

Management practices and corruption risks in water service delivery in Kenya and Ghana

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Abstract

Water sector reform has brought considerable changes in organizations in Kenya and Ghana while the overall water service delivery (WSD) performance has remained low. The changes have also brought a shift in the balance of power between the different actors involved in WSD as well as a 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 the literature but, according to the opinion of the authors, are 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.

Keywords: Corruption; Governability; Management practices; Risks; Water control; Water reform

Introduction

Corruption has been pointed out as one of the main challenges in the governance of the water sector by jeopardizing access to the service for large parts of the population in Sub-Saharan countries and elsewhere (Trop & Stålgren, 2005). Indeed, corruption affects the efficiency of water utilities. Estache & Kouassi (2002) estimated that as much as two-thirds of the operating costs for 21 water companies in Africa were attributable to corruption. Reform in the public water sector has been seen as a solution as it may introduce competitive pressure to increase performance while reducing scope for corruption (e.g., Repetto, 1986). Under such forms of private sector involvement, effective regulation is particularly key (Marques *et al.*, 2013). However, private sector involvement and regulation are subject to corruption risks too. Both the process of involving the private sector, e.g., through concessions, and the subsequent

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required regulations require interaction between private interests and public officials and involve important potential rents that may be captured through corrupt practices on different levels (Boehm, 2011).

Kenya and Ghana are two countries from Sub-Saharan Africa in which performance has remained low in certain locations of the service area of the largest water utilities, and corruption is pervasive in spite of the reforms carried out in the 1990s. GII (2011), TI Kenya (2011), and Bellaubi & Visscher (2014) 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. GII (2011), TI Kenya (2011), and Bellaubi & Visscher (2016) 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 appointment 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 (MCs) in Kenya participated directly in the daily management of the water utilities by appointing members of the Board of Directors (BoD), 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, as they had little access to information and were not 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, tends to perpetuate over time and further benefit those with power (the Iron Law of Oligarchy; see also the argument in Acemoglu & 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 (including Laffont, 2005) 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 (WSPs) remains low in spite of the sector reform. Some explanations are provided by Huppert & 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 & Wolff (2002, p. 1) state: *'efficiency deficits may well be in the interest of most of the influential stakeholders involved'*.

Indeed, politicians, managers, and technicians may follow a management practice at different WSD levels that is less costly and involves less workload, so they do not have any interest in more efficient management; but mismanagement can also be intentionally driven by an ‘opportunistic behavior’ in order to seek rents, e.g., from new maintenance programs and new investments. This situation is likely to benefit politicians, managers, and technicians involved in WSD but affect 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 relationships with existing corruption risks at the WSD levels in the scope of the reform in Kenya and Ghana?

The paper is organized as follows. The next section presents the research methodology, which is followed by analysis of the organizational structure resulting from the reform of the water sector in Kenya and Ghana. The paper then presents the institutional integrity situation, identifying corruption risks, and continues with analysis of the power distribution in the relationships between the actors involved at the different levels of WSD. The management practices are redefined based on existing definitions in the literature in light of the results. The conclusion provides an explanation for WSD management practices in Kenya and Ghana as the result of reform.

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 an exertion of power (Narain, 2003) is an important concept because it defines management practices (Bolding *et al.*, 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 organizational 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

Table 1. Case study utilities in the 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

political¹. This understanding of water control takes into consideration how actors interact within the scope of the institutions (i.e., the formal rules and informal norms) and the organizational structure based on their power. However, it may not pay enough attention to how changes in institutions and/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). 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 governable 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, and taking into consideration the definition of Bustamante (2013), management practices' domains result from the exercise of power (water control) of a specific organizational configuration, standing in the interface between water policies and politics of water that characterize the governability of a water system as effects or consequences and, therefore, the performance of the system itself. 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) 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, 2016).
- (3) The analysis of the power distribution in terms of asymmetries understood as influences that determine the actors who can exploit their advantage over their peers for their own benefit (Cascão & Zeitoun, 2010).

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. The results are

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

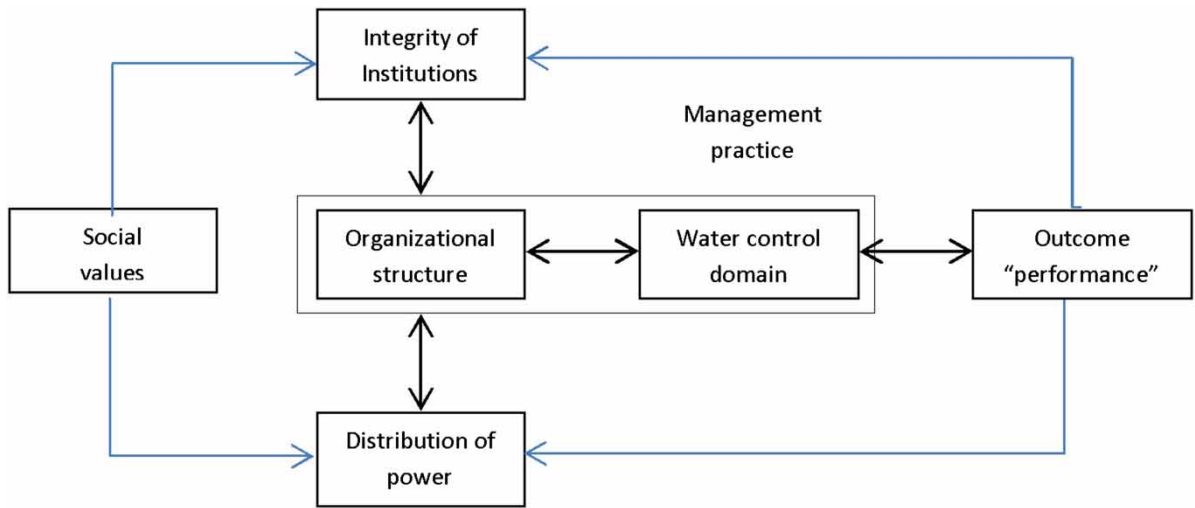


Fig. 1. Relationship between WSD governability components.

presented according to three case studies conducted in Kenya and two in Ghana (Table 1). Case studies in both countries were performed in areas with medium to high population density, including low and middle income families, which are comparable to several other parts of the providers' service area. Well-off neighborhoods as well as completely deprived areas were not included. The study focused on case studies of larger utilities in main cities, which makes them somewhat comparable, although this comparison can only be indicative and does not have statistical validity (Bellaubi & Visscher, 2014).

The case studies represent specific water situations in terms of quality of the WSD at different country locations within the service area of a water utility.

Reform at policy and regulatory level

As stressed by the World Bank (2008), regulation is especially important to protect customers from service providers' abuse of their monopoly and from political interference, and to protect service providers from politically driven decisions.

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.

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 at the national level (WASREB, 2014). In Kenya, water is recognized as an economic and social good for which the adoption of sustainable tariff strategies overseen by a regulator is sought. The regulator, WASREB, although not fully

independent, is receiving resources directly from the Ministry of Water. WASREB's main role is to approve the licenses of the 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 among the WSPs and follows up customer complaints (WASREB, 2014). However, WASREB is still facing a number of challenges in trying to monitor water service provision and, especially, in applying sanctions to the Water Service Boards (WSBs) and WSPs to ensure they adhere to national service and water supply and sanitation quality standards.

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 among 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) (GWLC, 2014). Ghana approved its National Water Policy in 2007, which incorporates the Water Resources Policy of 2002 (GII, 2011). This is anchored in the Growth and Poverty Reduction Strategy of the Government that stipulates the right of everyone to basic social services, such as health care, safe drinking water, sanitation, and protection of the rights of vulnerable members of society. The guiding principles are: (i) the fundamental rights of all people to safe and adequate water to meet basic human needs; (ii) the recognition that water is a finite and vulnerable resource given its multiple uses; (iii) integration of water resources management (WRM) and development with environmental management in order to ensure the sustainability of water resources in both quantity and quality.

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, with the Community Water and Sanitation Agency (CWSA) being responsible for management of rural water supply systems for fewer than 50,000 people (GWCL, 2014). As in the case of Kenya, PURC is totally financed by the Ministry of Housing Works and Water, which also appoints the majority of its commissioners (Bellaubi & Visscher, 2014).

The key reform aspects in Kenya and Ghana are illustrated in Table 2.

Table 2. Overview of some key reform aspects of water regulation in Kenya and Ghana.

Item	Kenya	Ghana
Tariff	Tariffs are set using WASREB guidelines, however these guidelines do not consider the role of service level intermediaries (in many parts of urban areas) and the additional charges they may incur	Formal tariff setting is only established independently for part of the urban water supply of systems owned by GWCL. One of the important problems is that even under this regulation the poorer sections often pay more per volume as the prices of secondary providers are not regulated
Access	Equal access is established in the law, but in practice is not the case, with the poorer sections having less access	Equal access is established in the law, but in practice is not the case, with the poorer sections having less access
Quality	Quality guidelines exist and 'formal' water sources are monitored on a regular basis; 'informal' sources, such as supplying informal intermediaries, are not monitored and are often found to be worse in quality	Quality guidelines exist but are not adhered to and monitoring is deficient in the piped water supply and virtually non-existent for informal providers

Reform 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 (NWPC), a State Corporation established in 1988, was in charge of developing water schemes in large municipalities serving urban centers (NWPC, 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 WSB, and the operations and management responsibility of a WSP (Ombogo, 2009). Under the new model, WSBs contract WSPs that are to provide the services subject to approval by WASREB; a contract is granted or rejected on the basis of the request for a five-year renewable water license 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 license, 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).

WSPs are governed by a board of 7 to 11 directors with a slot reserved for each local authority covered by the WSP. The Board members can vary but generally include five from MCs, three from Civil Society, three from the private sector, and the Managing Director (MD). The MD and the Company Secretary attend the Board meetings. The Board members are nominated by the minister in consultation with MCs and different stakeholder segments (opinion leaders, politicians) and then appointed at the Annual General Meetings. The day to day running of the company is undertaken by the MD (appointed by the BoD) and the Board of Management, which comprises the MD, the Company Secretary, and the Functional Directors. The organizational structure is divided into different directorates headed by functional directors and one headed by a MD. The functional directorates are further divided into departments and sections. For each one of the case studies, differences exist regarding the profile of the BoD members with varying influence from the MCs. However, the BoD needs to be approved by the Ministry of Water and Irrigation (MWI).

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 (GWCL, 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 (The Netherlands) and Rand Water Services (South Africa), which won an international tender that was issued by 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).

AVRL was responsible for overall water utility management. AVRL had five expatriate staff (heads of various units); the rest of the staff was seconded from GWCL. AVRL had a management team that oversaw the operations and management of the organization. The 14-member management team was headed

by the MD (recruited by the Board on behalf of GWCL) and included directors of the various units and the Area Managers responsible for water supply in specific areas. The highest decision-making level was the Board, which was nominated by the shareholders of AVRL.

Ownership and legal status of the providers following the reform in Kenya and Ghana are illustrated in Table 3.

Reform 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). Pinto & Marques (2015) point out the main concern about commercialization is to consider if tariffs are in line with the objectives of both the utility and its community of users. However, the same authors highlight that the influence of the tariff system needs to consider the role of subsidies as these may have consequences on private sector participation (PSP) and affect poorer areas of the cities. Furthermore, Auriol & Blanc (2008) point out how PSP has been carried out in the most profitable market segments for water provision, such as wealthy neighborhoods and cities that have improved the quality of service delivery. In these areas, prices and new investments are highly subsidized, instead of services being offered at higher prices in order to extract rents and, subsequently, to subsidize access for the middle class and the poor. For that reason, when looking at the quality of the WSD in Kenya and Ghana, Bellaubi & Visscher (2014) include the equity aspect in terms of affordability to pay (users' restriction in consumption because of price) instead of looking at the tariff's objective and structure itself.

Table 3. Ownership and legal status of the providers in Kenya and Ghana as a result of reform.

Item	Kenya	Ghana
Who owns the infrastructure?	Municipality still has the infrastructure in trust for the National Treasury despite envisaged transfer to WSB under the Water Act of 2002. They lease the system to the WSBs	GWCL is the owner of the system
Capital investment in system	Government invests in the system partly with funding from external donors	Capital investments are made by GWCL with the help of donors; some investments by AVRL with donor support (installation of meters, etc.)
Legal status of the operator	WSPs are publicly (municipality) owned private companies	AVRL was a private company with a five-year management contract up to 2011
Who owns the shares?	MC owns 100% of the company shares	Dutch company Aqua Vitens B.V. and South African company Rand Water Services Limited
Type of contract owner-operator	WSP has an SPA (management contract) with WSB	AVRL had management contract with two main performance conditions at the end of the contract; a collection rate of 95% and NRW below 45%
Commercial risk	The commercial risk rests with WSPs. The risk is high as often they took over bad debts from municipal company	Commercial risk is with GWCL

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 users 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). Although the tariff varies within the country according to different WSPs, under the human rights principles an affordable price needs to be charged for a minimum consumption of 20 liters per person/day. However, many users indicate that they restrict their water use because of cost. This may be partly due to incremental tariffs that punish people who share a connection (Bellaubi & Visscher, 2014).

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 health-care, 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). In contrast to Kenya, a uniform tariff exists for all large urban water systems in the country. According to Bellaubi & Visscher (2014), a considerable part of the population was limiting consumption because of the costs. In fact, it is important to consider that levels of metering were very low, and when not metered, users pay a flat rate based on the number of persons in the house, taps, toilets, and garden. When consumptions are overestimated or inaccurate they can end up increasing the cost and reducing people's affordability.

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 services². 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 and so on, 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).

Table 4 provides an overview of the reforms at the consumer level in both countries.

² The TISDA program (TI Kenya, 2011) showed that in the context of poor WSD, 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.

Table 4. Overview of reforms at consumer level in Kenya and Ghana.

	Tariff	Subsidies	Cost	Profit
Urban water supply in Kenya (WSBs, WSPs)	Aim is to adopt a tariff to cover operations and maintenance (O&M) costs, repay investments, and finance asset renewals	A service provider is always required to notify the licensee and regulatory board of received subsidies. The board may initiate a tariff review	Cost of O&M is met but many investments still seem to be financed through grants	The WSP makes profit and several are starting to pay dividends to their shareholders but cannot even repay the debts inherited from the municipality
Urban water supply in Ghana (GWCL/AVRL)	Fixed tariff for all systems, ultimately aiming at full cost recovery including investments	Investments are fully financed by the state, while maintenance is financed from user fees	Cost of O&M is met but full investment costs are not recovered	AVRL makes operational surplus

Table 5 summarizes the principal actors and their roles (as principals and agents) at the different WSD levels resulting from the water sector reform in Kenya and Ghana.

Table 5. Main actors involved in WSD and their roles after the reform (for each WSD level, the row above indicates the reform and the row below shows the actors involved).

Levels	Actors and their roles in Kenya	Actors and their roles in Ghana
Policy and regulation	Decentralization: Creation of a regulatory body (WASREB) 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	Decentralization: Creation of a regulatory body (PURC) 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	Corporatization. Conversion of municipal water service departments in a public owned corporation (WSPs) Water service providers (WSPs): Operate and maintain the systems and provide water and sanitation services. WSPs are corporate public utilities*	Private Sector Participation (PSP) through a service management contract (AVRL) Ghana Water Limited Company (GWLC): Legal owner of the system and responsible for the provision, distribution and management of urban water supply as well as for its rehabilitation and expansion
Consumption	Municipality still has the infrastructure in trust for the National Treasury despite envisaged transfer to WSB under the Water Act of 2002 User as a citizen (voting via elections) Users, active paying recipients of water	Aqua Vitens Rand Limited (AVRL). Private operator responsible for production, distribution, billing, revenue collection, and setting the tariff User as a consumer (consumer opinion) Users, passive paying recipients of water

*WSPs have a contract with and lease the systems from the WSBs. At the time of the research, WSBs leased the facilities from MCs and sub-leased them to WSPs.

Overall WSD performance in Kenya and Ghana case studies

In a case study location, the overall WSD performance is the result of all actors' interactions at the different levels: policy and regulatory, provision, and consumption. Table 1 above shows the case study locations analyzed by Bellaubi & Visscher (2014) looking at WSD performance following a Water Service Delivery Approach (WSDA). The main objective was to reflect on standard benchmarking indicators used by water utilities that do not consider sufficiently specific parts of the service area covered by a provider, including equity issues. The authors observed big discrepancies between the data reported by the utilities to the regulator and inside specific service areas of the water utilities. The key indicators and definitions used under the WSDA and the scoring levels are shown in Table 6.

When comparing the results of the WSDA by different providers in Kenya, it becomes evident that all the providers had limitations but also that KIWASCO was faring better than the others, especially on quality of water and coverage. Users in Migosi seemed to limit the quantity due to cost and for MOWASCO the quantity was below the minimum needs. The two case studies in Ghana showed similar results concerning coverage and intermittent water supply. Affordability and consumption remained low in both areas.

In a nutshell, the low WSD performance in all water utilities in the case studies highlights the pertinence of the research question and the need to reflect on management practices derived from reforms that, according to the rent-seeking theory, would be expected to increase performance.

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 and regulatory, provision, and consumption). Based on these findings, the authors relate these corruption risks to the existing literature (Boehm, 2007).

Table 6. Performance score in Kenya and Ghana case study locations following a WSDA.

Performance indicator	Old Town (Kenya) MOWASCO	Migosi (Kenya) KIWASCO	Kangemi (Kenya) NCWSC	Madina (Ghana) AVRL	Nima (Ghana) AVRL
Coverage: (% pop with piped supply as its main water): 0 = <50%; 1 = 50–90%; 2 = >90%	0	1	0	0	0
Quality: (taste, colour, smell as perceived by the users): 0 = <90%; 1 = 90–95%; 2 = >95% residual Cl	0	2	1	2	2
Continuity: (uninterrupted hours of supply): 0 = <4 h/d; 1 = 4–10 h/d; 2 = >10 h/d	0	0	0	0	1
Affordability: (users' restriction in consumption due to cost): 0 = >10%; 1 = 5–10%; 2 = <5%	2	0	2	0	0
Quantity: (litres of water consumed per person): 0 = <20 l/p/d; 1 = 20–100 l/p/d; 2 = >100 l/p/d	1	1	0	0	0
Total score	3	4	3	2	3

The highest performance is achieved when the total score per case study is 15.

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 & Visscher (2016) define different levels of integrity for each of these transactions in terms of TAP, where low level TAP identifies high corruption risks³ (Table 7). Scoring is set through a participatory methodology involving research teams and actors involved allowing the validation.

The TAP integrity model was applied to different case studies in Kenya and Ghana, which are presented in Table 1, and takes into consideration all the actors intervening in the WSD for a specific location in the service area of the water utility (policy-makers, regulators, water utilities, and users).

Data collection comprised formal interviews and informal discussions with different public officials and senior utility staff members as well as technicians. Information was cross-checked with users, informal providers, community members and associations, staff from development agencies as well as non-governmental organizations, and complemented with information from non-published reports and confidential information, such as service management contracts, water utilities' strategic plans, technical and financial audits, and internal reports of the regulator, which sometimes could not be used because of non-disclosure clauses.

Table 8 shows corruption risks have been identified according to the low TAP levels between the main actors (principals and agents) at the different WSD levels.

Table 7. 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 or not clear. 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 0.5 = Third party limited access to information 0 = No access to information

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

Table 8. Relationships between the main actors involved in WSD in Kenya and Ghana.

Kenya		Ghana	
WASREB (agent) – MWI (principal)		PURC (agent) – MHWW (principal)	
Governance	Water Act	Governance	PURC Act
Service	Regulation in water service provision	Service	Regulation in water service provision
Return	Financial resources to implement MWI policies	Return	Financial resources to implement MWI policies
Transparency	1 = Water Act is clear in its understanding	Transparency	1 = PURC Act is clear in its understanding
Accountability	0.5 = WASREB funding depends on MWI	Accountability	0.5 = PURC funding depends on MHWW
Participation	0.5 = information is accessible to third parties	Participation	0 = information is not accessible to third parties
WASREB (agent) – WSP (principal)		PURC (agent) – GWLC (principal)	
Governance	Service Provision Agreement	Governance	Performance contract
Service	Supervision of performance standards	Service	Supervision of performance and tariff setting
Return	Levy (percentage of billing)	Return	No return
Transparency	1 = SPA is clear in its understanding	Transparency	0.5 = is not clear how tariffs are approved
Accountability	0.5 = is not clear how WASREB reinforces its role	Accountability	0.5 = is not clear how PURC reinforces its role
Participation	0.5 = information is accessible to third parties	Participation	0 = information is not accessible to third parties
WSP (agent) – User (principal)		AVRL (agent) – User (principal)	
Governance	Provision agreement	Governance	Registration
Service	Water provision	Service	Water provision
Return	Monthly payment of the water bills	Return	Monthly payment of the water bills
Transparency	0.5 = not clear what happens if WSP does not service	Transparency	0 = no contract but a registration form
Accountability	0.5 = WSP does not compensate users if no service	Accountability	0.5 = AVRL does not compensate users if no service
Participation	1 = complaints followed up by WASREB	Participation	0.5 = PURC does not follow up complaints
Municipality (agent) – WSP (principal)		AVRL (agent) – GWLC (principal)	
Governance	Companies Act	Governance	Management contract
Service	Lease of assets through Water Service Boards	Service	Operations, maintenance and reporting
Return	Dividends plus lease of the assets	Return	No return by GWCL
Transparency	0.5 = original contract not available	Transparency	0.5 = original contract not available
Accountability	0.5 = corporate guidelines not applied	Accountability	0.5 = sanctions are not applied
Participation	1 = MWI can influence decisions	Participation	0.5 = PURC follows up performance of AVRL

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.

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 the 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 favor before it came into effect.

At consumption level

In both countries, water utilities (agents) provide water services to the users (principals) in return for payment for the water consumed. In the case of Kenya, there is a consumer's agreement and users pay the WSPs according to the meter reading. In cases when the users do not agree with the billing, WASREB can redress the situation if billing is incorrect or, if needed, act through court. However, users are not necessarily aware of this mechanism and failures are not addressed. It is not clear on the measures to take when WSPs do not provide water or when the users are overcharged – a one-sided contract. In fact, sanctions are applied to users if they do not pay the bill but are not enforced on WSPs if they do not provide water as stipulated in the consumer's agreement. In Ghana, no contract existed with customers; there was only a registration form for the request for connection and monthly billing against a meter reading. Customers' complaints were channeled to the AVRL customer service department through a toll-free line and detailed complaints reports were provided to GWCL and PURC. Complaints could also be filed by consumers at PURC but there was no evidence as to whether PURC followed them up. Besides, it seemed that sanctions were not applied if AVRL was not providing the service.

Both countries presented low TAP 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, not being accountable for it. Free-riding (Huppert *et al.*, 2001) involves users taking advantage of the service provided through illegal connections, meter falsifications, and tapping.

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 social relationships, where all actors have and exercise power in different ways. Through power, social actors try to influence other actors' behavior (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) con-dign 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, whereby the capacity to influence is related 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 is equally distributed, or an actor may be influenced by the peer. In this case, the distribution of power is unequally exerted (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 actors involved in WSD.

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 organizational structures and separation of powers in resource allocation and management. In other words, it is expected that the policy-makers' capacity for influence will be lower after the delegation and separation of policy-making and regulation has taken place.

In Kenya, delegation has meant the creation of WSBs to take charge of providing water to their areas of jurisdiction. Meanwhile, in Ghana, GWSC was converted into the 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. Due to the ties between water ministries and regulatory bodies in Kenya and Ghana, power asymmetry was identified between actors at this level.

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 *et al.*, 2007). 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 enhanced 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, MCs, being members of the BoDs 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 MCs and WSPs.

In Ghana, reform involved PSP through a service management contract between GWCL and AVRIL; AVRIL was a fully independent private company. In terms of market orientation, AVRIL 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, AVRIL had control over GWCL; however, although AVRIL remained an independent operator responsible for production, distribution, billing and revenue collection, a number of decisions, such as users' disconnections, remained under GWCL. Also, AVRIL's staff was seconded by GWCL (Shang-Quartey, 2013), meaning that in some aspects AVRIL had very little power to influence GWCL. In its turn, GWCL had difficulties in monitoring the performance targets under the AVRIL contract (Ainuison, 2010), which was incomplete (Dagdeviren & Robertson, 2013). This suggests a power balance between both actors.

At consumption level

The reform in Kenya and Ghana targeted commercialization and users' participation. The introduction of full cost recovery in tariffs in WSD 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, user 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 *et al.*, 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 MCs 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 roles of the users were merely as consumers with no power to influence AVRIL. In both countries, the relationship between users and providers does not present power asymmetries.

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 9).

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 previously referred to as NPM (Schwartz, 2008). Ghana developed 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

Table 9. Power balance between principals and agents and related corruption risks.

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			
Organizational 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			
Organizational structure	User as a consumer (consumer opinion)	PSP 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

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' behavior (Theesfeld, 2001). This situation would allow the winners to influence the new rules in their favor ('reform opportunism').

Reviewing Table 9, it is possible to differentiate between the three situations defining water control domains, considering how the 'new' organizational structures reflect the dynamics of power between actors in relation to 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 & 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 & 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 reflect 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 organizational structures may be referred to as management practices. Figure 2 shows the water control domains proposed by the authors according to the observed findings in Kenya and Ghana, as described above. The figure is important because it may help to

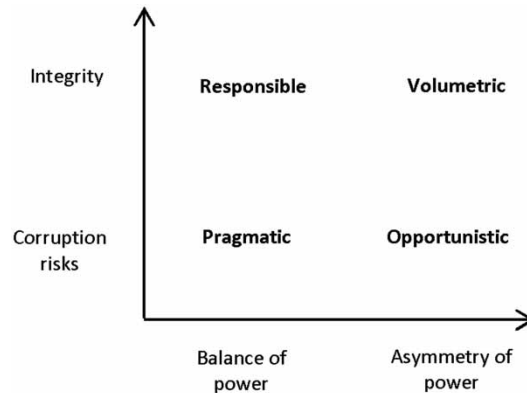


Fig. 2. Water control domains characterized by integrity and power: management practices.

visualize management practices not only in terms of power but considering the integrity dimension in WSD management.

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 the Kenya and Ghana policy-making and regulatory level 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 [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).

It is in this context that regulation plays a fundamental role. As pointed out by Bellaubi & Visscher (2014), there is a considerable difference between the overall performance of the water utilities and the actual performance data found in the case study areas in terms of quality of WSD both in Kenya and Ghana. The authors point out that current benchmarking approaches not only do not address performance differences within systems but also fail to reflect how reform through change in organizations affects water control and, thus, management practices. The authors suggest a more integrity-oriented approach in order to address benchmarking handled by the regulators. Integrity benchmarking measures progress on TAP as well as the impact of those variables on performance under a WSDA. The results may be discussed with all the stakeholders allowing integrity strategies to be reformulated in order to improve performance.

Another interesting possibility to explore these complex links is the use of agent based modeling (ABM) as a learning model, to understand how the different actors involved in WSD interact among 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.

If the current situation in terms of WSD in Kenya and Ghana and many other countries still poses important challenges concerning the performance of WSD and the role of PSPs, a closer look should be taken at the role played by donor agencies; bilateral and multilateral aid in shaping new 'water control practices' through reform. The authors consider that the methodological framework hereby exposed may contribute to this.

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