Management practices and corruption risks in Water Service Delivery in Kenya and Ghana

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Abstract

This paper looks at water control in the context of water sector reform in Kenyan and Ghanaian Water Service Delivery (WSD). Water sector reform has brought considerable changes in organizations in these two countries. The changes have also brought a shift in the balance of power between the different actors involved in WSD as well as number of integrity issues at an institutional level in terms of corruption risks. The paper analyzes the power distribution between the main actors involved in WSD in terms of principals and agents, in relation to identified corruption risks and organizational structures at policy and regulatory, provision and consumption WSD levels. The results identify different water control domains that are compared to management situations described in literature but, according to the opinion of the authors, considered insufficient to reflect on the empirical observations found in the three case studies in Kenya and two in Ghana. Furthermore, the authors suggest complementing management practice definitions with the findings of this research.

Since the field research was conducted, further change has taken place that implies that this analysis may not reflect the up-to-date situation of WSD in Kenya and Ghana. The analysis, nevertheless, does illustrate how water control and management concepts can be applied when analysing the governability of the water sector.

Keywords: water reform, water control, corruption risks, management practices, governability

1. Introduction

Corruption has been pointed out as one of the main challenges in the governance of the water sector as jeopardizing access to the service for large parts of the population in sub-Saharan countries and elsewhere (Anillo, Boehm, & Polo-Otero, 2014; Trop & Stålgren, 2005). According to rent-seeking theory, rents are captured, affecting the efficiency of water utilities; reform in the public water sector has been seen as a solution in order to introduce competitive pressure to increase performance whilst reducing corruption (Repetto, 1986; Rinaudo, 2002).

However, the examples of Kenya and Ghana show that performance has remained low in certain locations of the service area of the water utilities and that corruption is pervasive in spite of the reforms carried out in the 1990s. Bellaubi and Visscher (2014), GII (2011) and TI Kenya (2011) showed that important deficiencies exist in urban water systems. Non-Revenue Water (NRW) is considerable and in several cases above 50%, and severe rationing is the norm in many systems. Illegal connections are also a problem in many systems. In turn, the implementation of new rules and regulations resulting from the water sector reform in Kenya and Ghana has brought a number of challenges in terms of integrity. Bellaubi and Visscher (in press), GII (2011) and TI Kenya (2011) identified a number of corruption risks at different levels of Water Service Delivery (WSD) in these two countries. For instance, at the policy and regulatory level, the appointing of high-ranking staff to regulatory bodies by ministries in Kenya and Ghana was identified as a regulatory capture risk. At the provision level, the municipal councils in Kenya

participated directly in the daily management of the water utilities by appointing members of the Board of Directors, raising conflicts of interest and highlighting the risk of political opportunism. In Ghana, state capture risk was identified because the service management contract between the national water agency and the contracted operator lacked monitoring, which could give the operator an opportunity to act in its own interest. In terms of consumption, the user's role was very limited in both countries with little access to information and not being involved at the decision level (e.g. discussing or setting up tariffs or subsidies). The service offered by the water utilities was not properly monitored with the subsequent risk of moral hazard. Meanwhile the users could free-ride the service, looking for better access.

The World Bank (2008) acknowledges that stakeholders' interests and the power relationships between social actors obviously influence their support or opposition to reform (World Bank, 2008). If the actors that are gaining from the 'status quo' are powerful, change is unlikely to occur if it brings less power to this group of actors. The 'status quo' and with it the privileges of certain groups, therefore, tend to perpetuate over time or result and further benefit those with power (the 'Iron Law of Oligarchy'; see also the argument in Acemoglu and Robinson (2012)). For instance, Rampa (2011) showed how profit-led private decisions by the political elite during the reform process in Kenya aimed to defend their status quo. In this sense, some scholars (Batley, 2004; Laffont, 2005; Shirley, 2000) argue that changes of reform will be only 'successful' if the elites are 'compensated' for the former benefits. At the minimum, such considerations related to the political economy of reform should be part of the routine analysis when designing and while implementing reforms.

An interesting point is that (mis)management practices seem to have an important role in the understanding of why performance of water service providers (WSP) remains low in spite of the sector reform. Some explanations are provided by Huppert and Urban (2000, p. 74): *'a suboptimal service may be provided due to external influences, even though the provider makes all efforts needed to fulfill the client's expectations. However, failures in service provision may also be due to opportunistic behaviour of the provider who may reduce his efforts of service provision and use the relationship to further other 'private', often remunerative, interests.'* Furthermore, Huppert and Wolff (2002, p. 1) state: *'efficiency deficits may be well in the interest of most of the influential stakeholders involved.'*

Indeed, politicians, managers and technicians may follow a management that is less costly and involves less workload, so they do not have any interest in a more efficient management. But mismanagement can also be intentionally driven by an 'opportunistic behavior' in order to seek rents from new maintenance programs and new investments. This situation is likely to benefit politicians, managers and technicians involved in WSD but affecting the most vulnerable.

Because mismanagement may lead to or be the result of corruption, it is not possible to establish a simple relationship between corruption and performance according to the rent-seeking theory and this relationship needs to be revisited. Therefore, this contribution takes a deeper look into the relationship between corruption and management practices, based on the analysis of three case studies in Kenya and two in Ghana, as a part of Transparency International's *Transparency and Integrity in Service Delivery in Africa (TISDA)* program (Table 1). Specifically, the authors pose the following research question: what are the management practices and their relationship with existing corruption risks at the WSD levels in the scope of the reform in Kenya and Ghana.

Table 1. Case studies utilities in Kenya and Ghana case studies

Old Town (Mombasa,Kenya)	**Migosi (Kisumu, Kenya)**	**Kangemi (Nairobi, Kenya)**	**Madina (Accra, Ghana)**	**Nima (Accra, Ghana)**
MOWASCO (Mombasa Water and Sewage Corporation)	KIWASCO (Kisumu Water and Sewage Corporation)	NCWSC (Nairobi Water and Sewage Corporation)	GWLC-AVRL Ghana Water Limited Co – Aqua Vitens Rand Limited	GWLC-AVRL Ghana Water Limited Co – Aqua Vitens Rand Limited

The paper is organized as follows: Section 2 presents the research methodology; Section 3 analyzes the organizational set up resulting from the reform in the water sector in Kenya and Ghana; Section 4 presents the institutional integrity situation, identifying corruption risks; Section 5 analyzes the power distribution in the relationships between the actors involved at the different levels of WSD; Section 6 redefines the management practices based on existing definitions in the literature in light of the results; and Section 7 concludes by providing an explanation for WSD management practices in Kenya and Ghana as the result of reform.

2. Methodology: revisiting the water control concept

The methodology to look at the relationship between management practices and corruption risks, builds on the concept of water control. Water control as exertion of power (Narain, 2003) is an important concept because it defines management practices (Bolding, Mollinga, & Van Straaten, 1995). The exercise of power may pursue the benefit of a specific group ('performing power'). However, in some cases, the exercise of power may be dysfunctional, and power (ab)used by those 'entrusted' with it for self-benefitting purposes, matching the usual definition of corruption (Transparency International, 2009). Therefore, it seems necessary to revisit the concept of water control in order to understand how power is framed into the institutional and organisational changes that emerge from reform.

According to Mollinga (2008), water control refers to a politically contested resource use where power relates to the three dimensions of water control: 1) technical, 2) organizational, 3) socio-economic and political[1]. This understanding of water control, although, takes into consideration how actors interact with the institutions (i.e. the formal rules and informal norms) to develop an organizational structure based on their power, but do not pay enough attention to how rules and norms or organizational structures modify the exercise of power in its different dimensions. In this sense, water control should be seen as a dynamic process (water freedom vs. water control). Based on Wester (2008), Bustamante (2013) defines water control as the configuration of domains that results from a specific order of the actor's network set up by human and non-human associations (water). This configuration of domains is developed through power categories that result in specific effects or consequences.

Considering the definition of water control by Bustamante (2013), the present paper proposes a methodological framework to analyze water control based on the concept of governability (Kooiman et al., 2008). "*Governability relates to qualities of the object of governance (the system-to-be-governed), its subject (the governing system) and the relation between the two.*" (Kooiman et al, 2008, p. 3). The proposed governability analytical framework considers the relationship between the institutional rules (in this case, the policies), the sociocultural behavioral norms grounded in asymmetries of power between human actors related through networks delineating the water political arena (hydropolitics), and the dynamic relationship between both defining categories of water control derived from organizational set up and expressed in terms of management. Thus, management practices resulting from the exercise of power (water control domains) of a specific organizational configuration stand in the interface between water policies and politics of water that characterize the governability of a water system. In this set up, values play a central role in shaping rules and power (Groenfeldt & Schmidt, 2013).

Thus, the application of the governability concept (Kooiman et al., 2008) serves as a guide for the authors to analyze the management practices and their relationship with existing corruption risks at the WSD levels in the scope of the reform in Kenya and Ghana, in three steps (Figure 1):

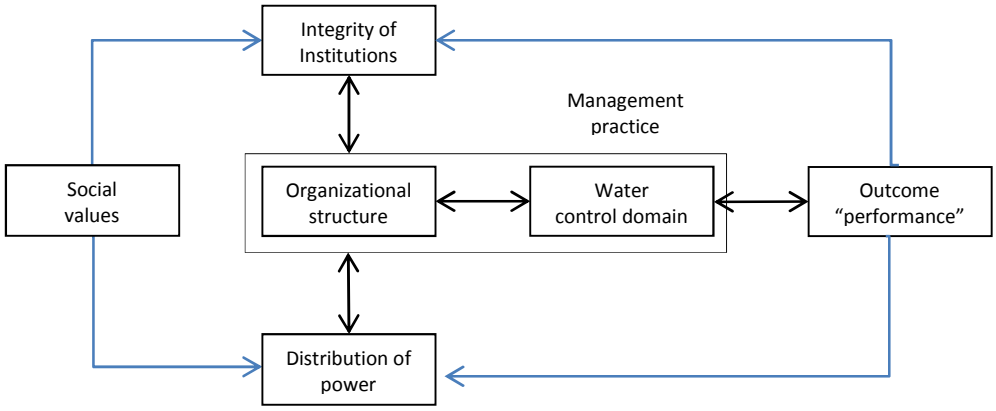
[1] Technical control is exercised through the operation of physical artefacts. Organizational control refers to organizing and co-coordinating a set of activities among people. Socio-economic and political control relate to the regulation of processes and labour.

1. A characterization of organizational structure resulting from the reform process in Kenya and Ghana defining different actors (organizations).

2. The integrity analysis of the governance mechanisms in Kenya and Ghana through transparency, accountability and participation (TAP) variables that identify corruption risks (Bellaubi & Visscher, 2010).

3. The analysis of the power distribution in terms of asymmetries that determine the actors who can exploit their advantage over their peers for their own benefit (Cascão & Zeitoun, 2010).

Figure 1 Relation between WSD governability components



3. Organizational structure in Kenya and Ghana WSD

The reform set up a new organizational structure in WSD in Kenya and Ghana. This section looks at the main actors that "appear" or those who modified their roles as a result of the reform at the three WSD levels: policy and regulatory level, provision level and consumption level.

3.1 At policy and regulatory level

Before the reform, the Kenyan water sector was ruled by the Water Act Chapter 372, 1962. Ombogo (2009) points out the overlapping roles and responsibilities of key public actors in the sector which were, in his view, the main causes of conflicts and poor services. The reform in Kenya was shaped by the National Water Policy 1999 and the Water Act 2002, encompassing both urban and rural water supply. The development of the National Water Policy was largely funded and supported by international cooperation and donors, such as GTZ, SIDA and the World Bank (Mumma, 2007).

The Water Act 2002 separated water resource management from water and sewage services and provided regulation through the creation of the Water Services Regulatory Board (WASREB). WASREB is a non-commercial State Corporation established in March 2003 (WASREB, 2014). WASREB's main role is to approve the licenses of the Water Service Providers (WSPs) that operate and maintain the water systems and to develop guidelines for fixing tariffs for the provision of water services. WASREB also carries out performance benchmarking amongst the WSPs and follows up customer complaints (WASREB, 2014).

In Ghana, the reform was initiated in the early 1990s with the Water Sector Restructuring Project (WSRP) to increase the water sector performance. The WSRP was supported and funded mainly by the World Bank amongst other international donors and agencies (the Austrian and Italian governments, Nordic

Development Fund, African Development Bank, CIDA, DFID, KfW, GTZ, OECF, ECGD and CFD/ADF (GWCL, 2014). Ghana approved its National Water Policy in 2007, which incorporates the Water Resources Policy of 2002 (GII, 2011).

The main outcomes were the creation of the Water Resources Commission (WRC) to be in charge of overall regulation and management of water resources utilization. The Public Utilities Regulatory Commission (PURC) was established with the purpose of setting tariffs and quality standards for the operation of public utilities, and the Community Water and Sanitation Agency (CWSA) being responsible for management of rural water supply systems (GWCL, 2014).

3.2 At provision level

Previous to the reform, water supply and sanitation services in Kenya were provided by the municipal department. The National Water Conservation and Pipeline Corporation (NWCPC), a State Corporation established in 1988, was in charge of developing water schemes in large municipalities serving urban centres (NWCPC, 2014), being the infrastructure owned by the local governments (municipalities).

The Water Act 2002 made a distinction between the asset holding and development responsibility of a Water Service Board (WSBs), and the operations and management responsibility of a Water Service Provider (WSP) (Ombogo, 2009). Under the new model, WSBs contract WSPs which are to provide the services subject to approval by WASREB; a contract is granted or rejected on the basis of the request for a 5-year renewable water licence submitted by WSBs to WASREB for a specific WSP. In most cases, these WSPs are companies owned by municipalities that were established by transforming their technical department into a private company. Therefore, WSPs are corporate public utilities with a licence, given by WASREB and obtained through the WSBs, to provide water and sewerage services within their areas of operation and collect tariffs as specified in their respective Service Provision Agreement (SPA).

The Ghana Water and Sewerage Corporation (GWSC) was established in 1965 to be responsible for water supply and sanitation in rural as well as urban areas. As a result of the reform, the Ghana Water Company Limited (GWCL) was established in 1999 to replace the GWSC. GWCL is a state-owned, limited liability company with the responsibility for urban water supply and is regulated by PURC (GWLC, 2014). In 2006, GWCL changed its operations and signed a five-year contract with Aqua Vitens Rand Limited (AVRL) to operate 81 water supply systems on their behalf. This has led to changes in the organizational structure and roles of GWCL.

AVRL was a Dutch-South African private joint venture company combining Vitens Evides International (Netherlands) and Rand Water Services (South Africa), which won an international tender that was issued by the GWCL. Specific responsibilities of AVRL included production, distribution, customer billing, collection of revenue and maintenance of the systems (Barendrecht & Nisse, 2011). In turn, GWCL was in charge of monitoring the performance of AVRL, which operated the systems and undertook routine maintenance. GWCL was directly responsible for the planning, development construction, rehabilitation and extension of new systems and remained the legal owner of all the assets of the company (GII, 2011). The management contract was discontinued in 2011 as the expected results were not achieved by AVRL (Shang-Quartey, 2013).

3.3 At consumption level

Kenyan and Ghanaian water sector reform involved commercialization measures. Commercialization defines water as an economic good rather than a public good, and redefines users as individual customers rather than a collective of citizens. Commercialization involves the introduction of commercial principles, such as water pricing, in order to meet full cost recovery in water supply (Bakker, 2007).

The Kenyan Water Act 2002 recognized water as an economic and social good, meaning the adoption of sustainable tariff strategies and the overall policy states that user pay tariffs, which in the case of urban supplies, meet operation and maintenance costs as well as repayment of investment. The immediate objective of a tariff was to cover Operation and Maintenance costs while at the same time guaranteeing performance improvements. Tariff adjustments considered the ability to pay, especially for the poor population. As a second step, the objective was to move towards full cost recovery in order to ensure long-term sustainability (TI Kenya, 2011).

In turn, in Ghana the National Water Policy 2007 was anchored in the Growth and Poverty Reduction Strategy of the Government that stipulates the right of everyone to basic social services, such as healthcare, safe drinking water, sanitation and the protection of the rights of vulnerable members of society. In Ghana, the overall policy stated that users pay tariffs, which in the case of urban supplies are used to meet operation and maintenance costs as well as the repayment of investment costs. Prompt payment of tariffs is encouraged through provision of incentives and disincentives (charging interest on delayed payments by large consumers, pre-paid metering, etc.). The tariff structure was based on progressive pricing, allowing cross-subsidies from large users and helping to discourage excessive water consumption (GII, 2011).

As a result, the roles of the users changed accordingly either as user-citizens or user-customers where each role implies different rights, responsibilities and enforcing accountability mechanisms. In Kenya with corporate providers owned by the municipalities, the consumer became a user-citizen with the possibility to use the political process via elections as an accountability mechanism for better services[2]. In Ghana, the involvement of a private operator limited the role of the consumer to user-customer; litigation being the main accountability mechanism.

Participation of consumers was also an element of reform both in Kenya and Ghana. Providers have put in place a number of measures to improve the feedback and information given to the consumers. Consumer care services have been set up in order to manage complaints, speed up connections, etc., but users know very little about their rights and even less about their obligations. Besides, most of the decisions related to the service provided remain unknown to the users and responsible public participation in decision-making is non-existent (GII, 2011; TI Kenya, 2011).

Tables 2 shows the principal actors, their roles (as principals and agents) at the different WSD levels resulting from the water sector reform in Kenya and Ghana.

Table 2 Main actors involved in WSD and their roles

Levels	Actors and their roles in Kenya	Actors and their roles in Ghana
Policy and regulation	Ministry of Water and Irrigation (MWI) Overall coordination of the water sector, setting policies and legislations and sourcing funds. Water Services Regulatory Board (WASREB) Approves the operators (WSP) that are selected and regulates tariffs.	Ministry of Housing, Works and Water (MHWW) Overall coordination of the water sector, setting policies and legislations and sourcing funds. Public Utility Regulatory Commission (PURC) Examines and approves tariff, monitors and enforces standards of performance, receives and investigates complaints and settles disputes between consumers and providers.
Provision	Water Services Providers (WSPs) Operate and	Ghana Water Limited Company (GWLC) Legal

[2] The TISDA program (TI Kenya, 2011) showed that in the context of poor water service delivery, user-consumers rely on political electoral promises in order to improve the basic services, such as water, education and health and political leaders are held accountable in the polls. However, results may not reflect that the citizens can be manipulated or that broad sectors of the electorate can be 'bribed' by developing certain projects in their areas.

	maintain the systems and provide water and sanitation services. WSPs are corporate public utilities*. Municipality Still has the infrastructure in trust for the National Treasury despite envisaged transfer to WSB under the Water Act of 2002.	owner of the system and responsible for the provision, distribution and management of urban water supply as well as for its rehabilitation and expansion. Aqua Vitens Rand Limited (AVRL) Private operator responsible for production, distribution, billing, revenue collection, setting the tariff.
Consumption	Users Active paying recipients of water	Users Passive paying recipients of water
* WSPs have a contract with and lease the systems from the Water Services Boards (WSBs). At the time of the research WSBs leased the facilities from municipal councils and sub-lease them to WSPs.		

4. Institutional integrity and corruption risks in WSD in Kenya and Ghana

This section takes forward the findings of TI Kenya (2011) and GII (2011) in identifying corruption risks in WSD in Kenya and Ghana at the different WSD levels (policy-making and regulatory, provision and consumption). Based on these findings, the authors relate these corruption risks to the existing literature (Boehm, 2007).

Corruption risks were identified using a principal-agent framework (Huppert, 2005). The principal-agent framework makes it possible to represent actors (organizations or individuals) that are related to each other under specific governance mechanisms (rules such as contracts and regulations) and transactions (services and returns). The relationship is that an actor acting as an agent offers a service to an actor acting as a principal and, in return, the principal pays the agent. The agent can hide information from the principal, failing ex-ante to provide the service. In turn, the principal can refuse ex-post any return for the service provided. Finally, an external observer (an independent actor not directly involved in the principal-agent transaction) can verify and influence the transaction if sufficient information is accessible to him. Bellaubi and Visscher (2010, in press) define different levels of integrity for each of these transactions in terms of transparency, accountability and participation (TAP) (Table 3), where low level TAP identifies high corruption risks[3]. Scoring is set through a participatory methodology involving research teams and actors involved allowing the validation.

Table 3 Integrity definitions and levels (as applied in the case studies)

Integrity definition	**Scoring levels (participatory scoring)**
Transparency: Existence of clear written rules and regulations defining relationships between actors	1 = Comprehensive written rules.
	0.5 = Rules are one-sided.
	0 = Rules are verbal or incomprehensible.
Accountability: Application of control mechanisms for holding actors responsible for their actions based on the rules and regulations	1 = Applied control mechanisms on services and returns.
	0.5 = Control mechanisms not enforced.
	0 = Control mechanisms do not exist.
Participation: Accessibility of information to third parties with a possibility to influence the outcome of the relationship	1= Third party can influence the outcome.

Table 4 shows the corruption risks have been identified according to the low TAP levels between the main actors (principals and agents) at the different WSD levels.

[3] The assumption is that a low score implies that a higher risk of corruption exists and, therewith, needs attention and possible remedial action. It means that corruption is more likely to occur, but not that it actually takes place.

Table 4 Relationships between the main actors involved in WSD in Kenya and their governance mechanism.

WASREB (agent) – MWI (principal)	
governance	Water Act
service	Regulation in water service provision
return	Financial resources to implement MWI policies
transparency	1 = Water Act is clear in its understanding
accountability	0.5 = WASREB funding depends on MWI
participation	0.5 = information is accessible to third parties
WASREB (agent) – WSP (principal)	
governance	Service Provision agreement
service	Supervision of performance standards
return	Levy (percentage of billing)
transparency	1 = SPA is clear in its understanding
accountability	0.5 = is not clear how WASREB reinforces its role
participation	0.5 = information is accessible to third parties
WSP (agent) – User (principal)	
governance	Provision agreement
service	Water provision
return	Monthly payment of the water bills
transparency	0.5 = not clear what happens if WSP does not service
accountability	0.5 = WSP does not compensate users if no service
participation	1 = complaints followed up by WASREB
Municipality (agent) – WSP (principal)	
governance	Companies Act
service	Lease of assets through Water Service Boards
return	Dividends plus lease of the assets
transparency	0.5 = original contract not available
accountability	0.5 = corporate guidelines not applied
participation	1 = MWI can influence decisions

PURC (agent) – MHWW (principal)	
governance	PURCAct
service	Regulation in water service provision
return	Financial resources to implement MWI policies
transparency	1 = PURC Act is clear in its understanding
accountability	0.5 = PURC funding depends on MHWW
participation	0 = information is not accessible to third parties
PURC (agent) – GWLC (principal)	
governance	Performance contract
service	Supervision of performance and tariff setting
return	No return
transparency	0.5 = is not clear how tariffs are approved
accountability	0.5 = is not clear how PURC reinforces its role
participation	0 = information is not accessible to third parties
AVRL (agent) – User (principal)	
governance	Registration
service	Water provision
return	Monthly payment of the water bills
transparency	0 = no contract but a registration form
accountability	0.5 = AVRL does not compensate users if no service
participation	0.5 = PURC does not follow up complaints
AVRL (agent) – GWLC (principal)	
governance	Management contract
service	Operations, maintenance and reporting
return	No return by GWCL
transparency	0.5 = original contract not available
accountability	0.5 = sanctions are not applied
participation	0.5 = PURC follows up performance of AVRL

4.1. At policy and regulatory level

The identified agent and principal were the regulator and the policy makers, respectively, in both countries. Regulators were in charge of supervising and monitoring to ensure that water services were provided in an efficient, fair, and sustainable manner, while bearing in mind the social priorities set out by the policy makers (both at national and local government levels) (Trémolet & Hunt, 2006). Policy makers provided the regulator with financial support.

The situation of low accountability found between water ministries and regulators in both Kenya and Ghana, where the politicians may obtain private gains by abusing regulatory powers, was identified as regulatory opportunism (Boehm, 2007) in terms of corruption risk.

4.2 At provision level

In Kenya, the municipalities were identified as the agents providing the assets to the WSPs to operate the water system and receive a payment in return. In Ghana, AVRL was the agent providing water on behalf of GWCL (the principal).

In Kenya low transparency and accountability were identified as a problem in the relationships between providers and municipalities. This means that the latter had the possibility to abuse their power in influencing decisions of the water companies for their own benefit, which is known as political opportunism (Boehm, 2007).

In Ghana, existing weak transparency and accountability between AVRL and GWCL pointed out a risk of state capture (Boehm, 2007), where AVRL could have taken advantage of the situation by shaping the design of the service contract in its favour before it came into effect.

4.3 At consumption level

In both countries, water utilities (agents) provide water services to the users (principals) in return for payment for the water consumed.

Both countries presented low transparency, accountability and participation between water providers and users, identifying moral hazard and free-riding as the main corruption risks. In the case of moral hazard (Huppert & Wolff, 2002), providers may offer a suboptimal service to some parts or the whole service area, being not accountable for it. Free-riding (Huppert, Svendsen, & Vermillion, 2001) involves users taking advantage of the service provided through illegal connections, meter falsifications and tapping.

5. Power analysis in Kenya and Ghana WSD

This section analyzes the distribution of power in terms of asymmetries between agents and principals involved in the WSD levels in Kenya and Ghana. Indicators to evaluate the main reform outcomes have been chosen to assess the power asymmetries between principals and agents.

According to Foucault (2001), power is part of the social relationships, where all actors have and exercise power in different ways. Through power, social actors try to influence other actors' behaviour (Weber, 1954). Power only exists as an action; therefore power is something dynamic and reversible. Furthermore, there is no power without resistance to it. In this research, power is used in a relative sense, meaning power is seen as exercised through regularized relationships of autonomy and dependence, as opposite to the concept of power in an absolute sense, where it refers to a transformative capacity to achieve certain goals and purposes (Giddens 1984, as cited in Narain, 2003). Galbraith (1983) divides power into three different types on the basis of how the imposition of will is achieved: 1) condign power wins submission by making the alternative to submission sufficiently painful, 2) compensatory power wins submission by offering a reward of some kind, and 3) conditioned power is exercised by changing belief; persuasion, education or social commitment to what seems natural, proper, or right.

In the case of this research, power is related to its conditioned character and the capacity of an actor (principal or agent) to influence his peer, where the capacity to influence is proportional to the asymmetry of power in their relationship and can be defined by the ties between both the principal and the agent. An actor may be either truly independent, hence their influence is null and power equally distributed, or an actor may be influenced by the peer. In this case, there is power asymmetry. The qualification of the power asymmetry in the main actors' relationships at the different WSD levels runs through a participatory method involving research teams and WSD actors

5.1 At policy and regulatory level

The reforms tackling policy and regulation looked at the delegation and separation of policy from regulation. Therefore, the capacity of influence by policy makers is characterized by the degree of delegation manifested in the creation of new organisational structures and separation of powers in resource allocation and management. In other words, it is expected that the capacity of influence of the policy makers will be less after the delegation and separation of policy making and regulation has taken place.

In Kenya, delegation has meant the creation of WSBs to be in charge of providing water to their areas of jurisdiction. Meanwhile in Ghana, GWSC was converted into a 100% state-owned, limited liability GWCL with the responsibility for only urban water supply (GWCL, 2014). At first glance, the water ministries in Kenya (MWI) and Ghana (MHWW) have lost power to the newly created regulatory bodies. However, the ministries have kept their influence by appointing the members of these regulatory bodies. Because of the ties between water ministries and regulatory bodies in Kenya and Ghana, power asymmetry was identified between actors at this level.

5.2 At provision level

The main reforms introduced in Kenya and Ghana looked at achieving a higher level of autonomy and increasing the market orientation of the utility. Autonomy of water companies has been identified as a key component in reform increasing the performance of WSD (Braadbaart, Van Eybergen, & Hoffer, 2007; Schwartz, 2008). In turn, market orientation of water utilities allows the utilities to focus on their core activities by outsourcing a number of services. The control capacity of water companies is greater with greater autonomy and market-profit orientation.

The adoption of private sector management practices (New Public Management (NPM)) in Kenya implied the corporatization of water utilities that gained in autonomy. In terms of market orientation, water utilities were still in charge of water production, distribution and treatment, maintenance, billing and customer care and only large repairs were in the hands of WSBs.

In spite of the apparent shift of power toward water providers, municipal councils, being members of the Board of Directors (BoD) and shareholders at the same time, exerted a great influence over WSPs by interfering with the management and the daily operations. Thus, there is power asymmetry between municipal councils and WSPs.

In Ghana, reform involved Private Sector Participation (PSP) through a service management contract between GWCL and AVRL; AVRL was a fully independent private company. In terms of market orientation, AVRL managed water production, distribution and treatment, billing and customer care. Rehabilitation works were the responsibility of GWCL and were carried out by private contractors (tenders).

In this situation at first glance AVRL had control over GWCL; however, although AVRL remained an independent operator responsible for production, distribution, billing and revenue collection, a number of decisions such as users' disconnections remained under GWCL. Also AVRL's staff was seconded by GWCL (Shang-Quartey, 2013), meaning that in some aspects AVRL had very little power to influence GWCL. In its turn, GWCL had difficulties in monitoring the performance targets under the AVRL contract (Adu-Ampog, n.d.; Ainuison, 2010), which was incomplete (Dagdeviren & Robertson, 2013). This indicates a power balance between both actors.

5.3 At consumption level

The reform in Kenya and Ghana targeted commercialization and users' participation. The introduction of full cost recovery in tariffs in water service delivery implied not only an increase in the tariff itself but also a shift in the main source for utility funds (from the government agency to the consumers). Under this approach, the utility becomes dependent on the consumers for their income and needs a higher degree of consumer-orientation (Schwartz, 2008). In its turn, users' participation involves devolving water

services and monitoring to lower levels of government or individual water users (Bakker, 2007). The capacity of control of users would increase with a higher customer orientation and participation.

In Kenya and Ghana, water utilities have started to be concerned about customer satisfaction as a result of commercialization measures. This has materialized in a number of measures, such as a customer-friendly billing and collection system, orientation toward seeking customers' opinions and views, availability of options for service delivery, timely information for customers on developments in relation to water services, and response to customers' complaints (Baietti, Kingdom, & Van Ginneken, 2006). In spite of this, water utilities suffered from a lack of credibility with the users (GII, 2011; TI Kenya, 2011).

In terms of participation, water utilities made efforts to make the information provided to the users more transparent and accountable but users were still not involved in utility decision making (e.g. discussing priorities in service extension areas or tariff approval). In Kenya, the fact that municipal councils were the owners of water utilities made a difference to how the users, as citizens, have potential influence on water utilities according to their degree of satisfaction with the service received through the election polls (e.g. users vote for political leaders according to promises to improve services). In contrast, in Ghana the role of the users was merely as consumers with no power to influence AVRL. In both countries the relationship between users and providers do not present power asymmetries.

6. Water control and management practices in WSD

The previous sections analyzed the outcomes of the reform in terms of organizational structure, integrity of the institutions and power distribution between the main actors/organizations (principals-agents) involved in the reform. This section looks at the resulting water control domains considering how these different domains can be characterized through integrity levels, defining corruption risks and power asymmetries between actors/organizations being those principals or agents (Table 5).

In Kenya and Ghana, the objective of reform was to increase the performance of WSD. To achieve this objective, both countries have carried out a number of changes at different WSD levels resulting in specific organizational structures with specific actors' roles. At policy-making and reform level, Ghana and Kenya developed regulatory frameworks. Also, both countries adopted commercialization measures, looking for full cost recovery.

However Kenya moved from local government water departments to publicly owned corporations under company laws, introducing corporate structures similar to market-oriented enterprises, known as New Public Management (NPM) (Schwartz, 2008). Ghana developed Private Sector Participation (PSP) through outsourcing contracts. This difference had further implications in terms of users' participation. In Kenya, because the water companies remained public, the users' role, as citizens, was supposed to devolve and give them a higher degree of participation. In Ghana, users remained as simple consumers. Following Bakker's governance model framework (2007), Kenya followed a public governance model with clear characteristics of NPM, while Ghana evolved to a private governance model.

According to Bates (1995), sector reform will occur in a 'social dilemma of second order' where actors will compete to keep power. Changes in organizational structures and institutions as a result of water sector reform mean that water control ('power') will be removed from some actors ('losers') and transferred to others ('winners') in a new governance model. When the reform was favorable to the hydrocratic elites or 'winners', the status quo remained as it was previous to the reform. On the other hand, the elites that are now the 'losers' tried to capture the reform (Boehm, 2007) in their own interest, through management practices in the resulting governance model and following a 'path dependence'

behaviour (Della Porta & Vannucci, 2005; Theesfeld, 2001). This situation would allow the 'winners' to influence the new rules in their favor ('reform opportunism').

Table 5 Power balance between principals and agents and related corruption risks at WSD levels in Kenya and Ghana

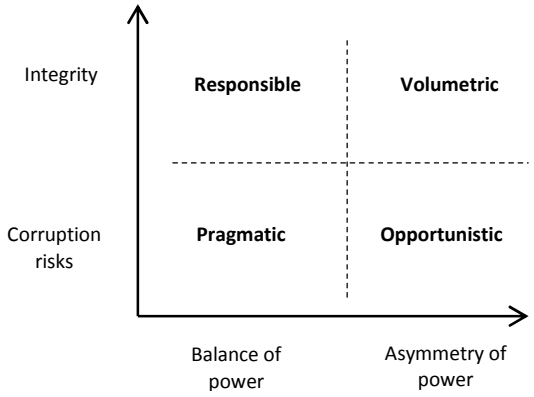
WSD level	Consumption level	Provision level	Policy level
Target of reform	Customer orientation User participation	Autonomy of utilities Market orientation	Separation policy-regulation Delegation of power
Kenya			
Organisational structure	User as a citizen (voting via elections)	Conversion of municipal water service departments into a public owned corporation (WSPs)	Decentralization. Creation of a regulatory body (WASREB)
Actors involved (principals – agents)	Users - WSPs	WSPs - Municipalities	MWI - WASREB
Distribution of power (influence)	Influence of users is not exercised because of low credibility of WSPs	WSPs under the influence of municipalities	MWI influences appointing the members of WASREB
Institutions integrity (corruption risks)	Moral hazard / free-riding	Political opportunism	Regulatory opportunism
Ghana			
Organisational structure	User as a consumer (consumer opinion)	Private sector participation through a service management contract (AVRL)	Decentralization. Creation of a regulatory body (PURC)
Actors involved (principals – agents)	Users - AVRL	GWCL - AVRL	MHWW - PURC
Distribution of power (influence)	Users have little influence on AVRL	AVRL is a fully independent company but GWCL influences AVRL	MHWW influences appointing the members of PURC
Institutions integrity (corruption risks)	Moral hazard / free-riding	State capture	Regulatory opportunism

Reviewing Table 5, it is possible to differentiate between the three situations defining water control domains, considering how the "new" organisational structures reflect the dynamics of power between actors in relation with the integrity of rules derived from the reform process:

- Situations with power asymmetry between principals and agents and presenting corruption risks. This is the case at the policy and regulation level in Kenya and Ghana and provision level in Kenya. In these cases, an actor who holds power over a peer may misuse it to behave opportunistically due to the low TAP levels.
- Situations with no marked power asymmetries between principals and agents but presenting corruption risks. Such cases exist at the provision level in Ghana and at the consumption level in Kenya and Ghana. In these cases, water control is weak and principals and agents behave reactively, motivated by their own interest.
- A third situation which, however, is not observed in our case studies, would be a situation without any corruption risks. Under this situation two possibilities exist. There is an asymmetry of power and an actor can control the peer. It is also possible that power is rather diffuse between the actors and none of the actors exert it. Under this situation, actors would behave ethically within a set of rules differentiating the situation with strong water control (efficient management) from those with less control (responsible management).

Some scholars refer to water control and power to define different management practices. Batley (2004) and Huppert and Wolff (2002) present the concept of opportunistic management. Under opportunistic management, the provider of a service will tend to use their 'power' to divert benefits in their own direction. In turn, Molle and Berkoff (2007) introduced the concept of pragmatic management and volumetric management in relation to different degrees of water control in water allocation. Instead, a more comprehensive definition is suggested, of water control defining domains that consider how the "new" organizational structures reflects the dynamics of power between actors and the integrity of rules derived from the reform process. Therefore, water control domains can be defined by levels of integrity of rules (TAP levels describing corruption risks) and power asymmetries (levels of an actor's influence). Furthermore, it is suggested that the water control domains resulting from the interaction between power and institutional integrity in specific organisational structures may be referred as management practices. Figure 2 shows the water control domains proposed by the authors.

Figure 2 Water domains characterized by integrity and power



7 Conclusions

This paper provides a methodological framework to describe and analyze how integrity of institutions, describing corruption risks and power asymmetries between actors at the three levels of WSD, may characterize water control domains. The authors also suggest a more explanatory definition of the management practice concept that results in a specific organizational structure within the interaction of dynamics of power and the institutional integrity.

From the analysis of the case studies, it is possible to differentiate two situations of water control. The first situation under low integrity (low TAP) involved corruption risks and asymmetries of power between principals and agents, which may induce the actors who have power over their peers to misuse it and behave opportunistically. This situation appears in Kenya and Ghana policy-making and regulatory levels and at provision level in Kenya, where the creation of regulatory bodies was still influenced by the ministries or at provision level where corporations are influenced by municipalities. A second situation occurred under low integrity (low TAP) pointing to corruption risk, but where power was "balanced" between principals and agents. In this case, the principals and agents may behave pragmatically to achieve services and returns in their own interest, disregarding their peers. Such is the situation at provision level in Ghana with PSP and at consumption level in both Kenya and Ghana.

The causes of opportunistic water control in Kenya are highlighted by Mumma (2007) and Rampa (2011), because of the patrimonial governance and personalization of roles involving conflicts of interest that are derived in regulatory and political opportunism risks. In Ghana, this explanation could apply at regulatory

level; the situation differs at provision level because of the involvement of PSP. In this sense, further research would be desirable to get a better understanding of the reasons behind the relationship between different management practices and corruption risks (e.g. considering the social links and learning capacity of principals and agents).

An interesting possibility to explore these complex links is the use of Agent Based Modelling (ABM) as a learning model, to understand how the different actors involved in WSD interact amongst themselves (management practices) in an institutional environment characterized by different levels of TAP, and according to internal behavioral and social norms (e.g. social cost and gains) as well as cognitive abilities (e.g. learning capacities). Through ABM, factors can be tested to see which determine an individual's choice to engage in different management practices with their peers. Furthermore, ABM should make it possible to measure how their choice affects the performance of WSD.

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