ASPECTS OF FINANCIAL MANAGEMENT THAT INFLUENCE FINANCIAL SUSTAINABILITY OF PUBLIC-PRIVATE WATER UTILITIES: THE CASE OF LAKE VICTORIA SOUTH REGION, KENYA

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ABSTRACT

The purpose of the study was to inform relevant policy discourses, management of water services, and research in developing countries. Its design was founded on core tenets of positivist and constructivist schools of thought. It targeted 5 public-private water utilities, 184 water officers and water users. Data were collected in mid 2016 and the analysis techniques included cross-tabulation with Chi square statistic (χ^2), Spearman's Rank Correlation Coefficient, Relative Importance Index and Kendall's Coefficient of Concordance (W). The results show that financial sustainability of the utilities positively correlated with effectiveness of internal audit unit in enforcing expenditure control policies (rho = 0.474 & ρ-value = 0.000); relevance of activities on which revenues are spent (rho = 0.411 & ρ-value = 0.000); effectiveness of external audit in improving financial management practices (rho = 0.410 & ρ-value = 0.000); consistency of the utilities in achieving revenue targets (rho = 0.330 & ρ-value = 0.003) and compliance of procurement activities to relevant legal provisions (rho = 0.319 & ρ-value = 0.005). The study also revealed a strong and significant concordance of respondents' perceptions regarding the influence of each aspect on financial sustainability of the utilities (Kendall's W= 0.907, χ^2 = 77.336, df = 5 & ρ-value = 0.000); implying that all the aspects deserve appropriate response interventions in order to enhance potential of the utilities to achieve financial sustainability.

Keywords: Financial management, financial sustainability, public-private water utilities, perceptions.

INTRODUCTION

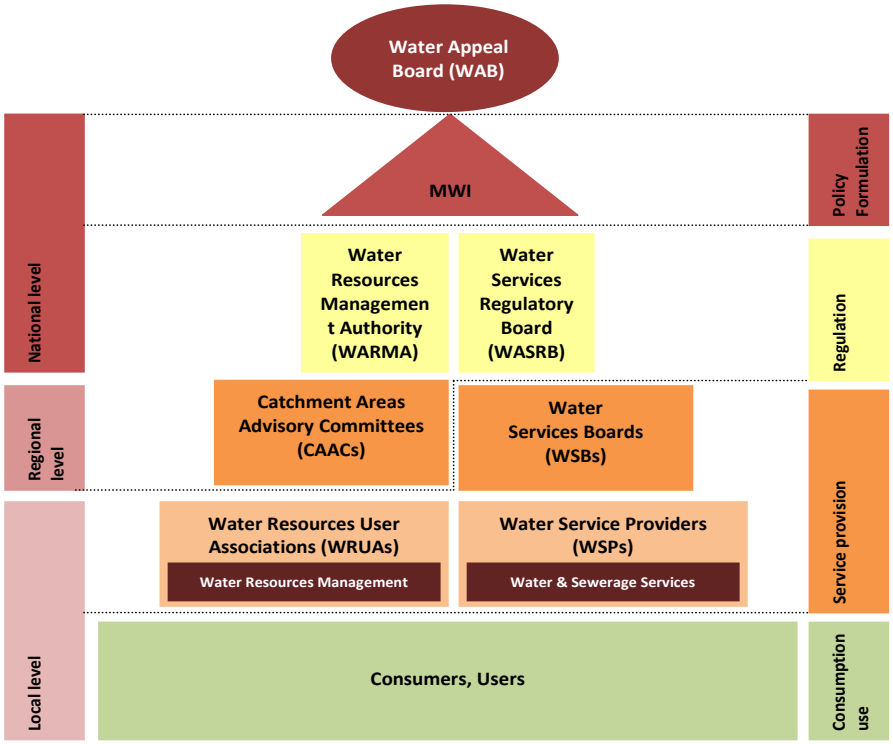
Access to safe drinking water is a crucial aspect of socio-economic development and a fundamental element of human rights, which is recognized by international legal frameworks such as Resolution 64/292 of the United Nations General Assembly, and domesticated through various pieces of national legislations (United Nations, 2010; Gia & Fugelsnes, 2010; Fogden 2009; K'Akumu, 2006). The Resolution obligates state parties to mobilize resources, as well as create necessary structures and operational mechanisms to enhance access to clean, safe and affordable water services to all citizens. However, in many developing countries, delivery of water services by the public sector is constrained by various maladies, including inefficient billing systems, large proportions of non-revenue and unaccounted-for water, delayed repair and maintenance of infrastructural facilities, as well as poor financial management practices, among others (Gia & Fugelsnes, 2010; Whittington, Davis, Prokopy, Komives, Thorsten, Lukacs & Wakeman, 2009; K'Akumu, 2006).

Poor financial management practices manifest through aspects such as non-achievement of revenue targets, expenditure of water revenues in activities that are not relevant to improvement of water services, frequent budget overruns, procurement irregularities, weak internal control systems, as well as ineffective external review of financial statements, operations and practices, among others. In order to address the challenges, water sector was targeted by Structural Adjustment Programs (SAPs), with a view to enhancing efficiency and sustainability of water services (United Nations, 2011). In Kenya, SAPs were introduced in late 1980s; and in the water sector, the initiative aimed at reducing government participation in direct delivery of services, while encouraging partnership with the private sector to enhance efficiency, financial sustainability (K'Akumu, 2006).

Public-Private Partnership (PPP) describes a range of work relationships between public and private sector entities in developing infrastructural facilities and delivering essential public services (Asian Development Bank, 2010; World Bank, 1997). A PPP initiative provides a crucial avenue for leveraging potentials of the private sector, in terms of expertise in management, capital and advanced technological options, in the delivery of public services (World Bank, 1997). The types of PPP initiatives range along a continuum, depending on how public and private entities share responsibilities for operations, maintenance, capital investment and commercial risk. On one end, are those PPP initiatives in which public entities retain most of the responsibilities; while on the other end, are those in which the private sector assumes much of such responsibilities (World Bank, 1997). Based on this criterion, PPP initiatives are broadly categorized into six types, including service contracts, management contracts, leases, build-operate-transfer, concessions and divestitures. Divestitures obligate private sector entities to take up most responsibilities for operations, maintenance, capital investment and commercial risks, as well as full or partial ownership of assets through the privatization process; while public entities retain monitoring and regulatory obligations, as well as enforcement of health and environmental standards. In this regard, private sector entities are contracted through long-term agreements, which in some cases, have no definite timeframes (Asian Development Bank, 2010; World Bank, 1997).

In Kenya, privatization of public utilities was ushered in by the introduction of SAPs in the late 1980s. In the water sector, existing literature show that the process occurred in two distinct phases: whereas the first phase took place between 1988 and 1993, the second phase came nearly a decade later in 2002 (K'Akumu, 2006; Wambua, 2004). The first phase was done haphazardly without necessary policy and legislative frameworks, which affected the level of achievement. Contrastingly, the second phase was guided by the Sessional Paper No. 1 of 1999 on Water Resources Management and Development, and the Water Act of 2002. The two instruments instigated a holistic re-organization of the water sector, by creating new public institutions to improve leadership and management, as well as establishing public-private utilities to operate, maintain, invest and commercialize delivery of water services (Rampa, 2011). Figure 1 shows the institutional framework created by the holistic reforms in the Kenyan water sector.

Figure 1: The Kenyan water sector institutional framework after reforms



Rampa (2011)

The Water Act provided the legislative basis for establishing eight regional Water Services Boards (WSBs), including Lake Victoria South Water Services Board (LVSWSB), to perform various managerial functions that are outlined in the Gazette Notice No. 1714 of March 2004. In this regard, contracting and managing Water Service Providers (WSPs) is one of the key functions assigned to WSBs. The Act defines a WSP as a private or public company, a non-governmental organization, a community-based organization, or any entity that is contracted by a WSB to provide water and sanitation services in a particular geographical area (K'Akumu, 2006; Government of Kenya, 2002). LVSWSB covers eight counties, including Kisumu, Siaya, Migori, Homa Bay, Bomet, Kericho, Nyamira and Kisii, with an estimated population of about 8.5 million people. At the time of the study, LVSWSB had contracted 94 WSPs to deliver water and sanitation services within the region (LVSWSB, 2014).

Among the WSPs were seven public-private utilities, including Kisumu Water and Sewerage Company Limited (KIWASCO); Siaya-Bondo Water and Sewerage Company Limited (SIBOWASCO); Homa Bay Water and Sewerage Company Limited (HOMAWASCO); Migori Water and Sewerage Company Limited (MIWASCO); Gusii Water and Sewerage Company Limited (GWASCO); Kericho Water and Sewerage Company Limited (KEWASCO); as well as Bomet Water and Sewerage Company Limited (BOWASCO). This study focused on five utilities, including KIWASCO, MIWASCO, GWASCO, KEWASCO and BOWASCO. Pertinent pieces of literature show that the five utilities were incorporated on different dates between 1997 and 2013, under the Company's Act Cap 486, Laws of Kenya. Their common missions were to: deliver quality, reliable, efficient, affordable and sustainable water services, in line with provisions of the Water Act, 2002; commercialize water and sewerage services; thereby,

generate revenue for operations, maintenance and expansion of infrastructural facilities (LVSWSB, 2014).

Financial sustainability of water utilities is vital for ensuring continuous availability of quality and affordable services. A water utility is considered to be financially sustainable if it's able to generate adequate financial resources to defray Operations and Maintenance (O&M) costs as well as invest in infrastructural facilities (Williams, 2013; Sontag-Padilla, Staplefoote & Gonzalez, 2012; McPhail, Locussol & Perry, 2012; Bowman, 2011). Castro, Msuya and Makoye (2009) differentiate the two concepts of 'operations' and 'maintenance'. Whereas operations entails daily management of water schemes, including pump operation, water treatment, rationing, network surveying, recording and reporting, maintenance deals with technical aspects such as availability of spare parts and technical skills, replacement of worn-out parts, as well as administrative and managerial actions that keep water supply systems in a proper working condition (Castro *et al*., 2009).

The literature review further reveals three types of maintenance for water service schemes, including preventive, corrective and rehabilitative (Castro *et al.*, 2009; Harvey & Reed, 2004). Whereas preventive maintenance is planned and executed regularly to keep water infrastructure in good working condition, corrective maintenance involves activities carried out as a result of breakdowns or infrastructure deterioration, while rehabilitation involves repair of major defects to restore water supply (Castro *et al*., 2009; Harvey & Reed, 2004). Key aspects of financial sustainability associated with maintenance of water schemes include the consistency of preventive maintenance, duration between occurrence of breakdowns and onset of corrective maintenance, as well as interludes between any two successive rehabilitation events (Castro *et al.*, 2009; Harvey & Reed, 2004).

Studies conducted across the globe reveal that financial sustainability of public and private water utilities is a function of many factors, including various aspects of financial management. For instance, Mimrose and Gunawardena (2011), Whittington *et al*., (2009), Gine and Perez-Foguet (2008), and Baumann (2006) linked financial sustainability of water utilities to the consistency with which such utilities achieved revenue targets. Besides, Mimrose and Gunawardena (2011), Whittington *et al*., (2009), as well as Wambua (2004) associated financial sustainability of water utilities with relevance of activities on which water revenues are spent; while Jansz (2011) noted that the frequency of budget overruns is one of the aspects influencing financial sustainability of water utilities. Furthermore, Adank and Tuffuor (2013), as well as Whittington *et al*., (2009) linked financial sustainability of water utilities to the frequency with which procurement activities complied with relevant regulations; Nankunda (2013) and Griffiths (2006) amplified effectiveness of internal control mechanisms in enforcing adherence to expenditure control policies; while Adank and Tuffuor (2013) associated financial sustainability of the utilities with effectiveness of external audit in propagating ideal financial management practices.

Even though the themes of the cited studies resonate with that of this study, a few fundamental differences are notable in terms of geographical setting and timing, as well as methodological approaches and intensity. The purpose of this study was to determine aspects of financial management influencing financial sustainability of public-private water utilities, with a view to generating information to support relevant policy discourses and service delivery decisions, as

well as spur relevant research activities, not only in Kenya but also in other developing countries. The objectives of the study were three-fold: determine bivariate relationship between aspects of financial management and financial sustainability of the public-private water utilities; examine the relative importance of financial management aspects based on the strength of correlation with financial sustainability of the utilities; as well as determine the concordance of respondents' perceptions regarding relationship between aspects of financial management and financial sustainability of the utilities.

LITERATURE REVIEW

An organization achieves financial sustainability when has sufficient resources to: defray its O&M costs over time, invest in the expansion of necessary infrastructural facilities, as well as seize opportunities and react to threats from the environment in which it operates, without depending on external funding sources, be they multilateral loans or grants; public budgetary allocations or equity investments, among others (Williams, 2013; Sontag-Padilla, Staplefoote & Gonzalez, 2012; Bowman, 2011). Regardless of whether an organization is public or private, profit or non-profit, achieving financial sustainability is central to its functionality and survival. Even though financial management is often associated with planning and controlling expenditure of organizational financial resources, existing literature suggests that the concept encompasses strategic measures initiated to generate revenues from core businesses and to mobilize resources from alternative sources (Sontag-Padilla *et al.*, 2012; Bowman, 2011).

Relevant theoretical and empirical literature further suggests that financial sustainability and financial management are interrelated. In this regard, the most common theoretical model conceptualizing relationship between the two concepts is the *Four Pillars Model of Financial Sustainability*, which was developed in 2001 by Nature Conservancy and the United States Agency for International Development. The model's purpose was to enable all organizations strengthen their capacity to achieve financial sustainability and deliver lasting services without depending on external funding sources (McPhail *et al.*, 2012; Leon, 2001). The model posits that financial sustainability anchors on four fundamental pillars, namely: strategic and financial planning, revenue diversification, revenue generation, as well as sound administration and finance (Leon, 2001). Financial management is a key element of sound administration and finance. Consequently, the four pillars model provided the theoretical basis for this study.

Furthermore, relationship between financial sustainability and financial management is a subject that has attracted empirical studies in both developing and developed countries. Within the context of water utilities, relationship between the two concepts has been examined by Adank and Tuffuor (2013), Jansz (2011), Mimrose and Gunawardena (2011), Nankunda (2013), Whittington *et al*., (2009), as well as Gine and Perez-Foguet (2008), just to cite a few. An overriding finding of the studies is that the ability of water utilities to achieve financial sustainability is influenced by various aspects of financial management, including consistency of utilities in achieving revenue targets, relevance of activities on which revenues are spent, consistency of expenditure with approved budgets, compliance of procurement activities with relevant regulations, effectiveness of internal audit in enforcing expenditure control policies, as well as effectiveness of external audit in improving financial management practices.

Regarding consistency of utilities in achieving revenue targets, Mimrose and Gunawardena (2011) noted that the amount of revenues generated by community water schemes in Sri Lanka was a key factor influencing financial performance. In Bolivia, Peru and Ghana, Whittington *et al*., (2009) found that a substantial proportion of rural water schemes were not collecting sufficient revenues to defray O&M costs, while a significant minority were not collecting revenues at all. Gine and Perez-Foguet (2008) also noted the failure of community water utilities to generate sufficient funds for repairs, affected continuous delivery of services; while Baumann (2006) noted that insufficiency of revenues for repairs reduced the life expectancy of water utilities. In addition, a report compiled by the World Bank in 2012 applauded public-private water utilities improving revenue generation, providing a reliable stream of revenue for maintenance of water distribution system, as well as for sustenance and expansion of water services (World Bank, 2012).

Expenditure of revenues on activities not related to service provision is one of the factors precipitating financial constraints, which in turn, impedes financial sustainability of water utilities in Africa and other developing countries (African Development Bank, 2007). This premise was confirmed by Mimrose and Gunawardena (2011) who cited misappropriation of water revenues as one of the factors contributing to financial challenges experienced by community water schemes in Sri Lanka. Similarly, Whittington *et al*., (2009) linked financial constraints experienced by rural water schemes in Bolivia, Peru and Ghana to the high cost of maintaining management staff in terms of allowances and benefits. In Kenya, Wambua (2004) reported that improper use of water revenues is one of the factors that impeded financial sustainability of three public-private water utilities, namely, Nyeri Water and Sewerage Company, Eldoret Water and Sanitation Company, as well as Nairobi Water and Sewerage Company.

Budgets enable organizations to estimate revenues, determine priority activities for spending, plan and control expenditures, encourage fiscal discipline and improve investor confidence, among other functions (Anthony & Young, 1994; Chalos & Haka, 1989). By controlling expenditures budgets enable organizations to avoid overruns, which often cripple operations and threaten organizational survival (Anthony & Young, 1994). A few studies have examined the link between frequency of budget overruns and financial sustainability of water utilities. For instance, Jansz (2011) reported a positive correlation between financial sustainability of rural water schemes in Mozambique, and the frequency of budget overruns. In this regard, among the respondents whose water schemes spent more finances than budgeted for during the previous financial year, up to 58% experienced financial crunch at least once during the same period. Contrastingly, among those whose expenditure was within pre-planned budgets, about one-third (31%) mentioned at least one occurrence of financial crunch. The study emphasized the need for water utilities to avoid budget overruns in order to minimize the frequency of financial crunches and improve their financial sustainability.

Procurement is central to expenditure management and financial sustainability of both public and private sector organizations. More specifically, procurement process is the primary avenue through which organizations lose their financial resources through fraudulent practices such as inflation of prices, selective invitation of preferred bidders and splitting tenders, among other irregularities [Organization for Economic Cooperation and Development (OECD), 2001]. In the

context of public-private water utilities, procurement can either augment or undermine financial sustainability, depending on the extent to which procurement activities and processes adhere to necessary regulations. In their study, Adank and Tuffuor (2013) reported that a high level of efficiency of procurement activities in public water schemes minimized wastage of water revenues, which in turn, improved financial performance. Contrastingly, Whittington *et al*., (2009) identified procurement as one of the aspects precipitating financial constraints experienced by rural water schemes in Bolivia, Peru and Ghana.

The effectiveness of internal audit function is crucial for organizations to manage their resources responsibly, towards financial sustainability. An effective internal audit unit is one that is staffed with adequate, qualified and motivated personnel, who should also have a clear understanding of the organization's strategic direction and expectations of stakeholders (PWC, 2016). Based on this, Griffiths (2006) found that internal audit improved financial performance through timely detection and mitigation of fraudulent financial transactions; while Nankunda (2013) found that internal audit added value by ensuring adherence to expenditure policies, which in turn, improved financial performance of the national water and sewerage corporation. Nonetheless, effectiveness of internal audit was constrained by inadequate and under-developed human resource capacity, as well as political influence.

External audit involves examination of financial statements of an organization by an independent auditor, who upon completion of the process, expresses an objective and professional opinion regarding the extent to which financial statements are accurate; accounting practices are conforming to professional standards; and financial management practices are in line with statutory regulations (Dandago, 1999). External audit contributes to improvement of financial management when consistent, timely, objective, inclusive and participatory. Besides, the value of external audit escalates when it delivers opinions that are acceptable to stakeholders and recommendations are implementable (KPMG International, 2016; Williamson & Hobbs, 2013). Adank and Tuffuor (2013) found a significant relationship between financial sustainability of private water schemes and external audit of financial statements, disclosure of financial reports, as well as implementation of actions recommended by such reports. The study concluded that external audit was critical for enhancing accountability and financial sustainability of water utilities.

The outcome of empirical literature review show that none of the studies attempted to determine the relative importance of financial management aspects in relation to financial sustainability of public-private water utilities. Even though some findings were based on perceptions of stakeholders, none of the studies examined the concordance of such perceptions regarding the relationship between aspects of financial management and financial sustainability of water utilities. In view of this, determination of relative importance of financial management aspects and concordance of respondents' perceptions are the two domains that distinguish this study from its predecessors.

METHODOLOGY

This study was founded on the core tenets of positivist and constructivist philosophies of social research. A positivist scholar believes that in social research, information derived from sensory experience is the exclusive source of all authoritative knowledge, particularly when the observed

phenomena and the observer are independent of each other, which makes the observation process objective. A positivist investigator is keen on determining causality between two or more sets of phenomena, which necessitates formulation and testing of null hypotheses (Ashley & Orenstein, 2005; Easterby-Smith, Thorpe & Lowe, 1991). Contrastingly, constructivist scholars believe that phenomena are socially constructed and are subjective, which implies that the observer becomes part of the phenomena being observed. A constructivist investigator focuses on the meaning of phenomena being observed, examines its totality and induces generalizations (Wong, 2014; Ashley & Orenstein, 2005; Easterby-Smith *et al.*, 1991).

Based on the positivist thoughts, the study was designed to determine bivariate relationships between aspects of financial management and financial sustainability of public-private water utilities. Under the constructivist school of thought, requisite data were sourced using Key Informant Interviews (KIIs) and Focused Group Discussions (FGDs). The resultant information was used to examine the totality of relationship between aspects of financial management and financial sustainability of the utilities. Based on the positivist and constructivist thoughts, a mixed methods approach, with both quantitative and qualitative research methods, was applied. Whereas quantitative methods elicited information for descriptive and inferential purposes, qualitative methods obtained in-depth information for validating quantitative results (Sale, Lohfeld & Brazil, 2002; Hughes & Sharrock, 1997).

Lake Victoria South Water Services Board (LVSWSB) covers eight counties, including Kisumu, Siaya, Homa Bay, Migori, Kisii, Nyamira, Kericho and Bomet. Each county is served by one public-private water utility, except Kisii and Nyamira, which share a utility, as indicated in Table 1.

Table 1: Targeted counties and public-private water utilities

Counties	Public-private water utilities
Kisumu	Kisumu Water and Sewerage Company Limited (KIWASCO)
Siaya	Siaya-Bondo Water and Sewerage Company Limited (SIBOWASCO)
Homa Bay	Homa Bay Water and Sewerage Company Limited (HOMAWASCO)
Migori	Migori Water and Sewerage Company Limited (MIWASCO)
Kisii	Gusii Water and Sewerage Company Limited (GWASCO)
Nyamira	Gusii Water and Sewerage Company Limited (GWASCO)
Kericho	Kericho Water and Sewerage Company Limited (KEWASCO)
Bomet	Bomet and Sewerage Company Limited (BOWASCO)

The study targeted public-private water utilities in five of the counties, namely Kisumu, Migori, Kisii, Kericho and Bomet. In each utility, five categories of water officers, including managerial, operations, technical, commercial and finance were involved in the study. Also targeted were three groups of users, namely, commercial users such as guest houses, restaurants, fish processors, launders and car washers; government institutions, including health facilities, ministries and academic institutions; and domestic users, who were represented by household heads. A three-stage sampling process was applied to obtain units of analysis. Firstly, a random sampling process was applied to select five counties from the sampling frame indicated in Table 1. Secondly, the utilities were sampled purposively, based on their public-private ownership structure. In the process, KIWASCO, MIWASCO, GWASCO, KEWASCO and BOWASCO were sampled. Thirdly, five cadres of water officers, including managerial, operations, technical, commercial and finance were also identified and sampled purposively. Table 2 shows the distribution of sample sizes for each cadre of water officers.

Table 2: Population and sample size for water officers

Group	Specific cadre	Population (N_i)	Sample (n_i)	Selection/computation method
Managerial	Chief/deputy chief executive officers	5	5	Census
	Departmental heads	25	14	Fisher's formula
Operations	Scheme managers	16	9	,,
	Station in-charges	32	17	,,
Technical	Water engineers and technicians	148	64	,,
Commercial	Commercial officers	104	49	,,
Finance	Finance officers	50	26	,,
Total		**380**	**184**	,,

Fisher's formula for sample size determination from finite populations states that: $n_i = \left\{ \frac{\delta(1-\delta)}{\left[\left(\frac{\alpha}{Z}\right)^2 + \delta(1-\delta)/N_i\right]} \right\} * \mu_i$

Where: n_i = sample size, N_i = population, δ = estimated population variance: 0.5, α = desired precision: 0.05, Z = confidence level: 1.96 for 95% on the normal distribution curve and μ_i = design effect, default: 0.6 (Fink, 1995). Taking the example of commercial officers, whose population was 104, the computation obtains a sample size of 49 respondents.

Primary data were collected between May and July 2016, with permission from relevant authorities, including, National Commission for Science, Technology and Innovation; County administration, and management of each public-private utility. A standard self-administered survey questionnaire was applied to source quantitative data from water officers. The instrument was pre-tested on 20 respondents in Homa Bay County, about 10.9% of the targeted sample size, which according to Sheatsley (1983) is sufficient to discover flaws in data collection instruments. Content Validity Index (CVI) was computed for the survey questionnaire, and the process obtained a CVI of 58.3%, which suggests that the tool's contents were fairly valid (Polit & Beck, 2006). Reliability of data collection questionnaire was determined by computing Spearman-Brown Prophecy Coefficient. The process obtained a Coefficient of 0.88, which according to Garson (2009), suggested a 'good' level of reliability.

Both quantitative and qualitative techniques were applied to process and analyze data. Quantitative techniques included cross-tabulation with Chi square statistic (χ^2) and Spearman's Rank Correlation Coefficient, to determine the strength of bivariate relationships between aspects of financial management and financial sustainability of public-private water utilities. Besides, Relative Importance Index (RII) was applied to determine the relative importance of each aspect in relation to financial sustainability of public-private water utilities. Kendall's Coefficient of Concordance (W) was also applied to determine the concordance of respondents' perceptions regarding relationship between aspects of financial management and financial sustainability of the utilities. The following publications expound the methodology that was applied in this study: Kometa, Oloimolaiye and Harris (1994), as well as Frimpong, Olowoye and Crawford (2003). All the quantitative analyses were performed using the Statistical Package for Social Sciences (SPSS) and Microsoft Excel.

RESULTS

The results are organized under four thematic areas, including cross-tabulation analysis of respondents' profile and financial sustainability of the public-private water utilities; cross-tabulation analysis of financial management aspects and financial sustainability of the utilities; followed by relative importance analysis of financial management aspects, as well as concordance of respondents' perceptions regarding the influence of financial management aspects on financial sustainability of the utilities. Details are presented under the following sub-sections.

Cross-tabulation analysis of respondents' profile and financial sustainability of the water utilities

Of the 184 water officers that were targeted by the study, 161 (87.5%) responded by filling self-administered questionnaires. A key item in the questionnaires required respondents to indicate perceptions regarding performance of their utilities in defraying Operation and Maintenance (O&M) costs on a four-point measurement scale, which was calibrated as 'very good', 'good', 'poor' and 'very poor'. The results show that of the 161 respondents, 9 (5.6%) rated performance of their utilities as 'very good', while 57 (35.4%) indicated 'good'. Those who felt that their utilities had performed 'poorly' were 81 (50.4%), while 14 (8.7%) rated the performance as 'very poor'. During data analysis, 'very good' and 'good' performances in defraying O&M costs were designated as signs of financial sustainability, while 'poor' and 'very poor' performances signaled lack of financial sustainability. Based on this understanding, cumulative results show that up to 66 (41.0%) respondents expressed signs that their utilities were financially sustainable, while 95 (59.0%) provided responses, which suggested that their utilities were not financially sustainable.

The study captured information on various background attributes of respondents, including affiliated utility, job category, gender, highest education level and highest professional training. The attributes were cross-tabulated against perceptions regarding financial sustainability of the utilities. The results which are presented in Table 3 show that 35 (21.7%) respondents were affiliated to BOWASCO, 33 (20.5%) worked for GWASCO, 32 (19.9%) were employees of KEWASCO, another 32 (19.9%) were employed by MIWASCO, while 29 (18.0%) were affiliated to KIWASCO. Among the respondents who expressed signs of financial sustainability (66), up to 21 (31.8%) were affiliated to MIWASCO, 15 (22.7%) were employed by BOWASCO, while 11 (16.7%) worked for GWASCO. Contrastingly, among those whose responses hinted signs of no financial sustainability (95), 23 (24.2%) were employed by KEWASCO, 22 (23.2%) worked for GWASCO, while 20 (21.1%) were employees of BOWASCO. The analysis obtained a computed Chi square (χ^2) value of 20.708, with 12 degrees of freedom (df) and a ρ-value of 0.055, suggesting up to 95% chance that perceptions regarding financial sustainability varied significantly across the utilities. In this regard, the utilities were heterogeneous in terms of the degree of financial sustainability.

The respondents held various positions in their utilities, which were broadly grouped into five job categories, including managerial, operations, technical, commercial and finance. The results in Table 3 show that 45 (28.0%) respondents held managerial positions, 54 (33.5%) were in

operations, 26 (16.1%) technical, 21 (13.0%) commercial, while 15 (9.3%) indicated positions that aligned with the finance category. Cumulative results show that among those who indicated signs of financial sustainability (66), 21 (31.8%) belonged to operations job category, 20 (30.3%) held managerial positions, while 11 (16.7%) were commercial officers. Among those whose responses indicated lack of financial sustainability (95), 33 (34.7%) held operations positions, 25 (26.3%) were managerial staff, while 16 (16.8%) served as technical officers. However, there was no significant association between respondents' job category and perceptions regarding financial sustainability of the utilities (χ^2 = 8.108, df = 12 & ρ-value = 0.777). Lack of a significant relationship between the two aspects further suggests that respondents in the five job categories were homogenous in their perceptions regarding financial sustainability of the utilities.

Table 3: Cross-tabulation of respondents' profile and financial sustainability of the utilities

Attributes	Very Good		Good		Poor		Very poor		Total	
	Count	*Percent*	*Count*	*Percent*	*Count*	*Percent*	*Count*	*Percent*	*Count*	*Percent*
Affiliated utility										
KIWASCO	0	0.0	10	17.5	16	19.8	3	21.4	29	18.0
MIWASCO	3	33.3	18	31.6	11	13.6	0	0.0	32	19.9
GWASCO	4	44.4	7	12.3	17	21.0	5	35.7	33	20.5
KEWASCO	0	0.0	9	15.8	19	23.5	4	28.6	32	19.9
BOWASCO	2	22.2	13	22.8	18	22.2	2	14.3	35	21.7
Total	**9**	**100.0**	**57**	**100.0**	**81**	**100.0**	**14**	**100.0**	**161**	**100.0**
Job category										
Managerial	3	33.3	17	29.8	22	27.2	3	21.4	45	28.0
Operations	2	22.2	19	33.3	27	33.3	6	42.9	54	33.5
Technical	1	11.1	9	15.8	15	18.5	1	7.1	26	16.1
Commercial	1	11.1	10	17.5	8	9.9	2	14.3	21	13.0
Finance	2	22.2	2	3.5	9	11.1	2	14.3	15	9.3
Total	**9**	**100.0**	**57**	**100.0**	**81**	**100.0**	**14**	**100.0**	**161**	**100.0**
Gender										
Male	4	44.4	42	73.7	48	59.3	11	78.6	105	65.2
Female	5	55.6	15	26.3	33	40.7	3	21.4	56	34.8
Total	**9**	**100.0**	**57**	**100.0**	**81**	**100.0**	**14**	**100.0**	**161**	**100.0**
Highest education level										
Secondary	1	11.1	7	12.3	8	9.9	1	7.1	17	10.6
College	5	55.6	33	57.9	45	55.6	9	64.3	92	57.1
University	3	33.3	17	29.8	28	34.6	4	28.6	52	32.3
Total	**9**	**100.0**	**57**	**100.0**	**81**	**100.0**	**14**	**100.0**	**161**	**100.0**

Regarding gender, the results in Table 3 show that the respondents included 105 (65.2%) men and 56 (34.8%) women. Cumulatively, those who expressed signs of financial sustainability (66), included 46 (69.7%) men and 20 (30.3%) women, while those whose perceptions suggested lack of financial sustainability (95), 59 (62.1%) were men. Again, the analysis revealed no significant relationship between respondents' gender and perceptions regarding financial sustainability of the utilities (χ^2 = 5.882, df = 3 & ρ-value = 0.118). The results suggest that there was no significant difference in the perceptions of male and female respondents concerning financial sustainability of their water utilities.

The results in Table 3 further show that 92 (57.1%) respondents reported having college education, 52 (32.3%) had attained university education, while 17 (10.6%) stated secondary-level education. Among those whose responses suggested signs of financial sustainability (66), 38 (57.6%) had attained college education, 20 (30.3%) indicated university education, while 8 (12.1%) mentioned secondary-level education. Among those who felt that their utilities had not achieved financial sustainability (95), 54 (56.8%) were college graduates, while 32 (33.7%) had attained university education. Nonetheless, the analysis revealed lack of a significant relationship

between respondents' education level and financial sustainability of the utilities (χ^2 = 0.824, df = 6 & ρ-value = 0.991). The results suggest that respondents' perceptions on financial sustainability of their utilities were homogenous, irrespective of education level.

Cross-tabulation analysis of financial management aspects & financial sustainability of the utilities

Sound management of financial resources is essential for public utilities to achieve financial sustainability. In this study, financial management was operationalized in terms of six aspects, including *consistency in achieving revenue targets*, *relevance of activities on which revenues are spent*, *conformance of expenditure with approved budgets*, *compliance of procurement activities to relevant legal provisions*, *effectiveness of internal audit unit in enforcing expenditure control policies*, as well as *effectiveness of external audit in improving financial management practices*. These aspects of financial management were used to formulate hypothetical test statements, against which respondents were required to indicate the extent of agreement or disagreement.

In view of the above, respondents were requested to indicate the extent to which they either agreed or disagreed with the hypothetical test item, stating that *'Utility achieves its revenue targets every financial year'*. The results presented in Table 4 show that 78 (48.4%) respondents disagreed with the statement, while 25 (15.5%) disagreed strongly. On the other side of the measurement scale, 40 (24.8%) respondents agreed with the statement, while 11(6.8%) agreed strongly. Cumulatively, up to 103 (63.9) respondents felt that the utilities were inconsistent in achieving revenue targets, while 51 (31.6%) expressed contrasting views by endorsing the statement. Cumulative results also show that of the 66 respondents whose perceptions suggested financial sustainability, up to 48 (72.7%) failed to endorse the statement because they felt it was invalid; only 11 (16.7%) endorsed it. Among those whose perceptions suggested lack of financial sustainability (95), 55 (57.9%) failed to endorse the statement, while 40 (42.1%) affirmed it. Based on the cross-tabulation results, Table 5 shows that the analysis obtained a Spearman's rank correlation coefficient of 0.230, with a ρ-value of 0.003, which suggests up to 99% chance that there was a positive and significant correlation between consistency of the utilities in achieving revenue targets and financial sustainability. This implies that as the utilities become more consistent in achieving revenue targets, chances of becoming financially sustainable also increase proportionately.

Respondents were also requested to indicate the extent to which they agreed or disagreed with the second hypothetical test item, which stated that *'Revenues are always spent on activities relevant to delivery of quality water services'*. In this regard, Table 4 shows that 69 (42.9%) respondents disagreed with the statement, while 37 (23.0%) disagreed strongly. Contrastingly, 33 (20.5%) respondents agreed with the statement, while 10 (6.2%) agreed strongly. Cumulatively, 106 (65.9%) respondents failed to validate the hypothetical statement because they felt it was untrue; however, 43 (26.7%) endorsed it. Among the respondents whose perceptions suggested that the utilities were financially sustainable (66), 56 (84.8%) felt that revenues were not always spent on activities relevant to sustainable delivery of water services; only 10 (15.2%) endorsed the statement. Among those whose perceptions signaled lack of financial sustainability (95), about one-half, 50 (52.6%), felt that the statement was untrue, while 33 (34.7%) believed it was true. Table 5 shows that the analysis obtained a Spearman's rank correlation coefficient of 0.411, with a ρ-value of 0.000, which suggests up to 99% chance that there was a significant positive

correlation between relevance of activities on which revenues were spent and financial sustainability. This implies that as revenues are increasingly spent on activities that are relevant to delivery of quality water services, chances of the utilities becoming financially sustainable also increase proportionately.

Table 4: Cross-tabulation of financial management aspects and financial sustainability of water utilities

Aspects of financial management	Utility's performance in defraying O&M costs									
	Very Good		Good		Poor		Very poor		Total	
	Count	*Percent*	*Count*	*Percent*	*Count*	*Percent*	*Count*	*Percent*	*Count*	*Percent*
Utility achieves its revenue targets every financial year										
Agree strongly	1	11.1	0	0.0	7	8.6	3	21.4	11	6.8
Agree	1	11.1	9	15.8	23	28.4	7	50.0	40	24.8
Undecided	2	22.2	5	8.8	0	0.0	0	0.0	7	4.3
Disagree	2	22.2	33	57.9	42	51.9	1	7.1	78	48.4
Disagree strongly	3	33.3	10	17.5	9	11.1	3	21.4	25	15.5
Total	**9**	**100.0**	**57**	**100.0**	**81**	**100.0**	**14**	**100.0**	**161**	**100.0**
Revenues are always spent on activities relevant to sustainable delivery of quality water services										
Agree strongly	0	0.0	1	1.8	5	6.2	4	28.6	10	6.2
Agree	2	22.2	7	12.3	18	22.2	6	42.9	33	20.5
Undecided	0	0.0	0	0.0	11	13.6	1	7.1	12	7.5
Disagree	2	22.2	28	49.1	38	46.9	1	7.1	69	42.9
Disagree strongly	5	55.6	21	36.8	9	11.1	2	14.3	37	23.0
Total	**9**	**100.0**	**57**	**100.0**	**81**	**100.0**	**14**	**100.0**	**161**	**100.0**
Expenditures are always within approved budgets										
Agree strongly	2	22.2	3	5.3	4	4.9	0	0.0	9	5.6
Agree	1	11.1	3	5.3	26	32.1	7	50.0	37	23.0
Undecided	1	11.1	1	1.8	8	9.9	5	35.7	15	9.3
Disagree	5	55.6	40	70.2	15	18.5	2	14.3	62	38.5
Disagree strongly	0	0.0	10	17.5	28	34.6	0	0.0	38	23.6
Total	**9**	**100.0**	**57**	**100.0**	**81**	**100.0**	**14**	**100.0**	**161**	**100.0**
Procurement of goods, services and works is done in accordance with legal provisions										
Agree strongly	1	11.1	6	10.5	2	2.5	2	14.3	11	6.8
Agree	2	22.2	14	24.6	19	23.5	5	35.7	40	24.8
Undecided	0	0.0	8	14.0	0	0.0	0	0.0	8	5.0
Disagree	4	44.4	20	35.1	36	44.4	7	50.0	67	41.6
Disagree strongly	2	22.2	9	15.8	24	29.6	0	0.0	35	21.7
Total	**9**	**100.0**	**57**	**100.0**	**81**	**100.0**	**14**	**100.0**	**161**	**100.0**
Internal audit department is effective in enforcing expenditure control policies										
Agree strongly	1	11.1	0	0.0	5	6.2	4	28.6	10	6.2
Agree	0	0.0	6	10.5	19	23.5	4	28.6	29	18.0
Undecided	3	33.3	2	3.5	1	1.2	3	21.4	9	5.6
Disagree	2	22.2	34	59.6	32	39.5	2	14.3	70	43.5
Disagree strongly	3	33.3	15	26.3	24	29.6	1	7.1	43	26.7
Total	**9**	**100.0**	**57**	**100.0**	**81**	**100.0**	**14**	**100.0**	**161**	**100.0**
External audit is effective in improving financial management practices										
Agree strongly	2	22.2	4	7.0	1	1.2	0	0.0	7	4.3
Agree	5	55.6	13	22.8	22	27.2	4	28.6	44	27.3
Undecided	0	0.0	2	3.5	1	1.2	1	7.1	4	2.5
Disagree	0	0.0	35	61.4	49	60.5	8	57.1	92	57.1
Disagree strongly	2	22.2	3	5.3	8	9.9	1	7.1	14	8.7
Total	**9**	**100.0**	**57**	**100.0**	**81**	**100.0**	**14**	**100.0**	**161**	**100.0**

*,**,*** show significance at $\rho<0.1$, $\rho<0.05$ and $\rho<0.01$ error margins, respectively

The third aspect of financial management analyzed by the study was about the *conformance of expenditure with approved budgets*. In this regard, respondents were asked to indicate the extent

to which they agreed or disagreed with the hypothetical test item, which stated that *'Expenditures are always within approved budgets'*. As indicated in Table 4, of the 161 respondents, 62 (38.5%) disagreed with the test statement, while 38 (23.6%) disagreed strongly. Contrastingly, 37 (23.0%) agreed with the statement, while 9 (5.6%) agreed strongly. Cumulatively, whereas up to 100 (62.1%) respondents felt that the statement was incorrect, 46 (28.6) believed that it was correct. Notably, the majority believe that expenditures were not always within approved budgets. More still, among those whose perceptions signaled financial sustainability (66), up to 55 (83.3%) respondents expressed disagreement with the test statement, while 9 (13.6%) indicated agreement. Among those whose perceptions suggested lack of financial sustainability (95), up to 45 (47.4%) denied the statement, while 37 (38.9%) affirmed the statement. In either side, the majority of respondents felt that expenditures were not always within approved budgets. Based on the cross-tabulation results, Table 5 shows that the analysis yielded a Spearman's rank correlation coefficient of -0.168, with a ρ-value of 0.034, which suggests up to 95% chance that the conformance of expenditure to approved budgets negatively correlated with achievement of financial sustainability by public-private water utilities. This implies that as expenditures increase above approved budgets, chances of the utilities achieving financial sustainability decrease.

Table 5: Correlation between financial management aspects and financial sustainability of water utilities

		Utility's performance in defraying O&M costs	Consistency of utility in achieving revenue targets
Utility's performance in defraying O&M costs	Spearman's rho	1.000	0.230***
	ρ-value		0.003
	N	161	161
Consistency of utility in achieving revenue targets	Spearman's rho	0.230***	1.000
	ρ-value	0.003	
	N	161	161
		Utility's performance in defraying O&M costs	Relevance of activities on which revenues are spent
Utility's performance in defraying O&M costs	Spearman's rho	1.000	0.411***
	ρ-value		0.000
	N	161	161
Relevance of activities on which revenues are spent	Spearman's rho	0.411***	1.000
	ρ-value	0.000	
	N	161	161
		Utility's performance in defraying O&M costs	Conformance of expenditure with approved budgets
Utility's performance in defraying O&M costs	Spearman's rho	1.000	-0.268**
	ρ-value		0.034
	N	161	161
Conformance of expenditure with approved budgets	Spearman's rho	-0.268**	1.000
	ρ-value	0.034	
	N	161	161
		Utility's performance in defraying O&M costs	Compliance of procurement activities to relevant legal provisions
Utility's performance in defraying O&M costs	Spearman's rho	1.000	0.319***
	ρ-value		0.005
	N	161	161
Compliance of procurement activities to relevant legal provisions	Spearman's rho	0.319***	1.000
	ρ-value	0.005	
	N	161	161
		Utility's performance in defraying O&M costs	Effectiveness of internal audit unit in enforcing expenditure control policies
Utility's performance in defraying O&M costs	Spearman's rho	1.000	0.474***
	ρ-value		0.000
	N	161	161
Effectiveness of internal audit unit in enforcing expenditure control policies	Spearman's rho	0.474***	1.000
	ρ-value	0.000	

	N	161	161
		Utility's performance in defraying O&M costs	Effectiveness of external audit in improving financial management practices in the utilities
Utility's performance in defraying O&M costs	Spearman's rho	1.000	0.410***
	ρ-value		0.000
	N	161	161
Effectiveness of external audit in improving financial management practices in the utilities	Spearman's rho	0.410***	1.000
	ρ-value	0.000	
	N	161	161

*,**,*** show significance at ρ<0.1, ρ<0.05 and ρ<0.01 error margins, respectively

The fourth aspect of financial management examined by the study was about *compliance of procurement activities to relevant legal provisions.* In this regard, respondents were requested to indicate the extent to which they either agreed or disagreed with the hypothetical test item, stating that '*Procurement of goods, services and works is done in accordance with legal provisions'.* The results presented in Table 4 show that of the 161 respondents, 67 (41.6%) disagreed with the test statement, while 35 (21.7%) disagreed strongly. On the other side of the measurement scale, 40 (24.8%) respondents agreed with the statement while 11 (6.8%) agreed strongly. Cumulatively, 102 (63.3%) respondents felt that procurement activities were not done in accordance with legal provisions, while 51 (31.6%) endorsed the test statement. Among the respondents whose perceptions signaled financial sustainability (66), more than one-half, 35 (53.0%), felt that the test statement was untrue, while 23 (34.8%) endorsed it. Similarly, among those whose views signaled lack of financial sustainability (95), up to 67 (70.5%) believed that the statement was incorrect, while 28 (29.5%) agreed with it. On each side, most respondents felt that the hypothetical statement differed with actual procurement practices. Based on this, the analysis obtained a Spearman's rank correlation coefficient of 0.219, with a ρ-value of 0.005, which suggests up to 99% chance that *compliance of procurement activities to relevant legal provisions* positively correlated with achievement of financial sustainability by public-private water utilities. This implies that as water utilities improve compliance with relevant procurement legal provisions, financial sustainability also improves.

Effectiveness of internal audit departments in enforcing expenditure control policies was the fifth aspect of financial management examined by the study. In this regard, respondents were asked to indicate the extent to which they agreed or disagreed with the hypothetical test item, stating that *'Internal audit department is effective in enforcing expenditure control policies in the utility'*. Table 4 shows that 70 (43.5%) respondents disagreed with the test statement, while 43 (26.7%) disagreed strongly. On the other side of the scale, 29 (18.0%) respondents agreed with the statement, while 10 (6.2%) agreed strongly. Cumulative results show that most respondents, 113 (70.2%), felt that internal audit departments were not effective in enforcing expenditure control policies; only 39 (24.2%) hinted that the test statement was valid. Among the respondents whose perceptions signaled financial sustainability (66), up to 54 (81.8%) expressed disagreement with the test statement, while 7 (10.6%) admitted validity of the statement. Among those whose views suggested lack of financial sustainability (95), up to 59 (62.1%) felt that the statement was invalid, while 32 (33.7%) endorsed it. Based on the cross-tabulation results, Table 5 shows that the analysis obtained a Spearman's rank correlation coefficient of 0.474, with a ρ-value of 0.000, which suggests up to 99% chance that effectiveness of internal audit departments in enforcing expenditure control policies positively correlated with achievement of financial sustainability by public-private water utilities. This implies that as internal audit departments become more

effective in enforcing expenditure control policies, the chances of water utilities achieving financial sustainability also improve.

The sixth aspect of financial management covered by the study was about *effectiveness of external audit in improving financial management practices in the utilities.* In this regard, respondents were required to indicate the extent to which they either agreed or disagreed with the hypothetical test item, stating that *'External audit is effective in improving financial management practices in the utility'*. The results which are presented in Table 4 show that 92 (57.1%) respondents disagreed with the hypothetical test statement, while 14 (8.7%) disagreed strongly. On the other side of the scale, 44 (27.3%) respondents agreed with the statement, while 7 (4.3%) agreed strongly. Cumulatively, up to 106 (65.8%) respondents felt that the test statement was untrue, while 51 (31.6%) thought that it was true. Thus, most respondents believed that external audit was not effective in improving financial management practices in the utilities. Among the respondents whose sentiments signaled financial sustainability (66), up to 40 (60.6%) hinted that the test statement was invalid, while 24 (36.4%) felt that it was valid. Among those whose perspectives suggested lack of financial sustainability (95), 66 (69.5%) expressed disagreement with the statement; only 27 (28.4%) validated it. as indicated in Table 5, the cross-tabulation analysis obtained a Spearman's rank correlation coefficient of 0.410, with a ρ-value of 0.000, which suggests up to 99% chance that effectiveness of external audit in improving financial management practices positively correlated with achievement of financial sustainability by public-private water utilities. This implies that as external audit becomes more effective in improving financial management practices, chances of the utilities achieving financial sustainability also improves.

Relative importance analysis of financial management and financial sustainability of water utilities

Cross-tabulation analyses in the previous sub-section revealed significant relationships between financial sustainability of the public-private water utilities and all the aspects of financial management covered by the study, including consistency in achieving revenue targets, which for the purpose of further analysis, was coded as *RVTargets*; relevance of activities on which revenues are spent *(REActivities)*, conformance of expenditure with approved budgets *(EABudgets)*, compliance of procurement activities to relevant legal provisions *(CLProvisions)*, effectiveness of internal audit unit in enforcing expenditure control policies *(IAPolicies)*, as well as effectiveness of external audit in improving financial management practices *(EAPractices)*. The aspects were coded to facilitate relative importance analysis, which generated three outputs; viz. correlation co-efficients (β), General Dominance (GD) weights and relative weights, as presented in Table 6. Relative weights were used to express the importance of each aspect of financial management in relation to financial sustainability of the public-private water utilities.

Table 6: Relative importance of financial management aspects and financial sustainability of water utilities

INTER-ITEM CORRELATION MATRIX							RELATIVE IMPORTANCE		
Aspects of financial management	*RVTargets*	*REActivities*	*EABudgets*	*CLProvisions*	*IAPolicies*	*EAPractices*	β	GD weight	Relative weight
RVTargets	1.000	0.499	0.570	0.573	0.568	0.641	0.485	0.781	0.773
REActivities	0.499	1.000	0.527	0.522	0.403	0.547	0.583	0.816	0.808
EABudgets	0.570	0.527	1.000	0.496	0.313	0.640	0.443	0.723	0.709
CLProvisions	0.573	0.522	0.496	1.000	0.470	0.349	0.461	0.741	0.732
IAPolicies	0.568	0.403	0.313	0.470	1.000	0.271	0.611	0.825	0.821
EAPractices	0.641	0.547	0.640	0.349	0.271	1.000	0.569	0.809	0.795

The results in Table 6 shows that effectiveness of internal audit unit in enforcing expenditure control policies *(IAPolicies)* was the most important aspect of financial management influencing financial sustainability of the public-private water utilities, with a relative weight of 0.821. Cumulative results show that up to 113 (70.2%) respondents felt that internal audit unit was not effective in enforcing expenditure control policies. This was attributed to challenges such as gross under-staffing of internal audit units, over-working, lack of training opportunities and frequent interference by management and organizational boards. With no training, there was no telling whether internal audit staff understood the strategic direction, expectations of stakeholders, and the risks facing public-private water utilities. Without opportunities for training, respondents noted that internal audit staff lacked appropriate service culture, hence, were easily compromised to overlook or cover-up irregular expenditures. The situation was aggravated by lack of authority to question such expenditures, as well as detect and mitigate fraudulent financial transactions. Respondents concurred that lack of capacity to enforce expenditure control policies contributed to loss of financial resources, which in turn, perpetuated financial constraints and prevented the utilities from realizing financial sustainability.

Table 6 further shows that relevance of activities on which revenues are spent *(REActivities)* was the second most important factor influencing financial sustainability of the public-private water utilities (relative weight = 0.808). Notably, the views of 106 (65.9%) respondents suggested that water revenues were spent on activities that were not relevant to sustainable delivery of quality water services. In this regard, respondents cited activities such as workshops and seminars, staff retreats, frequent foreign trips by senior management staff and frequent engagement of consultants for activities that can be done by water officers, among others. Respondents attributed the high frequency of such expenditures to factors such as lack of commitment to the strategic focus of water utilities, weak structures for internal expenditure control, weak boards of directors, political interference and ineffective external audit, among others. Expenditure of revenues on activities not related to service provision affected the financial status of water utilities by usurping resources meant for repairs and maintenance of infrastructural facilities.

The third aspect in the order of relative importance was effectiveness of external audit in improving financial management practices *(EAPractices)* with a relative weight of 0.795. Notably, up to 106 (65.8%) respondents felt that external audit was not effective in improving financial practices. Respondents indicated that the water utilities were audited annually by the auditor general's office. However, the process was constrained by two sets of challenges: firstly, external audit was inconsistent and untimely, which provided opportunity for some accounting officers to move to other institutions in the public or private sectors, without being held to account for loss of financial resources. Secondly, respondents felt that external audit was merely

a formality, with no mechanism to ensure that audit recommendations were implemented, in order to improve financial management practices. Notably, some recommendations were repeated year-in year-out in audit reports, which suggest that such were hardly implemented. Failure to implement audit recommendations provided room for financial malpractices to propagate, which in turn, caused loss of resources and undermined the potential of public-private water utilities to achieve financial sustainability.

Consistency of the utilities in achieving revenue targets *(RVTargets)* was fourth in the order of relative importance, among aspects of financial management influencing financial sustainability of the public-private water utilities (relative weight = 0.773). Accordingly, up to 103 (63.9%) respondents indicated that public-private water utilities were inconsistent in meeting revenue targets, which affected their financial performance. While acknowledging that revenue was principally generated through delivery of water services to consumers, respondents noted that achievement of revenue targets was constrained by inefficient billing system, which led to under-costing, and sometimes, over-costing of water services. Whereas under-costing of services sub-optimized revenues, respondents linked over-costing of services to customer dissatisfaction, complaints, delayed payments, disconnections and bad debts, which also reduced revenues. Moreover, some respondents noted that under the manual billing system, a number of water consumers were often never billed either erroneously or through collusion; thus, no revenues were obtained from such consumers. High prevalence of non-payment on the part of government institutions, whose disconnection follows a long procedure, also amplified financial management challenges. The ability of water utilities to meet revenue targets was also constrained by sub-optimal water tariffs, inconvenient payment methods, high proportions of non-revenue and unaccounted-for water, as well as low metering coverage. Respondents noted that all these factors contributed to financial constraints, which affected delivery of water services.

The fifth aspect in the order of relative importance was compliance of procurement activities to relevant legal provisions *(CLProvisions)*, with a relative weight of 0.732. Notably, up to 102 (63.3%) respondents felt that procurement activities were not compliant to relevant legal provisions. In this regard, respondents cited challenges such awarding of tenders to firms associated with some senior management officers or board members; inflation of prices, which distended expenditure and caused budget overruns; splitting tenders into two or more sub-tenders in order to sidestep threshold provisions and necessary procurement procedures; creating emergency situations where procurement of goods and services can be approved without going through the necessary procurement procedures. Deliberate emergency procurement manifested through actions such as failure to assess needs in time and to take necessary precautions; delayed preparation of procurement plans, as well as intentional under-stocking of consumables to justify emergency purchases. Regardless of the underlying factors, emergency procurements were linked to over-quoted prices, which in turn, inflated the amount of resources spent to procure goods, services, and works.

Conformance of expenditure with approved budgets *(EABudgets)* was the sixth aspect in the order of relative importance (relative weight = 0.709). In this regard, up to 100 (62.1%) respondents felt that expenditures did not conform to approved budgets. Respondents attributed budget overruns to various factors, including over-expenditure of water revenues in activities that are not directly relevant to delivery of water services, such as foreign trips, conducting too

many studies using consultants, as well as too many training workshops. Budget overruns were also linked to procurement malpractices, such as inflation of prices, splitting tenders into smaller units for unilateral approval, creating too many emergency situations where procurement activities were done without following due procedures. Frequent breakdown of pumping equipment also contributed to budget overruns. Regardless of the underlying factors, respondents concurred that budget overruns triggered financial crunch, which constrained defrayal of O&M costs and continuous delivery of water services. Respondents also noted that water utilities often responded to financial crises by introducing various sudden austerity measures, which in most cases, affected the welfare of workers in terms of salary, allowances and safety gears; acquisition of necessary office and water treatment supplies; monitoring of the distribution networks, as well as response to emergency repairs and maintenance of the distribution network. These findings amplify the need for water utilities to initiate mechanisms for curbing unnecessary expenditures and procurement malpractices, thereby ensuring that all expenditures conform to approved budgets.

Concordance of perceptions on financial management and financial sustainability of water utilities

The analysis generated mean rank for each aspect of financial management, which indicates the relative strength with which they influenced financial sustainability of public-private water utilities. In this regard, Table 7 shows that effectiveness of internal audit unit in enforcing expenditure control policies *(IAPolicies)* was the strongest aspect influencing financial sustainability of the utilities (mean rank = 3.85). This was followed by relevance of activities on which revenues are spent *(REActivities)* with a mean rank of 3.66; effectiveness of external audit in improving financial management practices *(EAPractices)* with a mean rank of 3.47; as well as consistency of the utilities in achieving revenue targets *(RVTargets)*. Ranking fifth was compliance of procurement activities to relevant legal provisions *(CLProvisions)* with a mean rank of 3.18, while conformance of expenditure with approved budgets *(EABudgets)* ranked last (mean rank = 3.04).

Table 7: Concordance of perceptions regarding aspects of financial management

Ranks		**Test Statistics**	
Aspects of financial management	Mean Rank	N	161
RVTargets	3.32		
REActivities	3.66	Kendall's W	0.907
EABudgets	3.04	Chi-Square	77.336
CLProvisions	3.18	df	5
IAPolicies	3.85	ρ-value	0.000
EAPractices	3.47		

The analysis obtained a coefficient of concordance (Kendall's W) of 0.907, which suggests a strong concordance of respondents' perceptions regarding the relationship between the aspects of financial management and financial sustainability of the public-private water utilities. The analysis also obtained a computed Chi square (χ^2) of 77.336, with 5 degrees of freedom (df) and a significance value (ρ-value) of 0.000, which suggest up to 99% chance that respondents' perceptions regarding the relationship between aspects of financial management and financial sustainability of the utilities were concordant. The results suggest that all the aspects of financial

management were significant influencers of financial sustainability of the public-private water utilities. Consequently, none should be overlooked when planning and financing appropriate response interventions.

CONCLUSIONS AND IMPLICATIONS

The study examined the relationship between various aspects of financial management and financial sustainability of public-private water utilities, based on perceptions of water officers holding managerial, operations, technical, commercial and finance positions. Perceptions are developed from past or present interactions with one's social, economic, political or work environment. Perceptions can be used to predict future trends or behaviors in response to changes in such environments. The purpose of the study was to generate empirical evidence to support relevant policy discourses and management of the public-private water utilities, as well as spur further research on the subject, not only in Kenya but also in other developing countries. More specifically, the study was expected to determine bivariate relationship between aspects of financial management and financial sustainability; examine the relative importance of financial management aspects based on the strength of correlation with financial sustainability; as well as determine the concordance of perceptions regarding the relationship between aspects of financial management and financial sustainability.

The results show that financial sustainability of the water utilities significantly and positively correlated with effectiveness of internal audit unit in enforcing expenditure control policies (rho = 0.474 & ρ-value = 0.000); relevance of activities on which revenues are spent (rho = 0.411 & ρ-value = 0.000); effectiveness of external audit in improving financial management practices (rho = 0.410 & ρ-value = 0.000); consistency of the utilities in achieving revenue targets (rho = 0.330 & ρ-value = 0.003) and compliance of procurement activities to relevant legal provisions (rho = 0.319 & ρ-value = 0.005). However, the analysis obtained a significant negative correlation between financial sustainability and conformance of expenditure with approved budgets (rho = -0.268 & ρ-value = 0.034). Furthermore, effectiveness of internal audit unit in enforcing expenditure control policies emerged as the most important aspect of financial management influencing financial sustainability of the utilities, with a relative weight of 0.821. Second in the order of relative importance was the relevance of activities on which revenues are spent (relative weight = 0.808), followed by effectiveness of external audit in improving financial management practices, which generated a relative weight of 0.795; consistency of the utilities in achieving revenue targets (relative weight = 0.773); compliance of procurement activities to relevant legal provisions (relative weight = 0.732), as well as conformance of expenditure with approved budgets (relative weight = 0.709). The study also revealed a strong and significant concordance of respondents' perceptions regarding the relationship between each aspect of financial management and financial sustainability of the water utilities (Kendall's W= 0.907, χ^2 = 77.336, df = 5 & ρ-value = 0.000); implying that all the aspects deserve appropriate response interventions in order to enhance potential of the utilities to achieve financial sustainability.

Internal audit enables organizations to manage their resources by enforcing expenditure control policies; appraising financial statements, procedures and systems; as well as making appropriate recommendations for improving management of organizational resources. In this regard, internal

audit provides necessary information to support expenditure control decisions. However, the extent to which internal audit fulfils this mandate is primarily a function of its capacity gaps. This study revealed that internal audit units were characterized by gross under-staffing, lack of training opportunities and lack of independence, all of which undermined capacity to enforce expenditure control policies and prevent loss of financial resources through fraudulent expenditures. Strengthening internal audit is an indispensable foundation for public-private water utilities to achieve financial sustainability. This may be achieved by optimizing staffing levels and establishing staff development programs, which should improve skills, knowledge and understanding of organizational risks, stakeholder expectations, cost optimization, credible service culture, as well as application of appropriate internal audit ICT applications, among others. Enhancing capacity and independence of internal audit units remains vital for responsible management of financial resources, towards achievement of financial sustainability.

Meeting revenue targets may not necessarily lead to financial sustainability, unless such revenues are spent on activities that are relevant to an organization's core business, mission and vision. Ideally, expenditure policies, which form part of annual financial budgets, should define activities on which organizational revenues are spent. However, having expenditure policies is one thing, adherence to such is another. The latter is often influenced by factors such as lack of commitment to the strategic focus of water utilities, weak structures for internal expenditure control, weak boards of directors, political interference and ineffective external audit, among others. Needless to say, expenditure of revenues on irrelevant activities usurps resources meant for repairs and maintenance of infrastructural facilities. In the context of water supply, expenditure of revenues on activities not related to service provision is one of the factors precipitating financial constraints, which in turn, impedes financial sustainability of water utilities in Africa and other developing countries. This study identified various activities that were considered irrelevant to the core business, mission and vision of water utilities, including too many workshops and seminars, foreign trips, staff retreats and studies. Reducing expenditure on such activities and focusing more on defrayal of O&M costs, as well as expansion of infrastructural systems are crucial antecedents for the financial sustainability of public-private water utilities. This may be achieved by strengthening the management, internal audit and boards with appropriate training to enhance commitment to the strategic focus of water utilities and fiscal discipline, as well as improve implementation of external audit recommendations.

External review of financial statements by an independent auditor provides credible opinions about the accuracy of financial statements, how fairly such statements reflect the financial position of an organization and the degree to which the statements comply with universal accounting principles. In this regard, external audit provide assurance to stakeholders that an organization's resources are managed properly and that financial records are accurate and complete. More importantly, external audit points out inappropriate financial management practices that require corrective measures to enable organizations improve financial performance towards financial sustainability. In this regard, external audit processes are expected to recommend appropriate measures that should be taken by organizations to minimize wastage of resources or promote greater efficiency by tightening accounting practices. In the context of public-private water utilities, external audits are conducted by government auditors, albeit with challenges such as delays, inconsistency and lack of mechanisms for ensuring recommendations are implemented. Effectiveness of external audit

optimizes when it's performed consistently, timely, objectively and inclusively. Besides, the value of external audit escalates when it delivers opinions that are acceptable to stakeholders and recommendations are implementable. An external audit process that fails to embrace such qualities reduces to a mere formality with no capacity to curb financial malpractices and support public-private water utilities to achieve financial sustainability.

Revenue is the primary path through which organizations improve their financial status and lay a strong foundation for achieving financial sustainability. There are many ways through which organizations generate revenue, and the ones adopted depend on an organization's core business, mission and vision. In the context of water supply, revenue is principally generated by delivering water to metered users and charging user fees. Depending on the context, various factors militate against achievement of revenue targets between the point when water is pumped to users and the point when utilities receive their dues. This study identified high proportions of non-revenue and unaccounted-for water, poor billing systems, sub-optimal tariffs, as well as inconvenient payment methods as the main factors preventing public-private water utilities from achieving revenue targets. This amplifies the need for water utilities to initiate appropriate strategies for reducing losses through the distribution system, optimizing tariffs, as well as improving billing systems and payment methods. Notably though, reducing non-revenue and unaccounted-for water is a daunting challenge, particularly in contexts where utilities lack appropriate technology and technical skills for detecting leakages, as well as sufficient budgetary resources. In Kenya, the water sector is constrained by perennial budgetary deficits, which makes it difficult for the public-private water utilities to acquire necessary technology and build the capacity of workers, in order to tackle high proportions of non-revenue and unaccounted-for water. Nonetheless, less demanding programming options, such as partnership with communities, is likely to go a long way in curbing loss of water in the distribution system by improving reporting of physical leakages, spillage and illegal connections for timely action by utilities. Other necessary actions include transition from manual billing systems to computerized systems; adopting payment methods that are versatile and convenient, as well as low in transaction costs, travel time, queuing time, as well as paperwork. Lastly, utilities should initiate appropriate systems for monitoring and data capture, which should facilitate setting and managing optimal water tariffs.

Procurement is central to expenditure management and financial sustainability of both public and private sector organizations. Procurement activities provide the avenue through which financial resources are injected into economies, which in turn, creates employment and improves incomes. Ironically, procurement is also the channel through organizations lose the largest proportion of their financial resources through irregular practices. In the context of public-private water utilities, procurement can either improve or undermine financial sustainability, depending on the extent to procurement activities comply with necessary legal provisions. This study identified irregularities such as awarding of tenders to firms associated with some senior management officers or board members; inflation of prices, which distended expenditure and caused budget overruns; splitting tenders into two or more sub-tenders in order to sidestep threshold provisions and necessary procurement procedures; creating emergency situations where procurement of goods and services can be approved without going through the necessary procurement procedures. In Kenya, procurement in the public sector is well provided by the Public Procurement and Disposal Act, Procurement Regulations and numerous sector-specific procurement guidelines. However, having necessary legal provisions and compliance of

procurement activities to such are two sides of a coin. Adherence to procurement legal provisions is vital for minimizing loss of financial resources through irregular practices. This may be achieved through appropriate training for all water officers in senior cadres and board members; as well as strengthening linkages with Public Procurement Oversight Authority and other relevant government agencies.

Budgeting is an essential aspect of financial management that enables organizations to estimate revenues, determine priority activities for spending, plan and control expenditures, promote fiscal discipline and boost investor confidence. By controlling expenditures, budgets enable organizations to avoid overruns, which deplete contingency resources, cripple operations, prevent timely defrayal of O&M costs, and threaten the very survival of an organization. In the context of water service provision, budget overruns is a common challenge to water utilities. This study attributed budget overruns to various factors, including over-expenditure of water revenues in activities that are not directly relevant to delivery of water services, procurement malpractices, as well as frequent breakdown of pumping equipment. Budget overruns triggered financial crunches, which constrained operations, defrayal of O&M costs and continuous delivery of water services. There is no doubt that too many financial crunches are not good for achievement of financial sustainability. Consequently, addressing the underlying factors remains crucial for public-private water utilities to align all expenditures with approved budgets. This may be achieved by providing appropriate training to the management, internal audit and board members with a view to enhancing commitment to the strategic focus of water utilities, improving fiscal discipline, as well as improving implementation of external audit recommendations. Other inevitable interventions should focus on strengthening the procurement function through training and linkage with oversight authority; thereby, curb unnecessary expenditures and procurement malpractices, which often lead to budget overruns.

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