fifty years has faced enormous development challenges. Poverty and increasing population pressure have led to the extensive exploitation of natural resources contributing to water scarcity, land degradation and the siltation of river channels (Welling, et al., 2012). According to Welling et al (2012) the Volta Basin remained one of the main Transboundary watercourses in Africa without an

international treaty and without a basin-wide coordination mechanism despite the urgent need for basin-wide responses to these challenges. Limited consultation and coordination between Burkina Faso and Ghana combined with uncoordinated policies and development initiatives were serious threats to the sustainable management of Volta Basin.

The Volta River's management institutions and policies have undergone many changes between the late 20th and early 21st centuries. Each of the institutional changes was accompanied by some element of broader reality change. New water management institutions were introduced in the colonial period. These institutions were then modified to reflect the new-found independence of the two countries in 1957 and 1960 respectively and during the severe drought in the Sahel region in the 1959 and 1970s. In the post-colonial era the effort (by both governments) at water development and management by government was centred on the establishment of agencies with specific roles for water supply, irrigation and environmental management. These establishments were largely funded by aid and lending agencies. As a result emphasis was laid on the areas in which donors wished to subsidise Agyenim (2011). The consequence of the dispersion of organisational responsibilities for the water sector has been one of "absence of strong leadership to advocate for sustained development of water resources, weak integration of diverse components of water resource development, investment driven by what donors are prepared to finance rather than what has been determined to be the strategic directions of government" (DANIDA, 2002: p28) and the absence of a focal point in any ministry with responsibility for parts of the sector adversely affected the chances of the sub-sector development (Agyenim, 2011). The institutions were further transformed in the 2000s in response to severe climate variability, economic globalisation and demographic realities. The 2000s policy shifts could also be seen as a by product of evolving global water management paradigms as it substantively changed realities in the basin.

The Volta basin in recent years have seen an increase of treaties establishing formal river basin management organizations, supported by international donors and based on international law. This suggests that encouraging local action- oriented investment and innovation, supporting and building on local capacities to solve problems, will be far more effective than attempting to impose alleged 'universal' values or organizational forms (Merrey, 2009). This means that the foundation required is the local institutional landscape, social networks, and innovators (bricoleurs) identified through research and consultation, to be supported and facilitated by higher-level change agents and champions through policies and smart financing. At higher levels, the focus should not be on achieving the IWRM (Molle, 2008), but rather using tools such as adaptive management principles to identify priority problems that can be solved and implementing the solutions in learning-oriented partnerships with key stakeholders.

Volta Basin organization has its roots in the period when international emphasis on mitigating conflict in trans-boundary waters grew substantially. Notably, each of the institutional changes reflected a top-down approach to development and a vertical shift in authority. However, there has been little coordinated trans-boundary effort in the basin until recently, with the establishment of the VBTC and VBA in 2004 and 2006 respectively. There is currently no mechanism to develop the Volta River together, but this joint commission was set up to discuss ways of sharing benefits and increasing cooperation for better management of the Volta river basin. Despite initial goals related to conflict prevention, the creation of a VBA presents a good opportunity to explicitly recognize and integrate objectives related to traditional and modern water uses and management. Conspicuously missing from the analysis is private market sector and to some extent, civil society representation (as can be seen in both Figures 3 and 4). This is because since the 1990s their representation and influence have been limited, if existed, to water supply and billing mechanisms in both countries and have rarely (if any) been consulted with respect to the Volta basin governance. One would have thought that in Ghana for instance, electricity production and its billing mechanisms would have been privatised by now but it is still very much state-controlled.

The governance of water between states is a lengthy and complicated process, which requires substantial resources, capacities and support in order for it to materialise and be sustained (Lautze, Giordano, & Borghese, 2005). Certain conditions can either facilitate institutional transformation or make it less likely

or even impossible to occur. These relevant conditions which drive and complicate trans-boundary governance in the Volta basin could be distinguished into two different categories: factors that are external to the basin, such as international concerns on transnational water governance, global trends in water resource management, and the nation-states' geostrategic importance; and factors that are internal to the basin, such as the water development for hydropower and agriculture, environmental issues, and water use conflicts. It is the combination of these factors that led to the creation of the VBTC and the VBA. However, the institution has not been functional, in that although the framework is in place, stakeholders have not utilised it to create policy, plan projects, or to resolve water conflicts. Institutional capacity building and involvement of more stakeholders at different levels in the decision making process is one sure way to make the VBA more effective in dealing with the current and expected trans-boundary water related problems. The trans-boundary water related issues and conflict over resource usage has engineered the idea that every nation-state seems to be sovereign and for that matter there is no need to consult the others.

Recent environmental agendas and concerns over trans-boundary conflict have come to the front, attracting international attention and support (Lautze, Giordano, & Borghese, 2005). The upper Nile agreements, the NBA "renaissance", and the Volta basin agreements reflect environmental and trans-boundary conflict prevention concerns and all were influenced by outside forces and finances. In all likelihood, the World Bank's directive on trans-boundary water cooperation and the 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 realisation of trans-boundary water law in post-colonial Africa is determined by external drivers (Lautze, Giordano, & Borghese, 2005). Environmental concerns and conflict prevention, in particular, may have been imported to Africa before the continent's levels of economic and water resources development became defensible. 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 (Lautze, Giordano, & Borghese, 2005). Encouraging environmental norms from the developed world may be more in the interest of Western environmentalists than poor African farmers (Lautze, Giordano, & Borghese (2005).

Similarly, levels of water scarcity in Africa, with the exception of the Nile 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 trans-boundary water law that meets both the internal desires of underfinanced basin states and the wishes of external actors farmers (Lautze, Giordano, & Borghese, 2005).

A classical case of the use of the water resources was that between Burkina Faso and Ghana on the opening of the Bagre dam when it overflowed its bank and many towns in the northern part of Ghana became inundated. In order to encourage local communities to get involved in the decision-making processes the review shows that the project has been effective in making villagers aware that water-related problems in their own communities were not unique and therefore demanded their full participation (Wong, 2009). Through intercommunity meetings and sharing, community representatives and participants had a deeper understanding of the interdependence of communities. The sense of 'togetherness' was also generated by a constant comparison between communities over the project's progress and success and this in turn affirm the bottom- up development process that researchers are disseminating.

Conclusion

Political modernization and multilevel governance frameworks are relevant when trying to understand institutional transformations in governance systems. However, the political modernization framework has a normative attribute which needs to be substantiated when using it in an analysis. This is necessary to prevent the concept from being conceived as a conscious process or programme towards change or progress. The multilevel concept on the other hand does not give concrete bases for the selection of an

appropriate governance system. Again, in order to provide a holistic view and understanding of water management and use, Elinor Ostrom's polycentricity and Frances Cleaver's institutional bricolage frameworks' are highly applicable as they provide strong basis for analysis and conception. The polycentricity framework by Ostrom was applicable in the study by evaluating the water usage and management processes that are shrouded in a centralised system with agencies responsible for the supply and delivery of the water. It is a known fact that, the Water Resources Commission under the Ministry of Environment and Natural Resources are the custodians of water and hence it's effective and efficient is under their watch. Aside this, the Metropolitan, Municipal and Districts Assemblies (MMDA's) are also mandated to monitor and provide support to the Assembly's. In the broader transboundary sense, international governance institutions are responsible for providing baseline information in the form of consultation with the various stakeholders for the appropriate use and management of water resource which in this case the Volta River basin.

Ghana and Burkina have over the years advanced on their water policies development, based on the principles of Integrated Water Resources Management (IWRM) (Welling et al., 2012). These policies recognized the need for collaboration and agreements on internationally shared watercourses. If effectively and fully taken into consideration, these policies offer a good basis for reaching an agreement for the equitable and sustainable management of the Volta Basin. In both countries the adopted legal and institutional frameworks for the management of water resources promotes integrated basin management, equitable access, and international cooperation. However, none of these policies have yet reached a full implementation stage, which is among the reasons why they have not strongly influenced collaboration of the two countries on the Volta Basin (Welling, et al., 2012).

The establishment of the VBA is a significant step in the process towards holistic watershed management in the Volta River Basin. It was revealed that limited stakeholder participation in the form of communication between the two nation-states currently prevents adequate coordination in either to understanding or managing this shared resource and could hinder the chances of peacefully resolving current and future conflicts. As Ghana has commenced another dam project at Bui, and land-locked Burkina Faso clearly looks to the Volta River as a source of development potential, it is imperative that dialogue and coordination is encouraged not just between the two neighbours but among all the riparian states in the basin. Otherwise, Ghana's heavy reliance on the river for energy, and Burkina Faso's need for more water for irrigation could create an impasse and curb development in both up and down stream. This issue of resource use conflict could be looked at and explored in the sense that the nations involved are on the verge of putting the Volta Basin into divergent uses.

Again, since the identification of water requirements and governance at the local level can best be achieved through active consultation with those who regulate local water use, engagement of traditional leaders and other local stakeholders including water-related entrepreneurs could make trans-boundary agreements locally relevant. Key to achieving effective trans-boundary management, therefore, is securing active consultation between customary water regulators, private water agencies, and government and technocrats to develop principles that recognise and harmonise large-and small-scale water needs to ensure the avoidance of water use conflicts and the effectiveness of old and transformed political institutions at varying scales.

The crucial point is that it may often be necessary for poorly financed African states to orient their trans-boundary agreements towards external interests if they are to secure the means for realisation. At the same time, external actors should ensure that the agreements they persuade and finance are also locally relevant if they wish to have long-term impact. Undoubtedly, what 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 and they risk accomplishing neither. This is to ensure that the external and internal factors are well integrated in the quest to manage and control water use.

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