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Integrity and corruption risks in Water Service Delivery in Kenya and Ghana

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Abstract

This paper introduces a methodology to explore corruption risks in Water Service Delivery (WSD) which is applied in case studies of three water utilities in Kenya and one in Ghana. The methodology builds on a principal-agent framework in assessing the integrity of the relationships between the actors involved in WSD at three levels: policy and regulation, service provision, and water consumption. The integrity of the relationship between the actors is analyzed by a practitioner's approach to transparency, accountability and participation (TAP) in order to identify corruption risk. The definitions used in this paper enhance the clarity of the methodology and facilitates actor involvement in the analysis. Case study results show that important corruption risks exist in WSD in Ghana and Kenya. These risks are presented in relation to corruption theory.

Key words: water service delivery, transparency accountability, participation, corruption risks

1. Introduction

Kenya and Ghana are two Sub-Saharan countries that went through a reform of institutions, organizations and governance, starting in the 1990s. The main aim of the reform was to improve Water Service Delivery (WSD) performance by looking at institutions, organizations and governance of the water sector (Batley, 2004; COWATER International, 2008, p. 288; Schwartz, 2008; Water and Sanitation Program, 2007, p. 100). The reform, which was supported by international agencies, development banks and other donors, did not address integrity or corruption issues. However, according to Repetto (1986, p. 47), performance-oriented reforms such as regulation or private sector participation would, by themselves, reduce corruption and increase efficiencies of WSD. This seems not to be the case in the Kenyan and Ghanaian water sector as corruption has been reported at different levels of WSD (Ghana Integrity Initiative, 2011; TI Kenya, 2011). The reform did not achieve its objective to improve performance in WSD either as, for example, the particularly poorer sections in society in both countries still lack access to water (Bellaubi & Visscher, 2014).

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Part of the problem of dealing with corruption relates to: differences in the definition of corruption (Kaufmann, 2005, pp. 81–98; Klitgaard, 1988; Wegerich, 2006); the complexity and sensitivity of measuring corruption (Andersson & Heywood, 2009) because it is socially complex and anthropologically grounded (Della Porta & Vannucci, 2005; Plummer & Cross, 2007; Rose-Ackerman, 1997; Theesfeld, 2001, p. 28; Wade, 1982); and the confrontational approach of some anti-corruption tools (Galtung, 2005).

The limitations in sector reform to address corruption in combination with its prominence are a clear invitation to learn more about the situation and have triggered the research question that is addressed in this paper: what is the integrity of urban WSD in Ghana and Kenya in relation to institutional governance mechanisms and what corruption risks exist?

Section Two of this paper presents the methodology and gives the rationale for the analysis of integrity in WSD, describing the method used in the research. Sections Three and Four apply the methodology in different case studies in Kenya and Ghana, describing the relationships between actors and the integrity of these relationships in terms of transparency, accountability and participation (TAP). This is done at three levels: policy and regulation, water provision, and water consumption. Section Five proposes an integrity-benchmarking framework and presents the advantages of this approach for water utilities, regulators and users. Section Six concludes by exploring the reasons for low integrity of the WSD in the case studies.

2. Methodology

This research looks at integrity which is defined for this research in terms of Transparency, Accountability and Participation (TAP) in the governance mechanisms (rules and institutions) of WSD, assuming that when TAP is weak or absent, corruption is more likely to occur (Transparency International [TI], 2009).

There are two main points that suggest that this integrity approach may be more successful than looking for corruption. Corruption is difficult to identify and measure (Galtung, 2005) and trying to improve the integrity situation seems less complex and far more productive in stopping future corruption by looking at the causes rather than the effects. Exploring integrity is a positive approach which facilitates working with stakeholders in order to improve the situation, both in terms of identifying corruption risks and implementing tools to deter it. Furthermore, the case study approach that is used allows best practices to be identified.

Several experiences exist in assessing corruption risks and developing corruption risk mapping (Stålgren, 2006, p. 24; TI, 2010, 2011; Warner et al., 2009, p. 30). TI (2010, p. 101) defines corruption risks as practices that are the most likely to occur and have the greatest impact on governance. TI (2011, p. 44) considers that corruption risks decrease when integrity mechanisms are in place.

In this paper, the concept of corruption risk builds on the assessment of the integrity of governance mechanisms presented by Huppert and Wolff (2002), Huppert, Svendsen,

and Vermillion (2001, p. 193) and Huppert (2005) in the field of irrigation. These authors used the principal-agent model to explain corruption and rent-seeking. In the principal-agent model, the agent provides a service and the principal pays for it in return. This transaction is ruled by a governance mechanism (e.g. a contract or law). The possibility exists of information asymmetry between agents and principals where the agent (service provider) can take advantage in exploiting the principal (client of the service). Information asymmetry is manifested in "deficiencies related to contracts and agreements between the provider (agent) and the client of a service (principal)" (Huppert et al., 2001, p. 143).

In the case of information asymmetry, principals may not have access to the information about the efforts made by the agent to provide the service and may face a situation where the agent claims that he cannot be held accountable for suboptimal service provision because of factors beyond his control. In this case, "the service provider and the client have an incomplete contractual relationship, which can lead to opportunistic behavior on the side of the service provider or the service receiver" (Huppert, 2005, p. 7).

An important limitation of the principal-agent model proposed by Huppert (2005) is that it falls short of considering the asymmetry of information from the agent towards the principal. For example, the agent may not be aware of users manipulating water meters, where principals thus show a lack of accountability towards the agent. Another example is when water utilities (principals) do not follow quality standards provided by a regulatory body (agent). Besides, both transparency and accountability relate to asymmetry of information, and, as a result, it is difficult to discern between transparency and accountability-related problems.

Another limitation is that the model does not consider the possibility that the agent and principal collude. Collusion can be defined as an agreement between parties to commit actions aimed to deceive or commit fraud with the objective of illicit financial gain (TI, 2009, p. 60). Examples of collusion in WSD include the agreed establishment of illegal connections by staff from the water company and users or a water company, and a regulator jointly agreeing on a higher tariff than necessary and sharing the surplus that is being generated. One of the main elements in reducing the risk of collusion is independent oversight by third parties that can monitor the transactions between principals and agents.

To overcome these limitations, the authors revisited the principal agent model as defined by Huppert (2005) as well as the definitions of transparency and accountability as presented in the literature (Cavill & Sohail, 2006, p. 20; TI, 2009; Water Integrity Network [WIN], 2013). Also, participation was added in order to address the issue of collusion. This approach allowed establishment of a clear transparency, accountability and participation (TAP) integrity model (Table 1) considering that these three components are playing a central role in supporting good governance (Bakker, 2003 p. 44; Rieu-Clarke, Allan, & Magsig, 2008, p. 6). However, even when the wording of these definitions is in line with those proposed by the UN (Jacobson, Meyer, Oia, Reddy, & Tropp, 2013, p. 115), they remain somehow controversial and are the subject of further development.

Table 1
Integrity components, definitions and scores

Component	Definition	Score
Transparency (T)	Existence of clear written rules and regulations defining relationships between actors.	Low (0) = non existing; Medium (1) = existing but unclear; High (2) = fully comprehensive.
Accountability (A)	Availability and application of control mechanisms for holding actors responsible for their actions based on the rules and regulations.	Low (0) = non existing; Medium (1) = existing but not enforced; High (2) = enforced by applied sanctions, incentives or anticorruption measures.
Participation (P)	Accessibility of information to third parties with a possibility to influence rules and regulations.	Low (0) = no access to written information; Medium (1) = access to written information; High (2) = parties able to redress failures in rules and control mechanisms.

The TAP integrity model facilitates the analysis of the mechanisms (contracts, regulations etc.) that govern the relationships and the transactions in terms of services and returns (payments, fees, taxes, etc.) between the actors (agents and principals). It is important to note that WSD entails numerous relationships and actors may be the principal in one relationship and the agent in another.

Three levels of transparency, accountability and participation (TAP) are defined and are given a score to facilitate the analysis (Table 1). The assumption is that a low score implies that a higher risk of corruption exists and, therewith, the issue needs more attention and possibly remedial action. It means that corruption is more likely to occur, but not that it actually takes place.

The TAP integrity model was initially developed and tested by the authors in the scope of the '*Transparency and Integrity in Service Delivery in Africa'* program of Transparency International (TI) (Bellaubi & Visscher, 2010). The model was applied in different case studies in Kenya and Ghana taking into consideration all the actors intervening in the WSD for the selected part of the service area of the water utility. The TAP definitions used in this study were established after a broad review of definitions on transparency, accountability and participation (Bakker, 2003; de Asís, O'Leary, Ljung, & Butterworth, 2010, p. 177; Huppert, 2005; TI, 2009). Particularly, the definition of 'transparency' differs from other definitions available in the literature where it includes access to information, whereas in the TAP model used in this paper Transparency is restricted to the clarity of rules, regulations and contracts governing the relationship between actors and information is taken into account in the dimension of participation. Moving information to Participation is a logical choice from a practitioner's perspective as third parties need access to information to be able to supervise the transactions of the actors involved. The field tests that were conducted showed that participants easily grasped the definitions and were able to make a quick analysis of the integrity situation based on the scoring levels that were provided.

The following steps were used to apply the TAP model in the case studies:

1. **Selection of a case study area:** The case study locations were chosen to include the most representative water supply systems in each country serving medium-low, economic, vulnerable urban areas.
2. **Selection and preparation of the research team:** A team was set up in each of the countries to conduct the case studies. This team comprised members with experience in water companies, other water providers existing in the area, and users as well as members of NGOs active in the case studies' locations. The team received specific training in the application of the TAP integrity model.
3. **Data collection** (first visit to the case study location): For each case study, the research team identified actors (users and other main actors such as senior staff of water utilities, other water providers, public officials, etc.) involved in WSD and the type of interview technique that was to be used (Table 2). Information was then cross-checked with users, informal providers, community members and associations, staff from development agencies as well as NGOs, 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. Some of this information, however, could not be used because of non-disclosure clauses.
4. **Definition of actors, governance mechanisms and scoring:** The research team established the main actors and the governance mechanisms that are shown on a flipchart. The actors (organizations, groups or individuals) are linked by a line with arrows symbolizing the services and returns (as a Venn diagram). Coordination mechanisms between two actors (i.e. the way in which the relationship is governed) are indicated for each of the relationships that are included in the diagram. An important point is that only observed direct relationships between actors involving a service and a return (legal or illegal) were represented in the diagram. Then for each of the relationships a TAP score was established, first individually by the research team members, and the results were discussed with a larger group of actors involved in the WSD in the case study location, collectively resulting in minor adjustments.
5. **Aggregation:** This step was conducted to get an overview at country level based on several case studies. The aggregation of different case studies was done by the research team eliminating those relationships between actors that were only specific to a specific case study and keeping those which were common. For the latter, the mean TAP scores were calculated for each relationship.
6. **Report writing:** The report writing took place while being in or close to the case study area in order to more easily solve possible problems in the event the team realized the recorded information was incomplete or further clarification was required.
7. **Validation of results** (second visit to the case study location): Findings were reported back to the main actors for confirmation of the integrity issues.

Table 2
Research methods

Methods	Informants	Sample
General information questionnaire (to get the basic data of the study area and make local arrangements)	Community leaders Possibly key actors from government/CSO that have been involved with the area	One group for each of the approximately 12 case studies
Village walk to look at the components of the systems	Key staff of the 'providers' and possibly users of the systems	A maximum of three main types of supply systems will be assessed in detail
Village map to get an overview of the situation	Community leaders	One group per community
Venn diagram to establish the different relationships that exist	Community leaders and water providers	Different maps may be developed per research area for each of the main providers
Water provider questionnaire	Management and leading technical staff of the provider	1 questionnaire per provider
Water committee questionnaire	Management and leading technical staff of the water committee	1 questionnaire per water committee
Water tanker questionnaire	Often the driver will be the main informant who will be available	Two or three drivers (often these will be organized in an association)
Local water vendor questionnaire	Local water vendors mostly with fixed assets	Two or three water vendors interviewed at different locations in the survey area
Household questionnaire	Preferably head of household	30 households in rural communities and 50 in urban areas
Checklist utility manager (to obtain management perception of the situation)	Utility manager of large utilities	Only for water utilities
Checklist for leader of water tanker association	Leader of water tanker association	At least one, but a minimum of two if there are more associations in the area
Focus group discussions to check study result and encourage action	Preferably combination of leaders, providers and users in the study area; subsequently more detailed sub group discussions can be arranged to establish more detailed action plans	One or more per research area depending on the local situation

Sections 3 and 4 present the results of the integrity analysis in Kenya and Ghana, respectively, looking at policy making and regulation, water provision, and consumption, as used by Krause (2009, p. 252). For each level, TAP is discussed and related to corruption risk as suggested in the literature (Boehm, 2007, p. 30; Huppert & Wolff, 2002).

3. Application of the transparency, accountability and participation (TAP) model in Kenya

This section presents the TAP integrity analysis applied in three case studies in Kenya: Mombasa Water Supply & Sanitation Co. Ltd (MOWASCO) in Mombasa; Kisumu Water and Sewerage Company Limited (KIWASCO) in Kisumu; and Nairobi City Water and Sewerage Company (NCWSC) in Nairobi. The specific relationships between the actors, services (S) and returns (R) and their governance mechanism and TAP scores are depicted in Figure 1.

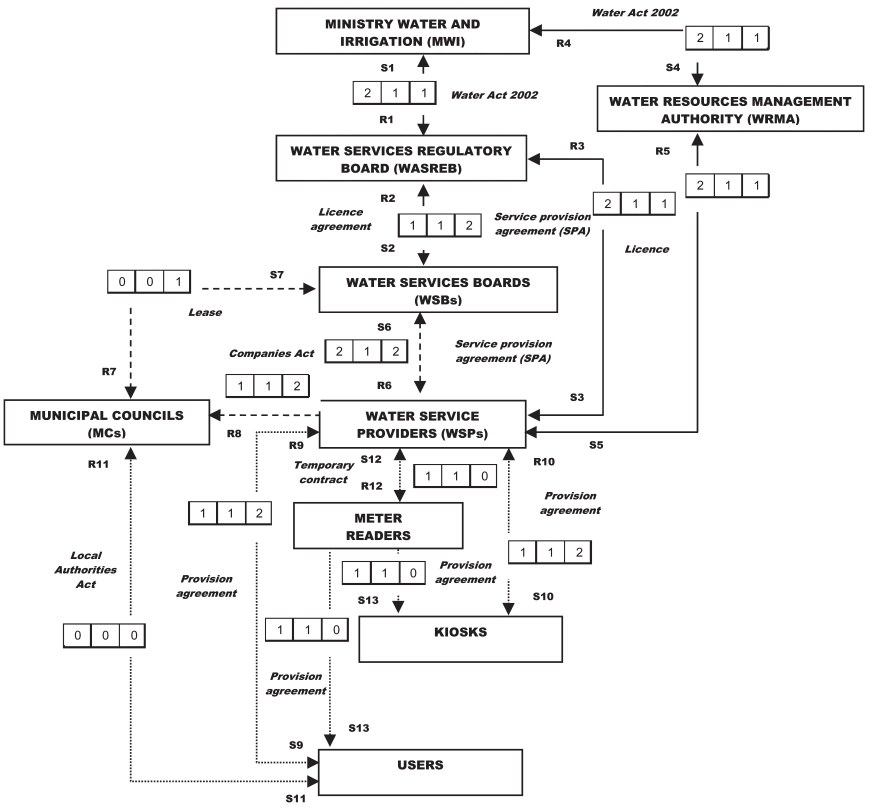

Figure 1. Overall TAP integrity analysis of Water Service Delivery in Kenya (showing services (S) and returns (R), governance mechanisms between the actors, and TAP scores (in transparency, accountability, and participation order) for each relationship. Solid lines show relationships at policy making and regulation level, dashed lines are for provision level and dotted lines for consumption level.

S1	Regulation in water service provision (regulation of tariffs and approval of WSPs)	R1	Financial resources to implement MWI policies according to the Water Act 2002
S2	Licensing WSP and WSB to develop water and sanitation services. Tariff approval according to proposal submitted by WSBs	R2	WSB pays for the license fee (or arranges for direct payment by WSP to MC)
S3	Supervision of performance standards	R3	Levy (1% percentage of billing)
S4	Funding from MWI	R4	Water resource management through issuance of licenses on behalf of the ministry
S5	Protection of the water source against over-abstraction with issuance of water abstraction permits	R5	Payment of abstraction fees
S6	Management of service provision	R6	Profit (income - 4% monthly cost of administrative fee to operate the system-abstraction fee)
S7	Rights (leases) to use the piped system	R7	Lease fee (in the case of KIWASCO, it is paid by KIWASCO)
S8	No service	R8	Dividends (paid by KIWASCO to shareholders but only if the company makes a profit)
S9	Water provision	R9	Monthly payment of water bills
S10	Water provision in bulk for reselling at a subsidized cost (pro-poor approach)	R10	Monthly payment of the special commercial tariff (lower)
S11	Users vote for political leaders according to promises of improving services	R11	Improvement of services
S12	Meter reading and billing	R12	Payment of wages
S13	Meter reading and billing on behalf of the provider	R13	No return

3.1. Integrity analysis and corruption risk at policy and regulation level

Table 3 describes the TAP scores for each relationship at policy and regulation level. Transparency is high due to the fact that most of the relationships between actors are well defined in regulations, such as the Water Act, 2002. Main weaknesses that were identified include lack of clarity about tariff setting, establishment of water access criteria and water quality monitoring. Accountability presents lower scores because control mechanisms are in place for most of the relationships between actors but their application is unclear. Participation is shown to be the biggest challenge because information is not easily accessible and most transactions cannot be verified by independent third parties.

The low accountability between the Ministry of Water and Irrigation (MWI) and the Water Services Regulatory Board (WASREB), as well as between MWI and the Water Resources Management Authority (WRMA), may allow politicians to obtain private gains by abusing regulatory powers, which Boehm (2007) defines as regulatory opportunism.

The two main reasons are that the Water Act 2002 divests the minister of regulatory powers but retains in him/her absolute appointment authority over WASREB and WRMA, and the financial dependence of these organizations on MWI.

Table 3
TAP scores for the relationships at policy making and regulation level

TAP	Score	Explanation
Relationship between the Water Services Regulatory Board (WASREB) and Ministry of Water and Irrigation (MWI)		
T	2	Relationship between the MWI and regulatory body are well defined by the Water Act 2002.
A	1	WASREB is accountable through its Board of Directors (BoD). It has an annual audit and publishes its annual report online. WASREB is not a fully independent body as its funding depends on the MWI and the Director is appointed directly by the MWI.
P	1	The information is accessible on the WASREB (2009) website, but cannot be rejected by third parties.
Relationship between WASREB and Water Service Boards (WSBs)		
T	1	License agreement form clearly stipulates the payment of their license fee but it is not clear how the tariff is set or if the license is approved because a copy of the license was not available.
A	1	WASREB can reject the license with WSBs (Water Act, sections 68 & 69) but it is not clear how this sanction is enforced and how a WSB can operate without a license.
P	2	The information is written and available to third parties such as the MWI who can influence decisions.
Relationship between Water Service Providers (WSPs) and WASREB		
T	2	Described and documented in a service provision agreement (SPA).
A	1	The SPA spells out the rules of engagement between the WSPs and the regulator. This includes the type of information the WSP must furnish to the regulator (such as a Business plan, WSP profile) and also performance targets, penalties and incentives but sanctions are not clear if parties fail in their commitments.
P	1	Third parties can access information in reports published by WASREB (2009) about the providers, but it is not clear what happens when standards are not met.
Relationship between the Water Resources Management Authority (WRMA) and MWI		
T	2	Relation between the MWI and regulatory body are well defined by the Water Act 2002.
A	1	WRMA is accountable through its Board of Directors. WRMA is not a fully independent body as its funding depends on MWI. It is not clear how WRMA is accountable for received funds.
P	1	This information is accessible on the WASREB website, but cannot be questioned by third parties.

(Continued)

Table 3
(*Continued.*)

TAP	Score	Explanation
Relationship between WRMA* and WSPs		
T	2	Written rules are described and documented in the Water Act 2002.
A	1	The control mechanism is the bulk water meter; sanctions can be applied if WSPs do not pay the charges, but it is not clear what the sanctions are if parties fail in their commitments.
P	1	This information is accessible by WASREB, but it is not clear if it has influence if the parties fail in their commitments.

*In the case of Mombasa Water Supply & Sanitation Co. Ltd (MOWASCO), there is no relationship with WRMA. Instead, MOWASCO buys water in bulk from the WSBs who abstract the water.

3.2. Integrity analysis and corruption risk at provision level

Table 4 describes the TAP scores for each relationship at provision level. The scores show that transparency is low in the relationship between Municipal Councils (MCs) and Water Service Boards (WSBs), mainly due to the fact that transfer of assets from the MCs to the WSBs is not regulated, nor do protocols or procedures exist to transfer these assets. Accountability scores low for all the relationships. The main weaknesses that have been identified relate to control over payment for assets between MCs, WSBs and WSPs. Furthermore, MCs are the main chair holders of WSPs and are strongly represented on their Board of Directors, which entails an important influence on the management of the water utilities (e.g. appointment of the Managing Director). The low transparency and accountability in the relationships involving the MCs means that they have the possibility to abuse their power in influencing decisions of the water companies and WSBs for their own benefit. This situation is defined by Boehm (2007) as political opportunism.

Table 4
TAP scores for the relationships at provision level

TAP	Score	Explanation
Relationship between Water Service Providers (WSPs) and Water Service Boards (WSBs)		
T	2	A model of a service provision agreement (SPA) is duly documented and available on the internet (in the case of Kisumu Water and Sewerage Company Ltd, the specific SPA had expired and was not available).
A	1	Annual and financial reports are submitted to WSBs. Performance targets are spelt out in the contract involving sanctions. According to the Water Services Regulatory Board (WASREB), a grace period exists for WSPs to build their capacity, so it seems that performance failures do not result in sanctions. The fees are also defined but it is not clear if they are enforced.
P	2	Service provision agreement is available and authorized by the Water Services Regulatory Board (WASREB). WASREB has the possibility to address issues and suspend the SPA.

Table 4
(*Continued.*)

TAP	Score	Explanation
Relationship between MCs and WSBs		
T	0	According to the Water Act 2002, assets should be transferred to WSBs but this has not been done. The lease contract between the municipal councils (MCs) and WSBs was not available.
A	0	Not clear what control mechanisms exist as the lease contract was not available.
P	1	Payment for the lease is shown in the annual reports of WSPs but third parties seem to have no option to influence it.
Relationship between WSPs and MCs		
T	1	The conditions of the WSPs are clear under the Water Act (2002) (cap 486), but it was not possible to check if the Companies Act has been adapted according to the corporate governance guidelines made available by WASREB (2009).
A	1	WSPs are accountable to the Board of Directors (BoD). MCs are the only shareholder but they have no direct control over WSPs. There are Annual General Assemblies where financial reports are presented to MCs, WSBs, WASREB and the Ministry of Water and Irrigation (MWI), but it is not clear what sanctions apply if WSPs do not provide the financial reports. In the same way, it was not possible to check if the corporate guidelines are fully implemented and how conflicts of interest amongst BoD members and MCs are avoided and users' interests represented.
P	2	Information available to third parties (MWI through WSBs).

3.3. Integrity analysis and corruption risk at consumption level

Table 5 specifies the TAP scores for each relationship at consumption level. Transparency is weak as most of the contracts involving the Water Service Providers are in their favor (water provider-sided) by only including sanctions for users but not for the company. The contracts also lack clarity in terms of procedures, such as metering and available complaint mechanisms. Accountability is also weak because control mechanisms and sanctions are not applied in most of the relationships: users do not check up on meter readings, water providers are not sanctioned if they do not provide the stipulated service, and meter readers cannot "protect" the rights that they have from the water provider. In terms of participation, some of the reports are available to the public but mechanisms to redress problems are virtually absent, making real participation low.

Due to the fact that WSPs are publicly owned, users should have access to the governance mechanisms of the water company. Nevertheless, there are no mechanisms to reinforce

this except for the very remote control through the Local Government Act (2012) where the users, as citizens, vote for political leaders according to promises to improve services. Furthermore, promises made by the politicians are not written and there are no control mechanisms to verify that promises will be kept. As a result, transparency, accountably and participation between municipal councils and users are low.

With low transparency, accountability and participation, water utilities may benefit from their relationship with the users. This is known as moral hazard (Huppert & Wolff, 2002), which is the risk of insufficient service provision due to opportunistic behavior by the provider. One cause of this problem arises from water companies mainly inheriting staff from local authorities where positions are kept based on patronage rather than on the ability to perform a job (Mugo, 2010). Thus, water utilities do not have a business culture towards customer satisfaction and they are not client-oriented in spite of providing a public service. Another problem is that users may free-ride the service provided by the water utility by illegal connection manipulation of meters. Free-riding results from the difficulty to exclude non-payers (or "free riders") from receiving the same services as payers (Huppert et al., 2001). The main reason for free-riding is users claiming they receive a bad quality of service (rationing, smell and taste, pressure, high connection fees) from the Water Service Providers (WSPs).

Table 5
TAP scores for the relationships at consumption level

TAP	Score	Explanation
Relationship between Water Service Providers (WSPs) and users		
T	1	The consumers' agreement 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 the case of MOWASCO, the agreement is clear on measures to take when Mombasa Water Supply & Sanitation Co. Ltd (MOWASCO) does not provide water or when the users are overcharged, SPA clause 12, p. 33).
A	1	The control mechanism is "meter reading" and billing which can be enforced by users complaining; sanctions are applied to users but not to WSPs if they do not provide water as stipulated in the agreement form.
P	2	Billings are accessible to third parties (WASREB) that can redress the situation if billing is incorrect or, if needed, through court. However, users are not necessarily aware of this mechanism and failures are not addressed.
Relationship between WSPs and water kiosks (water consumer agreement form).		
T	1	The agreement is not clear on measures to take when WSPs do not provide water or when the users are overcharged – a one-sided contract.
A	1	The control mechanism is "meter reading" and billing which can be enforced by users complaining; sanctions are applied to users but not to WSPs if they do not provide water as stipulated in the agreement form.
P	2	Billings are accessible to third parties (WASREB) that can redress the situation if billing is incorrect or, if needed, through court. However, users are not necessarily aware of this mechanism and failures are not addressed.

Table 5
(*Continued.*)

TAP	Score	Explanation
Relationship between users and MCs*		
T	0	Electoral processes are defined by law but promises are not written down.
A	0	There is no control mechanism to verify that promises will be carried out.
P	0	There is no written information so third parties cannot verify it.
Relationship between WSPs and meter readers		
T	1	There is no clarity on contract duration or payment of wages (in the case of Kisumu Water and Sewerage Company Limited (KIWASCO), most of the meter readers are permanent staff with clear staff conditions).
A	1	Due to the existing control mechanism of supervision of meter readers, the mechanisms can be enforced (e.g. meter readers may be fired if they do not perform), but workers do not sign a code of conduct. Besides, there are no incentives for the workers and they cannot enforce their labor rights.
P	0	Meter reading records are internally available but not to third parties.
Relationship between meter readers and users		
T	1	There is a written agreement between WSPs and users but the role of the meter reader is not clearly stipulated in the agreement.
A	1	Meter readers exist and are functional but users have no control over the meters. WSPs involve users in meter reading and the sign-off on the readings but only some of the users in the case studies indicated that they actually do so.
P	0	Third parties cannot access any information from the service provided by the meter reader (e.g. the meter reader's logbook).

*Due to the fact that the WSPs are publicly owned companies, users are concerned by the governance of the company. Nevertheless, there are no mechanisms to reinforce this except for the Local Government Act (2012), where users will vote for political leaders according to promises to improve services.

A specific situation in the case of Nairobi City Water and Sewerage Company (NCWSC) is that of the landlords. These landlords provide water for domestic use from yard taps to the tenants as a fixed part of the rent and as a part of a verbal agreement in the rental contract.

4. Application of the transparency, accountability and participation (TAP) model in Ghana

This section presents the TAP integrity analysis applied in two case studies in Ghana exploring three levels: policy and regulation, service provision, and water consumption. The specific relationships between the actors, services (S) and returns (R) as well as their governance mechanism and TAP scores are depicted in Figure 2.

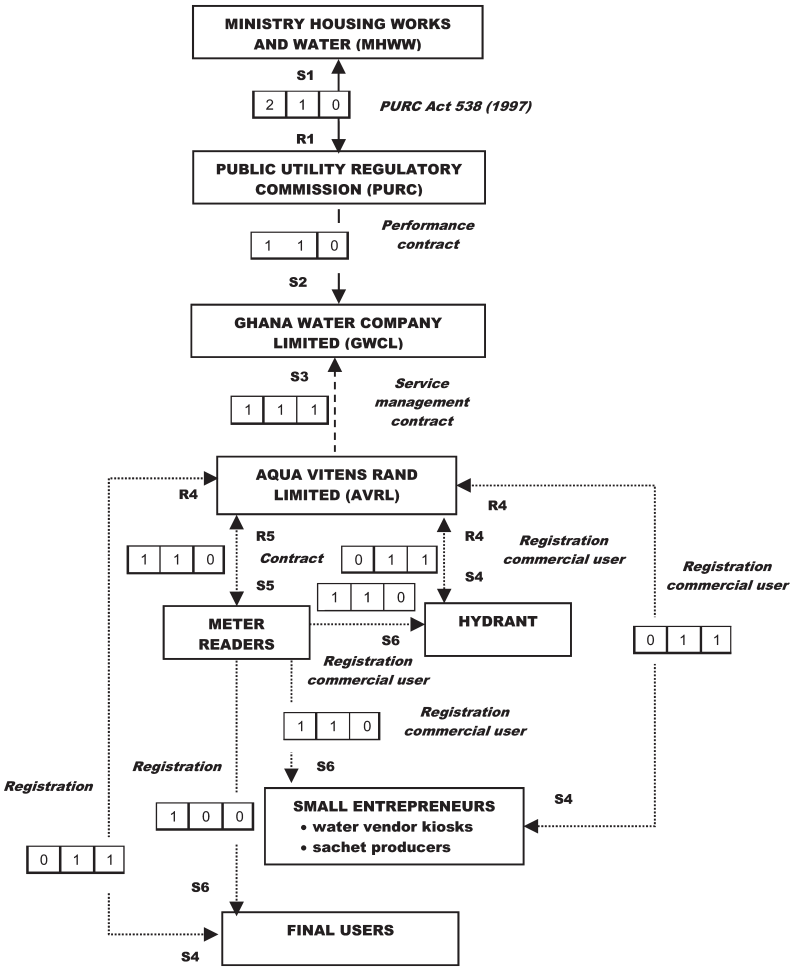

Figure 2. Overall TAP integrity analysis of Water Service Delivery in Ghana (showing services (S) and returns (R), governance mechanisms between the actors, and TAP scores (in transparency, accountability and participation order) for each relationship. Solid lines show relationships at policy making and regulation level, dashed lines are for provision level and dotted lines for consumption level.

S1	Regulation in service provision and reporting	R1	Financial resources to implement water polices
S2	Supervision of performance and tariff setting	R2	No return
S3	Operations and maintenance through a management contract and reporting	R3	No return by GWCL (payment of management fee is done by the WB)
S4	Provision of water	R4	Payment of water bills
S5	Payment of wages	R5	Meter reading
S6	Meter reading on behalf of the provider	R6	No return

Table 6
TAP scores for the relationships at policy-making and regulation level

TAP	Score	Explanation
Relationship between the Ministry of Housing Works and Water (MHWW) and the Public Utility Regulatory Commission (PURC)		
T	2	The relation between the MHWW and PURC is well defined by the PURC Act (1997).
A	1	PURC is accountable to MHWW, but is not fully independent as its funding depends on MHWW and the director is appointed by the MHWW.
P	0	Information is not accessible to third parties.
Relationship between PURC and Ghana Water Co Ltd GWCL		
T	1	The rules of engagement in the regulatory framework and performance contract were not available during the research. Besides, it was unclear how the tariff is set up.
A	1	Financial and technical audits are being carried out but with considerable delay and sanctions are not effectively enforced.
P	0	The information on the performance is not accessible to third parties. Some information is on the PURC website but this is very dated and, therefore, not really relevant.

4.1. Integrity analysis and corruption risk at policy and regulation level

Table 6 explains the TAP scores for each relationship at policy and regulation level. The transparency of the relationship between the Ministry of Housing Works and Water (MHWW) and the Public Utility Regulatory Commission (PURC) is clear through the PURC Act (1997) but less clear through the performance contract between the PURC and the Ghana Water Limited Company (GWLC) because the process for the setting of the tariff remains unclear. Accountability has low scores because control mechanisms are non-existent or partially applied. Participation is nil because information is not accessible to third parties or not duly updated.

The fact that five out of nine of the PURC commissioners are government appointees may jeopardize the accountability between PURC and the Ministry of Housing Works and Water because the application of the control mechanisms can be one-sided. This is worsened by the fact that the relationship cannot be supervised by third parties. As in Kenya, Ghana shows a risk of regulatory opportunism, where politicians and bureaucrats may abuse regulatory powers to obtain personal or collective gains for their positions at the Ministry.

4.2. Integrity analysis and corruption risk at provision level

Table 7 explains the TAP scores for each relationship at provision level. Transparency is low because of the service management contract between GWCL and Aqua Vitens Rand Limited (AVRL); only an unsigned template copy for a five-year contract was made

Table 7
TAP scores for the relationship at provision level

TAP	Score	Explanation
Relationship between Aqua Vitens Rand Ltd (AVRL) and Ghana Water Co Ltd (GWCL)*		
T	1	The management contract (unsigned copy) clearly stipulates the regulations and responsibilities of each party but at the time of the research only an unsigned copy was available on the internet.
A	1	Contract regulations are clearly stated and clear performance conditions exist to make the contract accountable but these are not effectively monitored and sanctions are not applied.
P	1	The contract template is available on the internet and PURC monitors the performance of the system based on the information provided by GWCL and discusses it in a meeting with GWCL and AVRL, but there are no third parties that can influence or amend the contract.

*In June 2006, AVRL won a competitive bid from the government of Ghana under a grant from the World Bank (2005) to manage 87 urban water systems on behalf of GWCL for 5 years. The sponsorship was for the Urban Water Development Program at a cost of USD $120 million. Under the terms of the contract, among other things, AVRL was required to manage the system including monthly revenue collection, improving the commercial operation of the water system, reducing the NRW, connecting new users and extending a reliable water supply especially to low-income areas. According to the draft contract, AVRL had to submit a plan in the first year to reduce NRW by at least 5% per year and indicate how this could be measured and how the capacity of the treatment plants could be maintained. The management contract also stipulated specific service standards, for which penalty reductions or incentive compensation apply including water quality and pressure. The operator was also expected to propose capital investments to GWCL each year (Uwejamomere, 2007, p. 11).

available on the internet. Accountability is also low since it is not clear if the control mechanisms, such as the performance targets stipulated in the management contract (e.g. non-revenue water – NRW-reduction), have been achieved because targets are not effectively monitored. Although access to information exists, participation is equally low due to the fact that there is no possibility to rectify or amend the contract. The existing weak transparency and accountability between AVRL and GWCL indicates a risk of state capture. According to Boehm (2007), that would imply that a water company is trying to take advantage of the unclear situation by shaping the design of the "rules" in their favor before they come into effect.

4.3. Integrity analysis and corruption risk at consumption level

Table 8 specifies the TAP scores for each relationship at consumption level. Transparency scores are low due to the lack of a formal contract between AVRL and users. Also the role of the meter reader is not specified and, therefore, not formally known to the users. In terms of accountability, AVRL has a strict code of conduct but this is poorly implemented. Also, the meters that serve as control mechanisms are largely malfunctioning. In terms of participation, the regulator is not overseeing how the follow-up is managed following users' complaints.

As in Kenya with low transparency, accountability and participation, there is also a risk in Ghana of moral hazard. Most of the AVRL staff have come from state organizations, such as GWCL, and have low motivation in spite of the efforts of AVRL to improve customer care services and training for the staff, as well as implementing control mechanisms (e.g. meter readers have supervisors who cross-check readings every month and if 15% are found to be in error, staff are suspended without salary). The risk of free-riding is also present with users making illegal connections and manipulating meters.

Table 8
TAP scores for the relationships at user level

TAP	Score	Explanation
Relationship between AVRL and users*		
T	0	No contract exists with customers. There is only a registration form for the request of connection and monthly billing.
A	1	Control mechanisms are billing against a "meter reading" which can be enforced by users complaining and sanctions being applied, but there was no proof that sanctions are applied. Besides, it seems that sanctions are not applied if Aqua Vitens Rand Ltd (AVRL) does not provide a service.
P	1	Complaints are channeled to the AVRL customer service department through a toll-free line and detailed complaints reports are provided to GWCL and PURC. Complaints can also be filed by consumers at PURC, but there is no evidence whether PURC follows them up.
Relationship between AVRL and meter readers		
T	1	A staff contract exists but the conditions of this contract could not be reviewed because the contract was not made available by AVRL.
A	1	AVRL supervises meter readers and has sanctions for false readings and all staff are signatories to codes of conduct, but sanctions are poorly applied. Meter readers have supervisors who cross-check readings every month.
P	0	Information seems to be reported internally every month, but it was not possible to obtain information as to whether this is available to third parties.
Relationship between meter readers and users		
T	1	The role of the meter readers is not stipulated in the registration between AVRL and the users.
A	0	Although meters exist, many still have problems and do not register consumption. Also, users have no control over the meter readers, do not sign off on the reading and may not know how to read the meter (in the case of water vendors and hydrants, there are water meters but they may not be accurate).
P	0	Third parties cannot access information (e.g. meter reader's logbook).

*In the case of the small entrepreneurs and hydrants, this registration is a commercial registration form, with the only difference that AVRL sells the water more cheaply but the TAP scores remain the same.

5. Integrity benchmarking of water utilities in Kenya and Ghana

From the literature, it seems that there is little experience of direct integrity benchmarking of water service delivery (WSD). Use of indirect indicators is mentioned, for example, by de Asís et al. (2010, p. 65) who suggest that performance benchmarking indicators can be used as "red flags" or corruption warning signals. This includes indicators such as high levels of NRW and a high number of staff per 1000 connections that may show governance problems, especially if they are used to compare similar utilities in a country. Nevertheless, the use of these indicators can be ambiguous. The same authors mention that while high levels of unaccounted-for water are a warning signal, a low level of reported losses does not necessarily mean that there is no problem with corruption.

The TAP integrity model used in the previous sections allows the development of integrity benchmarks in WSD. This is done by establishing TAP scores at different WSD levels, then taking the sum of the components of each relationship and dividing this by the number of relationships at that level. With this approach, all relationships are taken as having the same importance[1] in order to facilitate the comparison of situations which involve a different number of relationships. Table 9 gives a concise overview. Such an overview can be used to identify where the highest risks are and where priority efforts are needed. It can also be used to compare different providers and may be a useful monitoring tool that can be quickly established in a participatory manner.

At the ***policy making and regulatory level***, transparency scores are fairly similar and relatively high for Kenya, particularly reflecting the result of the strengthening of water legislation. In the case of KIWASCO, the score is somewhat lower because in this case the

Table 9
TAP scores in WSD levels in Kenya and Ghana case studies

Level	Component	Old Town (Kenya) MOWASCO	Migosi (Kenya) KIWASCO	Kangemi (Kenya) NCWSC	Madina-Nima (Ghana) AVRL
Policy and regulation	T	1.8	1.6	1.8	1.5
	A	1	1	1	1
	P	1.2	1.2	1.2	0
Provision	T	0.6	0.6	1.3	1
	A	0.3	0.6	1	1
	P	1.6	1.6	1.6	1
Consumption	T	1	1	0.7	0.5
	A	0.7	0.8	0.7	1
	P	0.5	0.6	0.5	0.4
TOTAL		1	1	1	0.8

[1] To measure the "importance" of the relationships would require in-depth, causal analysis of the mechanisms at work which go beyond the scope of this paper.

relationship with the Water Services Regulatory Board (WASREB) is not described in the Service Provision Agreement. In Ghana, the transparency score is slightly lower because of the unavailability of the performance contract between the Public Utility Regulatory Commission (PURC) and GWCL. Accountability is at the same medium level in both countries, but these bodies still lack sufficient autonomy and financial resources to comply with their task. Participation is slightly better in Kenya because of the efforts of WASREB (the regulator) in making information available. It is very low in Ghana because access to information is almost zero.

At the ***provision level***, transparency and accountability scores are low due to the fact that the municipal councils (MCs) and water service boards (WSBs) do not have any arrangements in place to regulate the lease of the assets. Also MCs interfere in the management of the water providers. Mombasa Water Supply & Sanitation Co. Ltd (MOWASCO) presents a lower accountability due to the fact that at the time of the research there was no board of directors. In contrast, the higher integrity scores of the Nairobi City Water and Sewerage Company (NCWSC) are due to the existence of a tripartite agreement that regulates the lease of the assets from the MCs to the WSBs, as well as the fee paid to the MCs by NCWSC. In terms of participation, the Water Services Regulatory Board has a role in supervising the Service Provision Agreements.

In Ghana, the medium level scores of transparency for Aqua Vitens Rand Ltd (AVRL) stem from the fact that clear contracts or legal arrangements between several actors in the system seem to exist but could not be accessed or checked by the authors. In terms of accountability, control mechanisms are established between Ghana Water Co Ltd (GWCL) and AVRL but their application could not be verified. Participation scores low because the Public Utility Regulatory Commission (PURC) holds regular meetings with GWCL and the board of AVRL, but does not directly supervise or monitor.

At the ***consumption level***, transparency scores are similar in Kenya because many of the agreements are well supported by legislation though contracts are one-sided. That is not the case in Ghana where only a registration form exists. In terms of accountability, sanctions are not applied, although AVRL has put in place broad measures to fight petty corruption and bribery from local staff transferred from GWCL, making accountability slightly better. Water utilities have put effort into improving customer care relationships but access to information is not always easy, making participation low in all cases.

6. Conclusions

This paper looked at the integrity of WSD in three water utilities in Kenya and one in Ghana applying the transparency, accountability and participation (TAP) integrity model established for this research, pointing out a number of integrity weaknesses that result in corruption risks. There are three main contributions of this approach to the principal-agent theory helped by the redefinition of transparency and accountability and the addition of participation. The model is suitable to assess the integrity in water service delivery (WSD) in a participatory way even when a considerable number of actors are involved, although with more actors the analysis may require slightly more time. The model provides clear

steps to analyze the complexity of the TAP in the relationships between actors involved in WSD. The approach proves suitable (TI, 2009) for practitioners working in the field of water governance and anti-corruption, being used as a participatory method (e.g. validating and scoring TAP by different stakeholders) and stimulating dialogue which can also provide a basis for integrity improvements.

The second contribution is that the definitions of TAP, as used in this paper, are easy to understand by stakeholders, practitioners and the public in general, as demonstrated in the TISDA project (TI, 2009) and proved very practical for the analysis of the integrity of actor relationships in WSD. However, it is necessary to highlight their uniqueness in terms of its application. In this sense, the experience of Transparency International Kenya (TI Kenya, 2011) in applying the TAP integrity model indicates that it could be used to develop agreements[2] between stakeholders to fight corruption and improve WSD because the approach also fosters attitudinal change. In this sense, the TAP model has not only been used as an assessment tool in order to identify risks of corruption due to weak TAP, but also as a learning and advocacy tool. Stakeholders involved in the analysis did not feel threatened as the process does not point to those involved in corruption. Recently, the Water Integrity Network has adopted and recognized the approach presented in this paper (WIN, 2013, p. 100).

Another possible application of the TAP model could be to use it for WSD integrity benchmarking as an element to enhance the integrity of the sector, together with looking at the quality of water service delivery that takes into consideration efficiency and equity aspects in benchmarking performance of water utilities in a specific location of their service area (Bellaubi & Visscher, 2014). Integrity benchmarking may have a big impact on customer care and service quality improvement, i.e. water companies can improve their image thus increasing their trust amongst the users and, as a consequence, users may be more willing to pay the bill or reduce their level of complaints which, in turn, will increase the financial efficiency of the water company.

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[2] This is the case with the development pact between MOWASCO and users at Old Town Mombasa under TISDA (2011): http://tisdakenya.wordpress.com/2011/05/23/the-mombasa-mou-pact-for-impact

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