Steering Water Accountability and Governance towards achieving SDG 6 in Nigeria and Ghana: The roles of the Accounting Profession

by

Innocent Okwuosa, Mohamed Chelli, Mercy Denedo, Osamuyimen Egbon, Amanze Ejiogu, and Shafic Suleman

About the authors

Dr Innocent Okwuosa is a faculty member of Pan Atlantic University, Nigeria. His research is in the areas of sustainability and integrated reporting, international financial reporting standards, accounting, and accountability. He is a member of the International Panel on Accounting Education (IPAE) and the International Federation of Accountants (IFAC) board member. Currently, he is the President of the Institute of Chartered Accountants of Nigeria (ICAN).

Dr Mohamed Chelli is an Associate Professor at the Telfer School of Management, University of Ottawa. His research is in the areas of corporate environmental disclosure, corporate water performance, corporate human rights discourse, housing and financial literacies, teleworking, amid others. He has published in the Journal of Business Ethics, Accounting, Auditing and Accountability Journal, and Organizational Research Methods.

Dr Mercy Denedo works in the Accounting Department at Durham University Business School as an Associate Professor. Her research interest focuses on interdisciplinary studies on accountability, human rights accountability, sustainability accounting, social housing, counter accounting, prisons, gambling and domestic, and sustainable development goals.

Dr Osamuyimen Egbon is a Lecturer in Accounting (Assistant Professor) at the Essex Business School, University of Essex, UK. He is interested in studies that explore the intersection of organisations, sustainability and society. He has published on topics that explore accountability relations, social and environmental reporting, NGO accountability and community engagement, corporate social responsibility, and sustainability (including the Sustainable Development Goals) in diverse contexts.

Dr Amanze Ejiogu is a Professor of Accounting, Society and Accountability at the Sheffield Business School, Sheffield Hallam University. His research focuses on how accounting interfaces with societal issues and spans areas including sustainability, extractive industry, housing, prisons and gambling.

Dr. Shafic Suleman is a Senior Lecturer at the Institute for Oil and Gas Studies, University of Cape Coast, Ghana. He specializes in energy policy and sustainability. He holds a PhD in Energy and Sustainability from the De Montfort University in Leicester, UK. He is a certified Energy Risk Professional (ERP) from the Global Association of Risk Professionals (GARP-USA).

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Any correspondence about this report should be sent to the authors through Dr Innocent Okwuosa @iokwuosa3@yahoo.co.uk

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List of Abbreviations

ACCA – Association of Chartered Certified Accountants

CDP – Carbon Disclosure Project

CSIR-WRI – Water Research Institute of the Council for Scientific and Industrial Research

CSP – Corporate Social Performance

CWSA - Community and Water and Sanitation Agency

EPA – Environmental Protection Agency

ESG – Environment, Social, and Corporate Governance

FGN - Federal Government of Nigeria

FMWR - Federal Ministry of Water Resources

GNWP - Ghana National Water Policy

GRI – Global Reporting Initiative

GWCL - Ghana Water Company Limited

IASB – International Accounting Standards Board

IFRS – International Financial Reporting Standard

ISSB – International Sustainability Standards Board

JSE – Johannesburg Stock Exchange

KLD – Kinder, Lydenberg and Domini

LFN - Law of the Federation of Nigeria

MDG - Millennium Development Goal

MWRWH - Ministry of Water Resources, Works and Housing

NGO – Non-governmental Organisation

NWP – National Water Policy

NWRP - National Water Resource Policy

PURC – Public Utilities Regulatory Commission

RBB – River Basin Board

SASB – Sustainability Accounting Standards Board

SDG – Sustainable Development Goal

SME - Small and Medium-sized Enterprise

WACAM – Wassa Association of Communities Affected by Mining

WASCs – Water and Sewage Companies

WASHCOM – Water, Sanitation & Hygiene Committee

WCA – Water Consumer Association

WRA - Water Resource Act

WRCA - Water Resources Commission Act

WUR - Water Use Regulation

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Executive Summary

The Sustainable Development Goal (SDG) 6 and its targets recognise the importance of clean, accessible and affordable water for all and advocates for the achievement of water security to ensure the availability and sustainable management of water and sanitation for all. This is essential in addressing the increasing global water crisis which disproportionately affects the poor and vulnerable in society, particularly those in developing countries. Key to the achievement of SDG 6 is the presence of robust water governance and accountability mechanisms as the world water crisis or scarcity has been largely linked to deficient governance and by extension the mismanagement of available water resources and the lack of effective accountability mechanisms to facilitate the provision of clean and affordable water for all. For emphasis, governance in the context of water is about who gets what water, when they get it, how they get it, what water quality they get and who has a right to water, water services and the accruing benefits. How these are determined differs across societies. Accordingly, different climes are to adopt pragmatic approaches consistent with their peculiarities.

Although Nigeria and Ghana have abundant water resources, yet they are facing an ever-increasing water crisis. Whilst water is construed as a fundamental human right, it is also increasingly viewed as an economic good in both countries. This opens up spaces to query not only the effectiveness of how water-related issues have been governed and managed but also the countries' genuine commitment to the SDGs, particularly SDG 6. In this report, we aim to contribute towards providing solutions to the water crisis experienced in both countries via the active participation of the accounting profession as an agent of social change in society. The report underpins an agenda to bring water, a critical issue of economic and social development, to the front burner of accounting sustainability thinking, discourse, engagement and practice in an era of sustainability-conscious society. Thus, in this report, we specifically develop an understanding of the nature of water governance and accountability practices in Nigeria and Ghana and explore the roles that the accounting profession can play in promoting water governance and accountability towards achieving SDG6 in both countries.

The key findings of the study

Our findings highlight there is an increasing demand for water in Nigeria due to rising population, while the failure of water services delivery results from, amongst others, ineffective governance, top-down and supply-side approaches, along with the inadequate involvement of wider stakeholders, insufficient funding of investment in water infrastructures and the ineffective management of extant water infrastructures. This indicates that effective water governance mechanisms will be influenced by

the individual context, water challenges experienced at the micro level, socio-cultural and socio-economic challenges, and the political and regulatory settings that enable effective accountability for the provision of clean quality water for all.

In Nigeria, the Water Resources Bills designed to enable integrated water resources management were politically controversial for centralising the control of water resources solely to the Federal government. Fundamental changes are required for the effective and efficient management of water resources in Nigeria consequent on identifiable challenges such as unclear roles of government at all levels and their agencies, wastages, duplication of efforts, lack of accountability and inefficient management, deplorable water infrastructures, and poor project planning and designs due to inadequate water resources data.

On the other hand, in Ghana, our findings revealed that the regulatory space for managing water resources is broad and dysfunctional. It involves different regulations, policies and underfunded agencies, sometimes with overlapping functions. Our findings highlighted that approximately 87% of households in Ghana have access to water but only 45% of revenue from accessed water is accounted for. Despite the regulatory initiatives to promote sustainable water resources in terms of availability, accessibility, and affordability in the right quantity and quality, the Ghanaian government and its agencies have failed to achieve the desired goals as several households in rural and urban areas still lack access to basic water. In addition, critical to the water challenges in Ghana are environmental degradation and pollution of Ghana's water bodies combined with the complacency of the government in mobilising relevant policies and regulations to tackle them. More worrying, the absence of water data, control and regulation makes it difficult to gather, measure, track and audit water-related information, which by default opens an urgent space for accounting intervention.

We also observed that in Ghana and a couple of States in Nigeria a bottom-up approach has been applied in developing a community water initiative for the provision of sustainable water by developing an accountability and governance framework to achieve SDG 6. It is a laudable initiative because rural water projects before this initiative were not sustainable because of a lack of maintenance driven by the principle that the communities would be responsible for the costs of running the facilities. Underpinned by the notion that the water facilities are the governments', communities make little or no effort to protect or maintain them. In contrast, the bottom-up accountability-driven water initiative approach offers the communities a sense of ownership of the water projects, motivating them to both look after them and ensure their sustainability.

Importantly, our study not only highlighted the desirability of well-articulated and functioning water governance and accountability but also the collaborative exigencies for them to achieve their objectives in reality. Sustainable actions are required to address these challenges and such actions include the government setting the right tone at the top, reform of the extant water governance, decentralisation of the governance framework and creation of effective accountability mechanisms, continuity of government policy, effective data generation, water resources management framework and performance appraisal, planning, financing, monitoring and evaluation of policies. As a corollary, the accounting profession in conjunction with other key stakeholders including citizens, NGOs, and academics, among others, have critical supportive roles to play in shaping and designing water policies and enabling the environment that informs sustainable water investments and decisions. Accountants need to be involved at every stage of water projects. For instance, their involvement is valuable at the conceptual stage of water projects, in setting the standard to ensure that the projects are accurately costed, and adequate funding allocations are solicited to finance them, and the allocated funds are used for their intended purposes. While venturing into this space would create further visibility and opportunities for the accounting profession, it nonetheless broadens its responsibility in a dynamic society, which invariably would require professional re-orientation, sustainability thinking, upskilling and capacity-building, and developing negotiation, diplomacy, lobbying and political skills at both national and international levels.

Recommendations

Following our findings, we provide the following recommendations to drive the sustainable changes required to achieve SDG 6:

i. The accounting profession should leverage its influence, networks and resources to develop and engage with relevant government agencies, institutions and policymakers to drive the establishment of an effective water accountability and governance framework that will operate in the case study countries, which can then be monitored and prioritised by their accounting profession.

ii. Awareness should be created by the Professional Accounting Organisations (PAOs) about the roles that accountants can play in championing water accountability and governance in Nigeria and Ghana.

iii. Attention should be given to developing accountants' skills to engage in water accountability and governance (e.g., through accounting education - curriculum, Continuing Mandatory Professional Education (MCPE), Certifications, Inductions/Orientations, Working with subject matter experts).

iv. The accounting profession should actively advocate for water accountability and governance with relevant government agencies and arms (strategically or tactfully utilising diplomacy, negotiation, and lobbying). This is important as the government and its agencies are key stakeholders in the development of any water governance, accounting and accountability framework.

v. Prioritise the establishment of a water accounting steering group drawn from accounting practitioners and researchers, in conjunction with other key relevant stakeholders. The committee can then contemplate potential modes of developing water accountability whether by promoting guidelines emanating from the accounting institutions or regulators or by adapting international standards into localised standards (prioritising local peculiarities) to make them easily accessible by accountants in both countries.

vi. Give priority to sustainability thinking to promote the mainstreaming of SDG 6 and other SDGs into accounting practices in Nigeria and Ghana in the future. This might necessitate inaugurating a sustainability think-tank for water.

vii. Continuous engagement with the International Sustainability Standards Board to prioritise or support water accounting initiatives of Nigeria and Ghana in the short term and promote a global water standard in the long term.

viii. Support should be mobilised from various national accounting institutes and bodies across Africa led by the Pan African Federation of Accountants (PAFA) to build solidarity and strong voices at the International Sustainability Standards Board (ISSB) and the International Accounting Standards Board (IASB) agenda-setting stage.

1.0. Water accountability and governance, and SDG 6: what we did

1.1. Introduction

Adopted in 2015 by United Nations Member States, the 2030 Agenda for Sustainable Development recognizes that poverty is the greatest global challenge, and that eradicating poverty is critical to achieving sustainable development. Central to this agenda is the 17 Sustainable Development Goals (SDGs) which represent an urgent call to action for all countries to work towards ending poverty and other deprivations as well as enacting strategies to improve health and education, reduce inequality and spur economic growth for all while protecting and preserving our environment. Recognizing the importance of water, SDG 6 focuses on achieving water security by ensuring the availability and sustainable management of water and sanitation for all" and sets out several targets to facilitate a life cycle approach for water access and management.

There are 8 targets under SDG 6 and they include - access to safe and affordable drinking water for all (Target 6.1), adequate and equitable sanitation and hygiene for all (Target 6.2), improving water quality through reducing pollution and the treatment of wastewater to improve water quality (Target 6.3.), increasing water efficiency and freshwater supply to address water scarcity (Target 6.4), implementation of integrated water resources management (Target 6.5), protection and restoration of water-related ecosystem (Target 6.6), international co-operation and capacity building support (Target 6. a) and supporting and strengthening the participation of local communities in water and sanitation management (Target 6. b) (United Nations, 2015) (see Appendix 1). This focus on water is essential in tackling the growing global water crisis in which one-quarter and one-third of the global population lack access to safely managed water services and sanitation services respectively (Arora and Mishra, 2022; Hepworth et al., 2022).

Several African countries (Naik, 2017) including Nigeria and Ghana are facing a water crisis (Abubakar, 2018; Adjei-Mensah and Kusimi, 2020; Jeil et al., 2020; Ngene et al., 2021). According to the UN World Water Development Report (2003), the world's water crisis was linked to a governance crisis, essentially causing the mismanagement of water. Besides natural and human factors, the water crisis is exacerbated by and rooted in critical socio-political, power imbalance and inequality. For example, Ngene et al. (2021), Jimenez et al. (2020) and Bertule et al. (2018) adduce water crisis or scarcity to crisis of governance, weak institutions, insufficient water infrastructure, poverty and inequality, and that poor water governance and the mismanagement of available water resources have significant impacts in inducing the water crisis. Hepworth et al. (2022) link it primarily to poor governance and further posit that strong accountability will promote better governance, and a good governance mechanism will have a long-term impact on the management of water resources.

Effective water accountability thus holds the potential not only as a complementarity of water governance but also as its enabler. Water governance is a prerequisite for water accountability and improving access to water and water resource management for the benefit of all. For instance, Jimenez et al. (2020, p.3) described water governance as a "combination of functions, performed with certain attributes, to achieve one or more desired outcomes, all shaped by the values and aspirations of individuals and organisations." It is a multi-stakeholder decision-making process that defines functions, attributes and outcomes that "determines who gets what water, when and how, and who has the right to water, related services and their benefits" (Jimenez et al., 2020). This indicates that access to an effective water governance mechanism would be influenced by the individual context, water challenges, socio-cultural and socio-economic challenges, and political and regulatory settings (Bertule et al., 2018). Effective water accountability and governance mechanisms will be highly context-specific to enable the achievement of universal goals such as SDG 6 and this requires an institutional arrangement with a clearly defined multilevel water governance mechanism (Di Vaio et al., 2021). Consequently, in this report, we are motivated to contribute towards finding pragmatic solutions to the water crisis in two countries, Nigeria and Ghana, by exploring how governance and accountability practices can enable the achievement of SDG 6, particularly target 6.1, which comprises the "universal and equitable access to safe and affordable drinking water for all".

Although Nigeria and Ghana are blessed with abundant water resources, they have been facing an alarming water crisis for decades (Adeniji-Oloukoi et al., 2013; Lohdip and Gongden, 2013; Ngene et al., 2021; Sapienza *et al.,* 2012). This poses critical questions not only about the effectiveness of how water-related issues have been governed and managed in both countries but also about the countries' genuine commitment to the SDGs, particularly SDG 6. Indeed, although there is limited literature on water governance in these countries, there is a lack of evidence on how relevant water-related data such as efficiency, quality, quantity, monitoring, budget, and infrastructure, amongst others, are created and accounted for. In this regard, and taking account of the evolving nature of accounting, we propose that the accounting profession has a significant role to play in initiating and developing effective water governance (Carnegie et al., 2021). We implicate accounting in water governance and accountability by drawing on Carnegie et al.'s (2021, p.69) conception of accounting as "a technical, social and moral practice concerned with the sustainable utilisation of resources and proper accountability to stakeholders to enable the flourishing of organisations, people and nature."

1.2. Research Objectives

This report seeks to examine water governance and accountability in Nigeria and Ghana in achieving the SDG 6 targets. The aim is to develop a better understanding of what constitutes water governance and accountability practices in these countries and how the accounting profession can play a leading role in them. Therefore, the objective of the study is to:

a. Understand the nature of water governance and accountability practices in Nigeria and Ghana.
b. Explore the roles that the accounting profession can play in promoting water governance and accountability towards achieving SDG 6 in Nigeria and Ghana.

The expected outcome is not only to understand the water governance practices in place but also to offer insights that would ensure the operation of good water governance and accountability and highlight the role accounting and accounting professionals can play in this. Good water governance embodies systems designed to ensure the effective development and delivery of water services, which is also characterised by "inclusiveness, responsiveness, accountability, and transparency" (Ngene et al., 2021, p.6; *see also* Di Vaio et al., 2021; Mycoo, 2018).

1.3. Research Approach

We address our research objectives by carefully obtaining data from different relevant sources and analysing them to offer an understanding that will promote better water governance and accountability towards achieving SDG 6 in Nigeria and Ghana with the strategic participation of the accounting profession in conjunction with other key stakeholders.

Our data-gathering process started with an online search of publicly available media reports on water issues in Nigeria and Ghana. Consistent with the long-lasting feature of the water crisis in both countries, we adopted a longitudinal approach to search for relevant documents (Section 4). We used keywords, such as water issues, water crisis, water scarcity, water shortage, potable water, water sanitation, water policies, and water resources spanning the period of 2008-2022. This period coincides proportionately with the pre-and post-SDG era, 7 years before and 7 years after. This first step enabled us not only to better understand the broader context of the water crisis in Nigeria and Ghana, especially

from the media perspective, but also to identify some fundamental and frequent issues related to water governance and accountability in both countries.

Leveraging on the team's network and a snowballing approach to recruiting relevant participants in Nigeria and Ghana, we conducted 20 individual semi-structured interviews and 4 focus groups. Three focus groups comprised 2 participants each and the fourth comprised 3 participants. Our participants were drawn from a range of stakeholders (e.g., Big-4 and local audit firms, professional accounting bodies, multilateral donor agencies, State water corporations, water-related NGOs, accounting and capital market regulators, State SDG agencies, Water resources experts) who brought diverse and enriched insights to the study about water governance and accountability in Nigeria and Ghana. Each interview lasted an average of 66 minutes. All interviews were conducted virtually via Zoom with at least two of the researchers in attendance[1]. All interviews were recorded and transcribed. They were conducted on a confidential basis, thus the empirical evidence reflected below was not attributed to any specific person, group or organisation that participated in this study. The identities of our participants were anonymised using specific codes. Table 1 provides more information about our interview data.

Table 1: Overview of the Interviewees

Participants' codes	**Affiliation**	**Designation**	**Country (Nigeria/Ghana)**
Big4 A	Big-4 Audit Firm	Partner	Nigeria
Big4 B (FG)*	Big-4 Audit Firm	Manager, & Associate	Nigeria
Big4 C	Big-4 Audit Firm	Partner	Nigeria
Big4 D	Big-4 Audit Firm	Partner	West Africa
Big4 BX	Big-4 Audit Firm	Partner	Africa Region
ACC1	Professional Accounting Bodies	CEO	Nigeria
ACC2	Professional Accounting Bodies	CEO	Nigeria

[1] However, one of the research team members did not contribute to the entire interviewing process, including the identification of participants.

AMR1	Accounting & capital market regulator	Director	Nigeria
AMR2	Accounting & capital market regulator	Director	Nigeria
MLO	Multilateral donor agency	WASH Specialist	Nigeria
NGO1	Water-related NGO	WASH Country Lead	Nigeria
NGO2	Water-related NGO	WASH Programme Director	Nigeria
SWC1 (FG)*	State Water Corporation	Managing Director, Water Engineer, & Field Officer	Nigeria
SWC2	State Water Corporation	Regional Administrative Manager	Ghana
WR1N (FG)*	Water & Sanitation Regulator	Finance Director, & Assistant Chief Chemical Engineer	Nigeria
WR2N	Water & Sanitation Regulator	Deputy Director	Nigeria
WR1G	Water & Sanitation Regulator	Executive Secretary	Ghana
WR2G (FG)*	Water & Sanitation Regulator	Director, & SDG Head	Ghana
SSDG1	State SDG Agency	Engineer – SDG Desk Officer	Nigeria
SSDG2	State SDG Agency	SDG Monitoring and Evaluation Head	Nigeria

WRE1	Water Resources Expert	Professor/Consultant	Nigeria/UK
WRE2	Water Resources Expert	Freelance Consultant	Ghana
SAF1	Local audit firm	Partner	Nigeria
WSME	Water Small and Medium Enterprise	CEO	Nigeria

*(FG) implies participants were part of the focus group.

2.0. Water accounting, accountability and governance: A literature review

2.1. Contextualising governance and accountability

Much like the umbrella term 'governance' (Tortajada, 2010), water governance is a broad concept with fluid meanings (Woodhouse and Muller, 2017). While governance is different to government, it is a complex process involving multi-level participation that cuts across the state, private sector, civil society and the public (Tortajada, 2010). Good governance in place thus "embraces the relationships between governments and societies, including laws, regulations, institutions, and formal and informal interactions which affect how governance systems function, stressing the importance of involving more voices, responsibilities, transparency and accountability of formal and informal organisations associated in any process" (Tortajda, 2010, p.298). In terms of water governance, it can be viewed broadly as "*the range of political, social, economic and administrative systems that are in place to develop and manage water resources, and the delivery of water services, at different levels of society*" (Rogers and Hall, 2003, p.7). Put differently, water governance is about who gets what water, when they get it, how they get it, what water quality they get and who has a right to water, water services and the benefits which accrue from these. How these are determined is bound to differ across societies. Nevertheless, fundamental to water governance are accountability and advocacy interventions (Hepworth et al., 2022) and clear policies on water such as budgeting, pricing, and monitoring (Tortajada, 2010).

Indeed, Woodhouse and Muller (2017) argue that the context which circumscribes individual and societal interaction with water frames the way the relationship with water is viewed and described. Thus, the materiality of water, its multifaceted nature as a vital natural resource and its often competing (and complementary) uses, all impact the way society views water. They argue that this in turn determines how water governance is constructed and enacted in that society, which in a sense explains the wide variations in water governance and the goals it seeks to achieve across societies. A review of the literature on water governance identifies three debates on water governance: (i) who should participate in decision-making, (ii) the geographical and political scale at which institutions should operate, and (iii) the role of market and non-market criteria in water allocation (Whaley, 2022; Woodhouse and Muller, 2017). Thus, the literature points to water governance as referring to the enabling environment in which water management actions take place. Such an enabling environment will include policies, strategies, plans, finances, legal and regulatory frameworks, and institutions; and planning, decision-making, transparency and accountability processes (Tortajada, 2010).

Accountability is a difficult concept to define and is often portrayed as having chameleon-like qualities (Sinclair, 1995). However, in the broadest sense, accountability is concerned with the processes and mechanisms by which individuals and institutions are made to answer for their conduct (actions and inactions) as well as to bear the consequences (rewards or sanctions) of their conduct (Chynoweth *et al.,* 2018; Roberts and Scapens, 1985). Thus, accountability entails responsibility, answerability and enforcement and is linked with increasing operational efficiency and effectiveness of service delivery as well as improved quality of governance linked with improved governance (Brinkerhoff and Wetterberg, 2016; Jiménez et al., 2018; Romzek and Dubnick, 1987; Schelder, 1999).

Literature on water accountability more specifically is sparse and has tended to frame accountability primarily in terms of human rights. This framing draws on the United Nations' recognition of the human right to water and sanitation and its acknowledgement that clean drinking water and sanitation are essential to the realisation of all human rights[2]. Here, the State is recognized as the duty bearer (holders of human rights obligations) for ensuring access to water and sanitation and the states are accountable to their citizens (right holders) for this obligation (Jiménez *et al.,* 2018). Key to the achievement of water as a human right is the notion of accountability as it is only through accountability mechanisms that the State can be held accountable for ineffective services, inadequate performance standards, inappropriate tariffs, and inadequate social policies and regulations amongst other things. Thus, water accountability is "*the ability to review, explain, and report performance against rules, responsibilities, and obligations, and to react constructively to improve performance through sanctions, incentives, or corrective measures*" (Accountability for Water, 2020).

Increasingly, the practice of water accountability has sought to involve citizens (right holders) more directly in holding the State accountable and so a *'social accountability'* framing of water accountability has started to emerge (Paré and Robles, 2006; Roncoli *et al.,* 2016; Sahu, 2010). Here, attention is paid to citizens' voice and their ability to influence the nature of service delivery as well as to hold the State accountable for performance. As such, multi-stakeholders beyond the State/government have roles to play within the water accountability landscape in enabling sustainable water accessibility and security.

2.2. Role of Accounting in Relation to Water Governance and Accountability

There is not much accounting literature on water, but a lot has been written from the perspective of a broad range of disciplines. However, what literature there is can be categorised into two broad streams.

[2] United Nations General Assembly Resolution 64/292 of 28 July 2010

The first stream deals with accounting as it intersects with the neoliberal privatisation of the water sector in several countries as well as the introduction of new public management into the water sector. In this regard, Rahaman *et al.* (2007) show how accounting is enlisted by proponents and resistors of the privatisation of water in Ghana to support their stance and position the privatisation debate in terms of various accounting notions including 'profitability', 'affordability', and 'accountability'. Similarly, Jollands and Quinn (2017) highlight how the Irish Government draws on accounting concepts to assist in the implementation of domestic water billing. Some papers in this stream highlight the changing nature of accountability because of neoliberal reforms including privatisation and new public management. For instance, Mutiganda *et al.* (2021) analyse how the implementation of public-private partnerships in rural water supply has led to new accountability structures, Ogden (1995) examines the role accounting plays in articulating organisational priorities and focusing organisational motive on costs and profits, while Ogden and Anderson (1999) highlight how accounting information systems have changed to provide enhanced scrutiny of performance in privatised water corporations and in so doing impacted on performance.

The second stream in this literature is more focused on corporate water disclosure and internal governance. Initial papers in this stream focused on the public sector and privatised water corporations. For example, Ogden and Clarke (2005) illustrate how privatised water companies in the United Kingdom use corporate reporting for legitimacy purposes, and Vinnari and Nasi (2013) show how boards of directors of public sector water corporations lacked the requisite financial and technical competence to perform their functions effectively, and Letza and Smallman (2001) highlight how unitary board structures are defective as tools of corporate governance in privatised British water corporations. As the literature in this stream has developed, scholars have taken an environmental and human rights approach in linking accounting and disclosure to water. For instance, Hazelton (2013) argues that access to corporate water-related disclosures should be considered a human right, which is not incompatible with the corporation's right to privacy. Water-related disclosures in this case are not limited to sustainability reports but also include reporting by government agencies through public databases.

Vinnari and Laine (2013) explore the diffusion and decline of environmental reporting in Finnish water corporations and Chalmers *et al.* (2012) explore the development of general-purpose water accounting standards in Australia and highlight the role of the accounting profession and other stakeholders in governing general-purpose water accounting. Of particular interest in this paper is the competition which is noted between accounting and other parties in the water industries as to where the primary focus of the

water accounting standards sits. Similarly, Tello *et al.* (2016) explore the perceptions of potential users of water accounting reports prepared under Australian general-purpose water accounting. All these point to the increasing importance and attention both accounting practice and research have accorded water accounting in developed economies, whereas accounting practice and research are lagging in developing economies with more critical water challenges, poor water accountability and governance.

The main thrust of the literature above is summarised as follows:

i. Accounting can be enrolled in policymaking concerning water by providing justifications and framing policy debates.
ii. The accounting profession has a role to play in regulating the water sector which includes participation in interdisciplinary efforts to create and implement water accounting standards.
iii. Corporate governance structures of water corporations can be problematic.
iv. The focus in terms of water-related disclosures has been on corporations and corporate water disclosures.
v. Accountability has been viewed narrowly in terms of transparency (corporate and government water-related disclosures) and corporate governance structures.

3.0. A Brief Overview of the Water Regulatory Environment in Ghana and Nigeria

Both Nigeria and Ghana have promoted regulations, policies and enacted laws towards achieving sustainable water over the years, even before the SDGs were established.

Water resources management in Nigeria has undergone several reviews over the years. For example, in 2016, the current Nation Water Resources Plan (NWRP) was developed from the 2004 version, which also evolved from the Nation Water Resources Master Plan of 1984 and 1993 (FMWR, 2016). While the 2016 NWRP acknowledged the increasing demand for water in Nigeria due to rising population, it attributed the failure of water service delivery in Nigeria to the top-down and supply-side approach, linking it also to factors such as poor involvement of wider stakeholders, insufficient funding, and ineffective management of infrastructure. Moreover, the NWRP 2016 highlighted various laws in Nigeria aimed at developing and managing water resources namely, Water Resources Act, River Basins Development Authority Act, National Inland Waterways Act, Nigeria Hydrological Services Agency (Establishment) Act, Land Use Act, Nigeria Environmental Standards and Regulations Enforcement Agency Act and Nigerian Minerals and Mining Act, all captioned under the Law of the Federation of Nigeria (LFN) 2004. Incidentally, the Water Resources Bill 2020 and subsequent Bill in 2022 that were designed to replace and upgrade the Water Resources Act (WRA) 2004 towards a more integrated water resources management were aborted because they were politically controversial ceding control of water resources to the federal government, among others (Kwen, 2022).

Nigeria's inaugural National Water Policy (NWP) 2004 noted the need to reverse the poor monitoring and evaluation, inadequate funding due to lack of private participation, and inadequate financing, in the water sector (FGN, 2004). But these identified problems are still prevalent today, especially, like in other government initiatives and institutional arrangements, there is the challenge of accountability. Hence, fundamental changes are required for the effective and efficient management of water resources in Nigeria given some key identifiable challenges such as unclear roles of government at all levels and their agencies, wastages, duplication of efforts, inefficient management and development of water infrastructure, poor planning and project designs due to inadequate water resources data collection and management (FMWR, 2016). According to the recent Water, Sanitation and Hygiene (WASH) routine mapping (FMWR, NBS and UNICEF, 2022), Nigeria's urban areas have an estimated 1,395 waterworks of which 67% are non-functional and 12% partially functional, only 8% of urban water service connections are active countrywide, and only 249 of the 744 local government areas (LGAs)

have piped water services. These are usually established, controlled and managed by State (Sub-National) governments.

In Ghana as well, the regulatory space for managing water resources is also a bit broad as it involves different regulations, policies, and agencies, which sometimes overlap. Ghana's Ministry of Water Resources, Works and Housing (MWRWH) coordinates all stakeholders in the water sector and is responsible for achieving Ghana's Water Sector Strategic Development Plan (WSSDP) which is developed to achieve sustainable water and basic sanitation for all by 2025 (MWRWH, 2014). Thus, some of the major governance instruments are the MWRWH, Water Resources Commission (WRC) Act 1996, Ghana National Water Policy (GNWP) 2007, Water Use Regulations (WUR) 2001, and Public Utilities Regulatory Commission (PURC) Act 1997. While the Community and Water and Sanitation Agency (CWSA) is responsible for meeting the water and sanitation needs in rural communities in Ghana (WaterAid, 2016), the Ghana Water Company Limited (GWCL) has responsibility for urban water systems and Metropolitan, Municipal and District Assemblies (MMDAs) responsible for (MWRWH, 2014). However, these agencies are underfunded. For example, WRC, and CSWA, had an increasing approved budget from the Ghanaian Government between 2006 and 2010, but only a small fraction of the approved budgets was released (MWRWH, 2014). Public Utilities Regulatory Commission Act 1997 provided for the regulation of water pricing by public utilities, quality of services, interest of consumers, data collection and collation for assessing performance, competition among public utilities, etc.

Ownership of water in Ghana is on the Water Resources Commission (WRC) Act 1996 and the power to delegate this responsibility rests on the government (Frimpong et al., 2021). Amongst other functions of the WRC are the collection, collation, storage and dissemination of Ghana's water resources (WRCA, 1996) and the adoption of the 2007 National Water Policy (WRC, 2012). According to Frimpong et al. (2021), the national water policy of Ghana has undergone several reviews since the early 1990s to promote an effective integrated water management system. The current Ghana National Water Policy (GNWP) of 2007 was linked to the Millennium Development Goals (MDGs) succeeded by the SDGs to address water management and utilisation to achieve sustainable livelihood (MWRWH, 2007). It recognises that water satisfies social needs and also commands economic value, which then highlights challenges such as appropriate pricing, funding and sustaining such funding to achieve long-term objectives. The policy was framed in the context of the country's Water Vision for

2025 to "promote an efficient and effective management system and environmentally sound development of all water resources in Ghana" (GNWP, 2007, p.9).

The Ghana Water Company and the Water Resources Commission enjoin meeting all six targets[3] of SDG 6 (Graphic Online, 2017), although there is no evidence of meeting the targets by 2030. However, Ghana has set up a regulatory structure to introduce reforms in the water sector to solve the challenges of water accessibility and affordability. Accordingly, the Ministry of Water Resources was set up for policy formulation and provision of leadership around drinking water supply. The National Water Policy (NWP) and the National Environmental Sanitation Policy were formulated to guide water supply in Ghana (Water and Sanitation Program, 2015).

Furthermore, Ghana developed an Integrated Water Resources Management Plan in addition to the existing Water Resources Commission established by an Act of Parliament in 1996, the 2007 National Water Policy, and five national river basins and four corresponding River Basin Boards (RBBs). In demonstrating its commitment to addressing the water challenge, the Ghanaian government invested US$768million into 22 potable water projects between 2013 and 2015 which increased water coverage from 64% to 77%, with a further commitment to invest US$676 million into more water projects to increase water coverage by additional 10% (Graphic Online, 2016). Approximately 87% of Ghanaian households have access to water (Ghanaweb.com, 2022), but only 45% of the revenues from treated water are accounted for. Whereas the access to water is seemingly high, the water quality and safety need prioritising (citinewsroom, 2020).

Despite the regulatory initiatives to promote sustainable water resources in terms of availability, accessibility, and affordability in the right quantity and quality, they have failed to achieve the desired goals as several households in rural and urban areas lack access to basic water. Therefore, water initiatives both in Nigeria and Ghana require innovation, motivation and concerted efforts to be able to achieve sustainable water for all. One such effort will include actions to address some of the challenges above, which borders around data collection and management for performance appraisal and planning, financing, monitoring and evaluation, etc. The accounting profession in collaboration with other relevant stakeholders has critical roles to play because financial and non-financial data are not only required for project planning, design, financing, implementation, control and monitoring but

[3] See Appendix 1

also would enhance the confidence of private participants in making informed investment decisions in water services delivery.

4.0. Challenges of Adequate Water Availability and Accessibility in Nigeria and Ghana

In this section, we present media framing of water issues in Nigeria and Ghana involving water availability, adequacy, accessibility and affordability. A review of media framing of water issues in both countries is important as an additional source of evidence, particularly as the media is an active arena of public discourse.

4.1. Nigerian Context

Our analysis of media evidence over the 2008-2022 period shows that water-related issues in Nigeria epitomise long-lasting challenges and perils sparking off various ramifications (e.g., environmental, social, health, safety, human rights, political etc.). The water-related shocking numbers constantly dominated the headlines as the water crisis implications in Nigeria exacerbated with time. For example, in 2011, it was documented that "70 million citizens" were deprived of fresh water, "102 million citizens" experienced disastrous sanitary services, while water and sanitation-related diseases were presented as the leading cause of the death of "194,000 children" (Pulitzer Center, 2011). In 2018, it was reported that only "29%" of the population had access to sanitation coverage and only "7%" had access to potable water (The Borgen Project, 2018). In 2018, it was highlighted that "90% of Nigerian households consume contaminated water" (The Borgen Project, 2018).

As alarming as they may appear, these numbers illustrate the extent to which the water crisis in Nigeria is enabling several stakeholders to criticise and unearth the Nigerian government's failure in dealing with and accounting for this crisis over the years. This relentless failure was exemplified by the successive malfunction of several water initiatives, such as the 2000 National Water Supply and Sanitation Policy; the 2003 Presidential Water Initiative: Water for People, Water for Life; and the 2016 Water Resources Roadmap (CODE, 2017). Nigerian government's water governance and management is often not fit for purpose (Pulitzer Center, 2020) due to, for instance, corruption (Reuters, 2016), the lack of expertise (NewSecurityBeat, 2017), the lack of infrastructure (NRC, 2019), and inadequate investments (Water Journalists Africa, 2018). In particular, the lack of water data, control, and regulation makes it difficult to gather, measure, track, and audit water-related information as emphasised in the following excerpt:

> *"A senior official within the federal ministry of water resources hierarchy informs that nobody really knows how much of budgeted funds truly end up in the system for there is no clear tracking mechanism for budgeted funds or expenditure. He said "Nobody has been tracking what is being spent. We don't*

> *even have data on exactly what is being spent. The $500 million going into the sector is based on estimates. Most of the states don't have water policies; their laws are outdated; how do you then invest in such when there is no direction? We don't have a national regulatory agency; there is no state in the federation that has a regulating agency for water.*" (Pulitzer Center, 2011)

Of note, this crisis is portrayed as even more dangerous than terrorism given that "the terror campaign claimed more than 4,000 lives, [while] the shortage of potable water and poor sanitation led to about 73,000 deaths" (Council on Foreign Relations, 2015). Not only does the Nigerian government's water management failure spurred the rise of "several insurgent groups" striving "to take [water] matters into their own hands" (NewSecurityBeat, 2017), but also the intensified water crisis invigorated several water-related violence and ethnic conflicts in different locations in Nigeria. For instance:

> *"There are three main geographical flashpoints where conflict over water is ongoing. In the north and northeast, Boko Haram has waged a violent insurgent campaign since 2010; among their demands is government provision of clean water. In Nigeria's Middle Belt, changing rainfall patterns are limiting the grazing area of Muslim Fulani herders, who then encroach on the land of predominantly Christian farmers. Water-related violence has been responsible for more casualties than the violent insurgency waged by Boko Haram. Finally, in the Niger Delta, militant groups are attacking oil infrastructure, partially motivated by conflict over rights to land and waterways. Oil spills into waterways also contribute to food insecurity and malnutrition in this region."* (Pacific Council on International Policy, 2019)

Along with the consequences of climate change, such as desertification the aforesaid factors altogether increasingly enflamed the water crisis in Nigeria transforming this country from being marked as a water-stressed country to a water-scarce one (NewSecurityBeat, 2017).

The World Bank pushed the Nigerian government to engage in a private-public partnership policy to alleviate its failure in dealing with water-related issues. An anti-privatization movement, including the coalition "Our Water, Our Right" has thus been quickly formed to fight against the water privatisation project (Transnational Institute, 2015) that was included in several controversial water-related bills. For instance, the Nobel laureate, Wole Soyinka, criticised the 2020 National Water Resources bill arguing that it would increase the Nigerian President's control over national water resources:

> *"Nobel laureate, Wole Soyinka, has condemned the reintroduction of the Bill on National Water Resources 2020 to the National Assembly. In a statement on Thursday, Mr. Soyinka warned that the*

> *bill, if passed into law, would hand the president "absolute control over the nation's entire water resources, both over and underground."* (Premium Times, 2020)

All in all, the water-related bills were not only depicted as unrealistic and ineffective in responding to water and sanitation demands (The Borgen Project, 2018), but they also "could criminalise the private extraction of water" (HuffPost, 2017). The activists' backlash against the government's proclivity to water privatisation, as introduced in the water-related bills, has been successful in contributing to blocking the government's different attempts to impose such an unwelcome policy:

> *"In September, Nigeria's legislature withdrew a controversial National Water Resource Bill long supported by the World Bank. The bill reignited a civil society and labour union campaign for water access rights over its provisions for public-private partnerships (PPPs) in both the delivery of water services and the development and management of water resources infrastructure. The bill was first introduced by the Nigerian government in 2017 before being struck out for the first time by the Senate over concerns that it commercialised access to water. The government attempted to pass it again last year, but the bill was withdrawn over allegations that it breached the House of Representatives rules"* (Brettonwoods Project, 2021).

4.2. Ghanaian Context

Our analysis of media evidence over the 2008-2022 period revealed that both the urban and rural areas have challenges with access to water in Ghana. Graphics Online (2014) noted that about 13% of people in Ghana do not have access to safe drinking water; 86% are without basic sanitation facilities and over 3,600 children under the age of five die each year of diarrhoea because of lack of access to safe water, sanitation, and hygiene. Despite the water shortage, a large proportion of water supplied by the Ghana Water Company Limited is lost and unaccounted for, while the water sector experiences challenges such as financial constraints, low investment, and lack of database on water (Awuah *et al.,* 2009). Evidence shows that Ghana lacks adequate infrastructure in the provision of potable water, resulting in citizens' agitations to the government to prioritise investment in potable water infrastructure. Incidentally, water has assumed a political dimension in Ghana as the water crisis and water supply have been mobilised as political tools for electioneering campaigns by political parties (Ghanaweb, 2008). This is so because access to potable water is one of the priorities Ghanaian citizens consider when voting for politicians during elections (Ghanaweb, 2008).

In seeking to solve water-related challenges, Ghana initiated moves towards privatising water supply, especially in the urban communities in 2010. While most urban communities in Ghana do not depend on a singular source of water for their drinking needs, many residents have to meet their daily needs through a dynamic patchwork of sources such as tankers, standpipes and sachet water due to uneven infrastructural development (Peloso *et al.,* 2022). However, affordability and cost concerns have tended to hinder water access in Ghana (Citionline.com, 2022) whilst the central national utility (Ghana Water Company Limited) which offers relatively cheaper services than the informal sector, is notable for being unreliable and ramps up cost for customers to unaffordable levels.

The cost of water has seen a significant increase in recent times as the Public Utilities Regulatory Commission (PURC), the water utility regulator in Ghana, has announced tariff increases in water by 40% between 2022 to 2023 (MyJoyOnline.com, 2022). Informal and private sector services were recognised to provide alternative forms of water security through multiple sources, flexibility and day-to-day affordability (Peloso *et al.,* 2022).

Critical to the water challenge in Ghana are environmental degradation and pollution of Ghana's water bodies combined with the complacency of the government in mobilising relevant policies and regulations to tackle them (MyJoyOnline.com, 2013). Such a lukewarm policy drive makes the costs of providing clean water prohibitive (Graphic Online, 2016; MyJoyOnline.com, 2013). The Environmental Protection Agency (EPA) of Ghana equally echoed its worries about this water crisis reiterating that Ghana could face a water crisis in 2025 and high-water tariffs if the increasing pollution of water bodies and forest degradation are not addressed, while also noting that Ghana is a water-stressed country because current water per capita availability is 1000 cubic metres per annum (Graphic Online, 2016).

Furthermore, it has been disclosed that the water quality monitoring and assessment index of the major rivers in Ghana from 2013 has established a considerable decrease in the quality of water due to the activities of illegal miners (Graphics Online, 2017). Poor water quality was found to be highest in mining areas of illegal gold mining, resulting in the Minerals Commission being recommended to conduct a strategic environmental assessment of those mining areas and communities to scale up the requirements for mineral rights licences (Graphic Online, 2017). Lending a voice to the concern, the director of the Water Research Institute of the Council for Scientific and Industrial Research (CSIR-WRI) predicts that Ghana may soon import water if the illegal mining activities continue (Graphics Online, 2014), further stating more categorically that:

> "*The calamity Ghanaians are about to visit upon themselves is the consequence of our inability, over the years, to curb the pollution and siltation of our water bodies. The next crisis to hit this nation after the 'Dumsor' is the water crisis. The Pra River is almost beyond redemption, destroyed by galamsey*" (Graphic Online, 2015)

The CSIR-WRI again cautioned and create awareness about the water crisis by the year 2030 due to pollution of the country's water bodies from rubbish, mining chemicals and inorganic fertilisers, and making potable water increasingly expensive in Ghana (Graphic Online, 2016). The activities of illegal miners on Ghana's water bodies escalated water-related health challenges such as miscarriages, stillbirths, deformities, nausea, dizziness, kidney failure, neurological disorders, hypertension and deaths (Graphics Online, 2014).

As it is estimated that about 5 million Ghanaians rely on surface water to meet their daily needs, this leaves them vulnerable to water-related diseases (citinewsroom.com, 2020). Also, the Ghana Water Company Limited (GWCL) and its stakeholders warned of a possible scarcity of potable water in the near future if pollution from crude oil dumping, discharge of untreated urban domestic waste and contamination of other industrial processes continues (Graphic Online, 2017). Sadly, climate change is leaving many communities in the Sahel region of West Africa regions thirsty for water in the dry season and threatening the water supply in northern Ghana (citinewsroom.com, 2020).

Concerns about water security in Ghana have prominently featured in public discourse (Graphic Online, 2017). The Water Resources Commission of Ghana (WRC) has predicted that the country will become water-stressed by 2025 and it was concluded that the water sector needs to build human capacity to understand climate change issues relating to sustainable water sanitation and hygiene services (Graphic Online, 2022). In addition to building human capacity, it is important to build relevant institutions to further the cause of clean water availability and accessibility. To this end, the Coalition of Non-Governmental Organisations in Water and Sanitation (CONIWAS) advocated for the government to strengthen state institutions to mitigate the looming water crisis (citinewsroom.com, 2021).

5.0. Empirical analysis and interpretation of findings

Sections 5.1 and 5.2 present the main findings of the study respectively to the two research objectives restated as follows:

a. Understand the nature of water governance and accountability practices in Nigeria and Ghana.
b. Explore the roles that the accounting profession can play in promoting water governance and accountability towards achieving SDG 6 in Nigeria and Ghana.

5.1. Problems with the current water accountability and governance practices in Nigeria and Ghana.

In this section, we present the primary data evidence highlighting themes of the state of water accountability and governance in both countries to address our first research objective. We discuss these themes in more detail below.

5.1.1. Water Governance, reform and the economics of water management

This section provides empirical evidence that highlights not only the importance of well-articulated and functioning water governance and accountability but also the collaborative exigencies for them to achieve their objectives in reality. The earlier part of this report indicated that the achievement of SDG 6 or water for all in Nigeria and Ghana would require good governance and accountability as our participants also revealed. For example, NGO1 notes that:

> *"We think then there should be elements of good water governance that should revolve around transparency, accountability and participation for all the key stakeholders."*

Our participants highlighted some water governance-related issues that have intensified the water crisis in both countries, which when addressed would set a trajectory towards achieving the goal of water for all. We now discuss these below.

5.1.1.1. Governance issues: setting the tone at the top

While stakeholders did acknowledge the existence of water governance frameworks both in Nigeria and Ghana, the majority consider them as not good enough to address the water-related challenges, especially as their implementation lacks critical ingredients of good governance.

> *"Good water governance is that situation where you have dynamic functioning of formal and informal institutions that are directed in ensuring efficient accountability and timely delivery of water and water services across the whole segment of the population as well as the social and economic system associated with this. And this is what is also currently lacking in Nigeria from our own experience over the years."* (NGO 1)

This largely accounts for why stakeholders are calling for the reform of the extant water governance. Those who believe in the existence of an adequate water governance framework are of the opinion that the critical problem lies with weak regulatory implementation as well as conflicting fragmented regulations. Advocacies are consequently espoused for a more inclusive governance development that would benefit from the inputs of diverse stakeholder groups, for example, the government, accountants, NGOs, private sector investors, regulators, consumer groups, and communities. Moreover, stakeholders hold different views on who is responsible for championing functioning water governance (not necessarily by enacting the governance, but by mobilising informed knowledge to influence its prioritisation by the state). While the majority of accountants and some stakeholders perceive that the responsibility over governance is ultimately reserved for the government, they are optimistic that the accounting profession is well placed to champion this course. As such, non-state stakeholders, including accountants, can play a supportive role in the establishment and implementation of an effective water governance framework in both countries.

Furthermore, accounting and non-accounting participants argued that responsibility for water governance aimed at addressing the water crisis principally rests with all tiers of government which should set the tone at the top. For instance, Big4 A argued:

> *"I think the federal government should set the tone with the laws and regulations, with enforcement, a lot of these laws are there in Nigeria but enforcement. I think the matter of water, like I said, my own personal experience is that it is more devastating, and the impact is at the grassroots level, so local governments need to be empowered."*

In both Ghana and Nigeria, their federal and central governments through the respective ministries of water resources play a vital role at the central level to provide a guiding philosophy for the water sector, with states and districts administering water services delivery at the urban and rural levels (see section 3.0). In the current water governance practice in Nigeria, for example, the federal government regulates water supply and provides bulk water infrastructure such as dams through the FMWR, while the states in turn are responsible for receiving, treating and distributing the water directly to the public.

> *[W]e have 13 river basins in the country and their mandate is clear, their line of reporting is straight to the ministry of water resources and …they supply the water through the states, the states will collect, receive, treat and distribute, so any regulation within any city, the federal government has no hand in that business.* (MLO)

Despite the broad consensus that all tiers of government should be responsible for the provision of water, there is a problem with how monetary allocations are made to the various tiers of government. For instance, in Nigeria, although there is a perception that it is the responsibility of the government to provide and manage the water resources, there are unclear distinctions between the responsibilities of the federal and state governments despite their budgetary allocations. Our participants noted that this problem has resulted in the absence of accountability from these tiers of government on the provision and management of clean water in Nigeria. For instance

> *"There is no real distinction between responsibilities and so everybody is confused. ….federal government takes the lion's share of the money, then keeps on saying that water provision is the responsibility of the State. Now if it is the responsibility of the State to provide water then why are you taking the lion's share of the money? Give the lion's share of the money to the people who are meant or who are closer to the people who have to deliver this water to the people and let them do it and then we can hold them accountable if they're not doing it. But right now, they [referring to the State government] will tell you they have limited resources because all the money goes to the federal government and the federal government says they're not responsible for the provision of water to people."* (WRE1)

Current water governance practice in Nigeria is that the federal government is in charge of the regulation of water supply and provides water infrastructure through the FMWR. For example, all the dams belong to the federal government, which in turn supplies to states that are charged with the responsibility of receiving, treating and distributing the water directly to the citizens.

> *"So it is … the federal ministry of water resources to harness both the surface and underground water resources and specifically for irrigation, recreational, hydropower and all the other things including water supply for domestic and industrial purposes in Nigeria."* (NGO1)

5.1.1.2. Governance continuity and governance localisation

Lack of continuity of government policy can be an albatross to the effective achievement of set policy goals around water. This lack of continuity has resulted in dams, reservoirs and water facilities being abandoned after multi-millions have been invested in them without deriving any corresponding benefits. For example, one interviewee notes:

> *"…So, a government can put in place policies and quality structures for instance, and another government is coming, it is not really their priority"* (Big4 BFG)

A key problem identified with the lack of access to water relates to the centralisation of water supply in Nigeria, while Ghana is slightly different. It was argued that key sectors of the economies will benefit from the decentralisation of the governance framework and creating effective accountability mechanisms for water. The power/energy and communication sectors were often used as examples of sectors that benefited from decentralisation, and this approach to governance has positively changed the services delivery of those sectors. However, many entertain fears that a lack of clear and effective governance in place can make this difficult to achieve in practice. This makes a more localised water governance framework important in cascading water accessibility across all social segments of society, whether in rural or urban areas as our participants noted. For instance, two participants note that:

> *"So, in terms of water accountability and practices at governance level, I know for instance, both the federal, the state and the local government are collectively responsible for providing water and putting structures in place around them, to ensure that citizens have access to the quantity and quality of water they require. I know all tiers of government are responsible for that…, and I know there are also policies and Acts in place to govern all of those structures."* (Big4 BFG)

> *"Within the framework [in Ghana], we have what we call rural water or community water and sanitation unit, and we also have Urban water and sanitation unit. So, the ones in the rural area*

take care of those that are in remote areas while those in urban look at urban waterworks takes charge of that in terms of both infrastructure and also in terms of the supply of water itself." (Big4 C)

Although participants recognised the existence of some state structures to promote the provision of water of the right quantity and quality across both countries, the effectiveness, efficiency and wider implementations of those structures are weak.

5.1.1.3. Water pricing, subsidy, and affordability

Among critical issues linked closely to water governance are reforms to water pricing, improvement of water utilities and their privatisation, and public-private partnership (Pahl-Wostl, 2017). Pricing water is a complex policy as full cost recovery can deny the poor in society access to water services (Heller, 2022; Moratta and Spina, 2021) and cost under-recovery in contrast will threaten the overall sustainability of water services (Chitonge, 2010). Although water is a gift of nature and a public good, Nigerian and Ghanaian governments equally recognise it as an economic good (FMWR, 2016, p.11; MWRWH, 2007, p.66). Similarly, many participants suggested that water needs to be viewed as an economic good with economic value accessible in both sufficient quantity and quality for domestic and industrial purposes, but the current quality of both surface and underground water resources is questionable. For instance, WRE1 revealed

"We should look at water not just as a God-given resource, we should look at it as an economic good. Unless we look at this as an economic resource which has value, then we will not be using water as we use some other resources like, for example, petroleum. People see petroleum as a very valuable resource…. Water is needed for human existence; water is needed in agriculture; water is needed in industrial production. So we need to look at all those aspects and see how we can better manage this water."

This necessitates the need to charge tariffs for domestic and industrial uses of water. However, appropriate and affordable pricing is expected so that the poor can access water. Water is a scarce resource, and its pricing has been viewed as an instrument of water governance to promote efficient water use to discourage environmentally harmful subsidies, but the right price must be set rather than leaving water allocation to market forces altogether (Woodhouse and Muller, 2017). However, there are mixed reactions to the ability and willingness of consumers to pay for water usage to ensure water cost recovery. While many

participants are positive that the consumers are able and willing to pay towards cost recovery, a few others seem to suggest the existential perception that water is a common good and should be without a charge.

> *"For some places where we have worked, when you talk about tariff for potable drinking water, the responses you will get is, there is rainwater, there is river water, there's water in the stream, why should I be paying for water. Water na gift from God, you know, you get that kind of response."* (MLO)

Because the extant water sector in the case countries is not self-sustaining (MWRWH, 2007), the perception that water should be treated as a common good can result in the inability of service providers to recover their costs. However, the public utilities must operate efficiently to avoid transferring their costs of inefficiency to consumers (Participants: WR1G; WR1N FG). Some of the participants holding the self-sustaining view state that:

> *"…our people keep referring to the fact that when they were younger, you just go outside the street, you open your tap and water start running. Yes, that is what was obtainable then but the challenge…is that we're not able to recover costs. ….even as we treat water, as a social service, we should be able to recover the costs…to ensure sustainability. It's not just enough to give people water, this water that we give we treat it. So you can't expect the government to continue to pump water to pump money into the sector. The sector should be self-sustaining, the sector should be able to recover its costs and make profits that you can plough back into the system and extend to others, others that are not having."* (SWC1 FG)

> *"So, the cost, they can't really meet the operational cost of maintaining that plant. And you know, with the imbalance in the currency at the moment because you know for several economic reasons the prices of the treatment reagents have gone up, because the energy cost, as majority of those plants designed are not operating on low energy."* (WR1N FG)

Other participants presenting the same view slightly differently suggest that if the government is willing to provide metered and accessible clean water, the citizens will be willing to pay for it. The majority posited that the lack of political will and unaccountability in both countries have made the sector less attractive to private investors or charitable organisations to supply clean water at subsidised rates while enabling them to recover the cost of the water supply. For instance, NGO2 notes,

> *"If you provide water the house is tempted to use the water and then the metre will read and then you will get your money back. there's that component also in terms of cost recovery for the water supply for the state water boards but I think it would be something to look into."*

Metering water use is necessary not only to avoid wasteful use of water, but also offers the opportunity to correctly charge consumers for water used and makes a return on investment. The private sector, for instance, cannot be attracted to invest in the water sector if appropriate pricing is absent. Our participants revealed that there is a need to attract private investors into the sector to bring the much-needed investment, but the lack of political will, ineffective governance and lack of accountability will create a difficult environment for private investors to recover their costs and set reasonable and affordable prices. While what is an affordable price is relative, localities can be stratified according to the economic endowment of the residents so that the more economically endowed neighbourhoods pay tariffs based on cost-plus profit, but the less endowed neighbourhoods (the poor) pay subsidised tariffs. This is not the controversial cross-subsidy where the rich pay more to subsidise the poor (Chitonge, 2010), rather the government provides the subsidy. Importantly, participants also alluded to the need to develop sophisticated water infrastructures in both countries that citizens can see before establishing a competitive market for the supply of water. For instance, one of our participants notes

> *"Let us develop the infrastructure and once we develop the infrastructure and people see that there's a working infrastructure, then you know people can start talking about investing. All we need to do …is just to recover the cost. I'm not saying they should fund everything, I'm saying if we develop the facilities and collect money from people, people will be ready to pay. {….} People will pay, water is so essential….people are buying all these sorts of unwholesome water. Water, you know of questionable quality and they end up in hospital ….I don't believe that the government does not have the funding. Even in the UK, as sophisticated as it is, the government still puts in a lot of money into one of the basic essentials of life…. The things that must be done to ensure that the public gets the water they need…. is to put the infrastructure in place, and let it work"* (WRE1)

5.1.1.4. Dysfunctional water utilities and governance strategy

Effective water supply to the public depends on the existence of functioning water utilities with corresponding adequate water infrastructures. Insufficient water infrastructure is a critical problem of the provision of water services (Ngene et al., 2021; NRC, 2019). Our participants generally concur there is

water everywhere in Ghana and Nigeria but access to clean water and sanitation has been a challenge because of the dysfunctional water governance and accountability systems and public water utilities. Although there appears to be a semblance of water frameworks in both countries, they have dysfunctional water implementation strategies and ineffective agencies or utilities to implement the strategies. For instance, our data indicates that water provision is limited by the ineffective water utilities alongside the challenges of recovering the cost of providing water to communities.

> *"So, one of the other things that probably we miss is the functionality of the state water agencies [utilities], I think that's also where I feel that the problem is, we can count at the tip of our fingers which states in Nigeria have a functioning water board and how is it run. I think that's also where the issues are, I mean in terms of optimal operations, optimal water quality supplies and so on that's possibly where we're going to probably start…."* (NGO2)

The FMWR, NBS and UNICEF (2022) routine mapping report corroborates the above stating that 67% of urban waterworks in Nigeria do not function, 12% partially function, and only 8% of urban water service connections are active nationwide. Moreover, the magnitude of the collapse of water utilities is emphasised as follows:

> *"I don't even think there's any utility that has collapsed like water… if you look at utilities, it is the area that has collapsed the most, because light [electricity], at least some things come in but water uhm uhm, it's a borehole."* (Big4 A)

Therefore, effort must be made to ensure that there is a functioning water strategy and agencies to meet the provision of water for both domestic and industrial purposes. A better water strategy would embed framework or institutionalised arrangements that broaden the participation of a wide range of water providers to complement state-owned water utilities. However, it is widely believed that the governments, particularly Nigeria's and its institutions have failed to engender holistic approaches to water management, incidentally, turning its citizens into "*mini utilities*" (Participant: WRE1).

5.1.1.4.1. "Mini utilities" - Self-help and indiscriminate private water boreholes

Governments in both countries have yet to adequately meet the water needs of their citizens. Following the inadequacy or lack of water supply due to dysfunctional water utilities, particularly in Nigeria, many have resorted to coping strategies to personally meet their water needs (Abubakar, 2018). Our interviewees noted that

> *"While I was schooling, I lived in a GRA until about 11 years, I never lacked water throughout that time but by the time I moved to another location where my father built his house even though it was not a rural area, I could tell you that since 11 years till now, the water we depend on is the water we source ourselves, not government provided"* (Big4 BFG)

> *"…citizens have turned themselves into mini utilities. …they are the ones providing their own water, providing their own electricity…. ….something that should be available for the people now depends on how much you can afford. What is your financial position to do that and ….this water is not …wholesome but they tend to result in significant diseases which again puts a burden on the health service."* (WRE1)

The burden to provide water has been shifting over the years from the government and its institutions to the citizens, many of whom cannot afford to meet the cost of providing themselves quality water. In addition, government agencies saddled with the responsibility of testing the water quality to ensure its safety for both domestic (including industrial) consumption and assessing if further treatment is required to improve the quality, are seemingly non-existent. Our participants argued that:

> "*There isn't any institution [referring to government agency] which goes round to test the water quality of these individual water [sources] whether they are safe or not, but the only thing is that if the person contacts a professional with expertise in water quality…. probably after the drilling, the person will conduct water quality analysis for the client and explain to him or her that the water is safe for consumption or there is some kind of treatment needed to improve the quality of the water. But in general…. no one goes round to check the water quality of the boreholes that they have drilled in their homes yet."* (WRE2)

The dysfunctional agencies and water strategies alongside fraud of diverting funds for national, regional, state, district and community water initiatives/projects have encouraged the proliferation of individuals' self-owned boreholes, and in a few other cases estate-owned ones. For example,

> *"But what we do see as NGO or non-governmental organization…is that this project that has been ticked as executed, it can be for example drilling of hundreds of boreholes across local government areas in Nigeria, right. For them, this will be marked as executed, but at the end of the day, we don't see the direct impact of such a project on the populace, even those implemented projects after a week might not be functioning anymore. You will see one borehole that was commissioned for*

three/four million of naira not even producing a single litre of water. That is one thing on the part of the government, anything executed, signed and delivered is a completed project." (NGO1)

"…the resources being allocated might not be sufficient but even that little is not applied as it should be applied…. and these cut across all the various sectors of our system. The way people see government resources as something which should be embezzled …..and that's a major problem and I don't know how we solve that. But until we solve that, we see that resources meant for the people are used for the benefit of the people, then we will continue to have this problem. People will continue to be mining utilities under themselves." (WRE1)

5.1.1.5. Funding and maintenance culture of water facilities

Funding has been identified across the board as a major challenge in addressing access to clean water (FMWR, 2016, MWRWH, 2014) and more funding will be required to implement SDGs, including SDG 6 in both countries (*see* Government of Ghana, 2019). For instance, participants argue that:

"The problem is actually the investment to make this fresh water, water from rivers, groundwater, making it safe for drinking, bringing it closer to the consumer, that is where the problem is. So, if you look at it as a chain more or less, naturally, we have the body of water that we can harness, but what we lack in that chain is the gap of investment that can make that water safe and bring it to the consumers to use." (MLO)

"…one of the failures of the institutions in Nigeria is their inability to invest in the treatment of this water even when you have some of the water already impounded in dams and reservoirs. Getting it to the consumer requires significant treatment and it's not cheap… if people drink it, they are just drinking polluted water, you are drinking diseases, you are drinking typhoid, you are drinking cholera…. So all these things are there which makes the water unwholesome for people to drink." (WRE1)

A key problem identified with the lack of access to water relates to the failure to expand extant water infrastructures in response to the expanding population (Chalmers et al., 2012; Gleick, 2009). Our respondents consider this as a product of lack of foresight by the governments of Nigeria and Ghana.

"How did we get to this place? I may think that it is a lack of foresight on the part of the people, government, including maybe we in West Africa. Now initial governments made provision for water

> *supply but as time goes on and the population begins to increase usage begins to increase; stress came on these facilities. We didn't have the foresight to provide for 1) expansion and 2) maintenance."* (Big4 C)

More investments are undoubtedly needed to expand the existing water infrastructures in Ghana and Nigeria. With the failure or inability of the governments to make significant investments in the water sector, investments into the sector can be enhanced when an adequate pricing framework or policy is in place and the consumers are willing to pay (*see* section 5.1.1.4). However, willingness to pay cannot be reliably gauged when the water services are not in place due to inadequate investments and infrastructure.

> *"Now, the biggest challenge with getting investment into water in Nigeria is recovering the investment and the reason why that is a challenge is because people are not willing to pay for water. I use the word willing with a lot of caution because you don't know whether people are willing except you actually give the people the service and they don't pay."* (MLO)

5.1.1.6. Sanitation – the largely neglected aspect of SDG 6

NGOs and water regulatory agencies drew our attention to sanitation as an important, but often neglected, aspect of water resource management, especially with SDG 6. Nigeria and Ghana have made less progress in this aspect compared to many other African countries (Chitonge et al., 2020). Sanitation goes beyond sanitary waste disposal but includes solid waste management, liquid waste management, chemical waste, and electronic waste management as noted by participants. For instance, NGO2 claims:

> *"I would say one of the biggest challenges has been the poor prioritization. I am among people within the sub-sector who say that sanitation and hygiene are the orphans budgeting."*

While it was argued that access to water impacts the degree of sanitation, especially with managing defecation, it equally affects water quality as poor sanitation generally can pollute the water supply sources, both groundwater and surface water (Fayiga et al., 2018). SDG 6's emphasis on tackling the open defecation problems is mostly evident in developing countries through the provision of access to improved sanitation (i.e., toilet facilities) to manage faecal waste. One of our participants notes:

> *"So, when you look at the SDG, the SDG is looking more at the management of faecal matter. That is the benchmark the SDG is using. So, if everyone will have access to improved toilet facilities, then SDG will capture achievement for the target for sanitation. It didn't zoom in more into solid waste management, but the assumption is that if we improve upon the faecal matter side management, the solid waste will also move along."* (WRE2)

> *"The reason is that it's not coming from the water aspect but it's talking about the sanitation aspect of it. This open defecation ….is very prevalent in Ghana and I also allude to that when it comes to the sanitation bit of it, it's a bit of a challenge because you still go to homes that do not have toilets and so that open defecation and all those things are still there."* (Big4 C)

SDG 6 does not closely examine or focus more on solid waste management, but the assumption is that when all the stakeholders concentrate on tackling faecal waste, the others will be addressed. However, we posited that this limitation in SDG 6 is palpable and needs to be strategically addressed. Waste management needs to be strategically addressed to build a sustainable future and prevent the contamination of water sources. This view is shared by participants, for example:

> *"If people are defecating openly, if solid waste and other waste products are not managed well, they will find their way into the water sources thereby contaminating it and making it unsafe. So anytime you go ahead providing safe water then you should also move in tandem with improving sanitation. ….because the sanitation is not managed well, the water can be safe from the source but by the time it gets to the consumption point, it would have been contaminated and still, those people will be suffering from water-borne disease and the target {referring to SDG6} which is improving health through improvement in access to safe water would not have been achieved."* (WRE2)

The government's involvement in this area has been criticised. NGOs have been active in this area by engaging in community sensitisation programmes and building sanitation facilities in schools. Our participants note

> *"We do also have this quiz competition as well that is centred around this WASH programme around water, sanitation and hygiene where students need to demonstrate their knowledge about what they know, especially around basic water-borne diseases, water-related issues, domestic water problems and coop work such as this. … And of course, we … a kind of water ambassadors for schools and also in the universities so that they can … reach out to their colleagues and*

> *spread the news about water-related issues and … talk about this with their families and try to ensure that the basic message of this lack of accessibility to water and inappropriate sanitation can reach out to larger number within the communities and from there people can at least be aware of such challenges of water. But of course, if people don't know there is a problem, then they will not even think of the solution."* (NGO1)

> *"There's no way we can meet the SDG. It's not possible. What have you done? We have gotten to the middle [yet] nothing has been done. We know we need about seven years to get to the destination and Nigeria is still lagging behind in terms of water supply. Even sewage, and sanitation, haven't even begun. Yeah, the water supply still is making some snap progress, but sanitation hasn't started at all. People still defecate in public."* (WRE1)

Overall, what is obvious from all the respondents is that SDG 6 cannot be achieved without a strategic policy to implement the targets. Achieving the targets will require a deliberate effort from all stakeholders, and adequate funding needs to be provided to all tiers of government to ensure that the targets are met. Also, achieving the SDG 6 targets will require a significant effort to be directed towards the implementation of an effective waste management framework.

5.1.1.7. Multi-stakeholders and related initiatives

The current state of water governance and accountability practices in both countries have also been linked to other key stakeholders who have been able to engage with, particularly, the rural communities in the provision of water. By implication, the government alone cannot achieve the goal of water for all but must partner with other relevant stakeholders who could bring different capacities to the table. Collaboration is essential. While collaboration is increasingly adopted as a a major approach to solving complex public problems, it can be problematic if not appropriately managed (Silvia, 2017). Making collaboration work requires quality data and analytical approaches as well as its effectiveness "should be based on the outcomes of processes in the relation to costs and benefits that are created for the parties involved" (Silvia, 2017, p.474). We discussed this in the following sub-themes in more detail below.

5.1.1.7.1. Public-Private Partnership in Water for All – An Innovative Approach

Involving the private sector in water provision can bring capacity and innovation (Pahl-Wostl, 2017). Closely linked to the decentralisation of water supply is the encouragement of private sectors to participate in water supply both on a commercial basis and as part of corporate social responsibility (Nwankwo et al., 2007). The former requires private sector investment in water accessibility to the public for returns as the government alone cannot tackle the problem of water because of the enormous capital investment it will require. In respect of the latter, examples were offered of companies already providing safe water to communities where they operate as well as to schools. In Nigeria, for example, Nwankwo et al. (2007, p.96) reveal that *"Unilever Industries, the Coca-Cola Bottling Company, the Seven-Up Bottling Company, and Paterson-Zochonis Industries all have community water projects in the immediate vicinity of their industrial facilities in Aba."* For instance, Big4 BFG notes:

> *"The government does not have to do it alone and currently a lot of private organisations as part of their CSR are supporting in all of these. Some of them have water as one big pillar. For instance, Coca-Cola has water as a big pillar that you know they focus on. I don't know globally, but, you know, Africa-wise. And this is understandable because they extract water from the environment, so they have to also do a lot of giving back in that regard."*

However, stakeholders identified some challenges with this mechanism. First, is the affordability problem that could emerge where the water is sold at commercial rates. Underlying this affordability challenges are the problems of inability to pay due to low income and unwillingness to pay because many citizens view water as a free natural resource and so should not be commercialised (*see* section 5.1.1.4). Second, there is the absence of a clear regulatory framework to protect investors' interests if commercialisation is encouraged. Prompting this concern is, for example, the lack of continuity of policy by successive governments (*see* section 5.1.1.2) and opaque transparency. As one participant noted:

> *"We think then there should be an element of good water governance that should revolve around transparency, accountability and participation for all the key stakeholders."* (NGO1)

Good water governance, as highlighted in the literature, must be underpinned by principles of transparency, accountability, efficiency, responsiveness, equity and multi-stakeholder participation (Chitonge et al., 2020; Ngene et al., 2021; Tortajada, 2010). Another commercial mechanism for providing water to the public is through tax incentives. Participants recommended this approach by citing

instances where corporations have constructed roads and other public facilities, which they have transferred to the state in return for tax holidays.

> *"I think I use the word investment in terms of putting in place infrastructure that government ordinarily should put in place but because government has limited resources and limited ability to put in place that infrastructure, you then encourage private sector players to make that particular investment and thereafter, begin to recover that cost from a tax credit that you make available to them. ….that's what I mean when I talk about investment not necessarily within the framework of commercialization."* (Big4 BX)

> *"So you can create … a coalition… and galvanise funding even from the private sector and all that to be able to ensure that water is available. The government too needs to be innovative around it. I mean, there's that road infrastructure, tax credit scheme where you can build roads and claim tax credit. You can do that with water too. It all depends on government being innovative around, you know, how to ensure that that water is made available for all."* (Big4 A)

However, what is evident in this study is that the sector in both countries seems not to be perceived as viable enough to attract the much-needed public-private partnership initiative to address the problem of access to clean water and sanitation (i.e. faecal waste management).[4] Our participants suggest that to attract such investment, the government will have to drive it by financing and implementing innovative water policies to attract private finance; and until such is done, SDG 6 will be elusive.

5.1.1.7.2. Community water initiatives – Bottom-up accountability-driven projects

We observed that Ghana and a couple of States in Nigeria have taken the initiative to adopt a bottom-up approach to the provision of sustainable water by developing accountability and governance frameworks towards achieving SDG 6. This community water initiative is a paradigm shift in water management in rural communities to curb the lack of access to water or the inability of those communities to sustain water projects in their localities. This is a laudable initiative because rural water projects before this initiative were not sustainable because of a lack of maintenance driven by the principle that the communities would be responsible for the daily running costs of the facilities. Underpinned by the notion that the water

[4] It is pertinent to emphasise that our empirical evidence, particularly in the Ghanaian context, suggests that there are a number of public-private partnerships for solid waste management, electronic waste management, and liquid waste management (Participant: WRE2).

facilities are the governments', communities make little or no effort to protect or maintain them. In contrast, the bottom-up accountability-driven water initiative approach offers the communities a sense of ownership of the water projects, motivating them to look after it and ensure their sustainability.

In Ghana, this bottom-up approach to providing water ensures that the communities manage the project by themselves and sell to themselves at moderately affordable rates so they can have funds to maintain the water infrastructure. As such, the communities are mandated to have a water consumer association (WCA) to manage the projects, liaise between the communities and the government, and provide accounts when required by the relevant government authorities, resulting in the success of those projects because the communities took ownership of them (Participants: SWC2; WRE2).

In both Nigeria and Ghana, the communities are required to contribute a certain percentage (say, 5%) of the cost of the water projects as seed corn to demonstrate their commitment to those projects. That seed corn money is anticipated to motivate them to protect the projects and ensure their sustainability. Although these projects are allegedly successful and sustainable in benefiting communities, several communities are yet to benefit from the initiative due to lean government funding. For example, SWC1 FG claims:

> *"The sector should be self-sustaining, the sector should be able to recover its costs and make profits that you can plough back into the system and extend to others, others that are not having. So that is what we are currently doing. … but the small-town rural water supply agency, they focus majorly on sustainability. Like what we currently …in the rural community, we have WASHCOM, that is, water and sanitation hygiene committees. What we do now is that if you need water, we do a needs assessment. And we tell you your water facility will cost so and so millions to implement. We expect that community to be able to provide five percent of that cost. That 5% is seed money, you are not adding it into the project, you will have an account where you will put their money because if you check around, we have so much, so many abandoned projects."*

Importantly, local communities are only able to assume accountability and responsibility for managing water resources at their disposal based on their perceived ownership, benefits, developed capacity to implement the projects, and claim-making power to ensure the foregoing conditions can be maintained (Laban, 2007).

5.1.1.7.3. Participation of academics, NGOs and donor agencies

Donor agencies (e.g., EU, UNICEF, USAID, World Bank) have been active partners in the provision of water services to the public, working with government institutions and NGOs. Our participants highlighted that donor agencies, including multilateral organisations, actively engage in water projects in both countries through various schemes or in conjunction with nominated NGOs to construct and maintain water facilities for the benefit of rural communities (*see* Nwankwo et al., 2007). The following assertions alluded to NGOs' visibility in water provision in Nigeria and Ghana.

> *"A lot of NGO's especially those that are water-focused…. are actually at the forefront of water management such that they engage in education, they engage with local authorities to be involved in water management… and some also support communities by providing pipe-borne water for them and also digging wells… I've seen a lot of them having a conversation with the community, as to how they have to use the water, how they have to use the facility such that they don't see frequent breakdowns… So, I see them involved in something like that yes."* (Big4 C)

> *"In the area of helping to attract global charitable donors that can invest in affordable clean water, for Nigerians and especially in the rural areas - those are the two major areas I think NGO's could come in."* (AMR2)

While NGOs and international development partners are voluntarily providing and maintaining water facilities in rural areas, we were left to ponder on the roles of government (whether central, regional, state or district) when the third sector is financing and managing water facilities. One of our participants suggests that in Ghana, most water facilities in the rural areas are joint ventures between, for example, the central government and donors/international organisations (such as Danida, UNICEF) which finance their construction while the NGOs and the rural dwellers are entrusted with the responsibility of managing/maintaining the facilities (Participant: WRE1). However, we encourage further research to examine the effectiveness and challenges of such joint venture arrangements.

Although the government is expected to prioritise and formulate the strategic policy for water and cascade such policy to the various levels of governance, there is also a wide belief that stakeholders other than the government and its agencies have a role to play in initiating, engaging and implementing the strategic water policy to ensure that everybody has access to clean and affordable water. Our participants alluded to the roles academics, local and international NGOs, and communities, can play in promoting and

maintaining self-sustaining water policy and infrastructure in both countries. For instance, references were made to how academics can help plan and quantify the level and value of water, while NGOs can help cascade and advocate for water strategies to be effectively implemented for the benefit of all. This parallels Laban's (2007, p. 355) submission that "non-governmental organizations (NGOs) and government agencies have an important role and responsibility to create an environment in which people can assume accountability and have a greater chance to get their rights to water fulfilled."

5.2. Water accountability: Setting the stage for the accounting profession

What is not accounted for will most likely not be measured, monitored and controlled for improvement. However, what is (to be) accounted for must of necessity be existing or seen to be existing. Accordingly, one participant queried the necessity of water accounting given the stark reality of the lack of water supply.

> *"We are saying that most cities, those of us who have lived and living in Nigeria, go to Port Harcourt, go to Warri, come to Lagos majority of the citizens provide water for themselves. And you are now telling me about accountability in the water. Honestly, if you take a survey or a questionnaire, what people will let you know is, 'Can we have the water first before you talk about accounting for it?' … Again, let's get back to clean water and this, most of the water we take in Nigeria may not pass the test of clean water."* (AMR1)

While the above position does not disapprove of water accounting, it does suggest the difficulty of accounting for what is non-existent. Hence, an effective water governance framework can importantly enable a blueprint for clean water accessibility. However, accounting for what we currently have is equally necessary for developing and framing a realistic governance and accountability framework for water. As much as we cannot account for what does not exist, even so, we cannot make informed judgments when articulating governance without data especially as lack of data is a big problem in this part of the world. For instance, Big4 BFG argues

> *"So beyond water, data is generally a problem in Nigeria. Data on anything. We don't have that adequate structure and enabling system yet to enable data management and when you look at organisations that are privately-held, you'll expect more from them."* (Big4 BFG)

In addition, constructing and providing water facilities and ensuring that they are sustainable and reliable will hinge on the availability of funds, transparency and accountability to the service users and

wider stakeholders on costs incurred and revenues generated. Our participants believe that accountants and the accounting profession have a role to play in initiating effective revenue mobilisation and accountability frameworks in both countries. These, we explore in subsequent sections below to address our second research objective.

5.2.1. Data measurement and performance: the roles of the accounting profession

Measurement is a vital element of accounting and indeed corporate reporting. As cited by Egan (2014), accountability needs systems of measurement to flourish and water accounting standards, when in place, can enhance the quality and credibility of relevant information. If private-public partnerships will thrive in the water sector, appropriate accountability measures are necessary. Like Silvia (2020, p.475), in the context of collaboration, "Performance metrics are formulated prior to engaging in the collaborative (ex-ante) or after collaborative activities have begun (ex post)." Accountants are perceived as relevant at every stage of providing safe water and this includes ensuring accurate measurement of water such as usage, efficiency, costing, returns, etc. As such, the accounting profession needs to come to terms with those expectations both within the precinct of public and private sectors, otherwise organisations will not talk about them. Where organisations even care to talk about them voluntarily, the disclosures will in most likelihood be selective and symbolic. Participants share that:

> *"Largely, people are very silent in terms of water, SDG 6. People are very silent about that but those that have been very pronounced on this, what I would say are those that have got international orientation or they have parents that are outside the region in which case, the policy on water resources water usage, efficiency usage of water and all those things are policies that are downloaded from their parent company and .. they stick to it religiously. So, I would say yes they have that but largely companies don't make mention of SDG 6 in their sustainability reports."* (Big4 C)

> *"Typically, what we see is voluntary disclosures… the companies follow GRI… typically, resource efficiency always becomes a material topic and, you know, you try to make the disclosure, but I can tell you generally data is lacking."* (Big4 A)

In addition, our participants suggest that accountants need to be involved at the conceptual stage of water projects to ensure that the projects are accurately costed, adequate funding allocations are

solicited to finance them, and the allocated funds are used for their intended purposes. Also, they have a critical role in ensuring that the revenue generated is efficiently collected and utilised, and relevant information in building sustainable water facilities is generated and disclosed. For instance, a non-accountant perceived the invaluable role of the accounting profession in addressing water-related issues as follows:

> *"They need to be involved at every stage of the project. At the construction stage, they are needed to make funds available and to ensure they are actually used for what they are intended for. After that, the management accountants can play a critical role in ensuring that revenue is collected efficiently and is also utilised efficiently. So there is a critical role for accountants in the water service delivery."* (WRE2)

While data is a problem in this part of the world, appropriate water pricing requires reliable information and investors need credible information to make informed investment decisions whether to invest in the sector or not.

> *"So how much price we charge depends on the cost of getting the water available plus a reasonable rate of return so this is just it. But in order to determine the cost, reasonable cost, efficient cost so we don't pass on inefficiencies to the consumer, we ask for some data."* (WR1G)

> *"Okay so beyond water, data is generally a problem in Nigeria. Data on anything. We don't have that adequate structure and enabling system yet to enable data management." (Big4 C)*

5.2.2. Sustainability thinking and role of the accounting profession

Issues of Environment, Social and Governance (ESG) are increasingly emerging as strong discourses within the accounting profession, especially around carbon and renewable energy, and in the provision of assurance services on corporate sustainability disclosures. However, water has been side-lined despite its profound social impact. Our engagement with members of the accounting profession suggests that this lack of engagement is significant despite SDG 6 being a global initiative in building an inclusive and sustainable future. For instance, participants Big4 BX and Big4 C comment on this lack of interaction with accounting for water and its social impacts by the accounting profession in both countries:

> *"I have never heard about water governance being an integral part of ESG. Despite the fact that it is a significant issue on the continent. We've always focused on carbon and carbon emissions but it's not the only important part of the environment. Water is extremely critical and there is a significant proportion of the population on the continent without access to clean water."* (Big4 BX)

> *"And I think it is something we need, we can champion, here. In fact, we have a window in the IFRS where the regulator, which is the Financial Reporting Council can make some amendments or can make some additions to things they think need to be domiciled based on our local environment."* (Big4 C)

What is obvious is that water can become a significant accounting issue when the profession intentionally embeds it within contemporary accounting discourses, curricula and mandatory continuous professional developments (MCPDs). For instance,

> *"It's putting that conversation to the fore. ….accounting professionals are beginning to talk about it and are beginning to say, we have these issues, and it is part of our society. There is no way we can ever say that we made progress from an ESG standpoint if all we've done is introduce a certain amount of bigger watts of renewable energy to the grid. Because it looks like all the focus right now is around energy. Nigeria is talking about energy transition, Ghana is talking about energy transition and everyone seems to think that's the focus or that's the fulcrum of ESG [that] once you can implement an energy transition, you've primarily dealt with all of your ESG issues. But that's not true. When I think about it in terms of even social impact, I don't think you could say that you achieved much from a social standpoint when you have the majority of the population without access to clean reliable water supply."* (Big4 BX)

Our interviewees and focus groups showed that to address this lack of engagement by the accounting profession, accountants need to be educated on how to account for water.

> *"…it is more of an education to let the Big-4 know. I'm talking about education in the sense that awareness and consciousness should be there. That water, we are having this challenge and then we have this in the SDG. So, adherence and sticking to it would be something that would benefit all of us. So, I think we should be able to do that."* (Big4 C)

However, pragmatic applications of sustainability thinking in relation to water accounting initiatives would be possible only when relevant technologies, ranging from education or reorientation to setting of standards, are activated.

5.2.3. Accountants' role, readiness for water accounting

5.2.3.1. Standard setting

While some participants perceive that accountants can play a role in setting standards to address water issues, others (including accountants) perceive that this role will be around costing and budgeting for water supply projects. Members of the accounting profession, namely the accounting regulators, accounting firms and professional bodies see a possibility of setting water accounting standards, but some do cautiously. The primary caution relates to whether water merits setting an accounting standard for, given the further challenge of determining who the users might be. It raises issues or concerns about decision-usefulness, information overload, and importantly cost-benefit analysis. For instance, Big4 D notes:

> *"Again, entities will always tell you, do not continue to increase our cost of reporting because we are also doing business, that is why you still have to start with persuasive standards which should start with sustainability."*

Also, there is the perceived problem of localising standard setting, particularly the adoption of standards set by the IASB. However, a number of participants argue that if developing a water accounting standard has merit peculiar to a country that has adopted IFRS, such a country could make a case for developing a relevant local standard or mobilise support for the IASB to prioritise setting that standard. It was acknowledged that the latter would take a longer period to be achieved. It was also suggested that since water as an SDG issue falls within sustainability, the country promoting its standard would need to convince the new ISSB[5] (International Sustainability Standards Board) because this is within its remit. But the possibility of achieving that soon appears remote.

> *"I would say accounting standard for water in our environment for now, probably that might be too early, or what will be the benefit for the financial statement users? But if we say sustainability*

[5] The good news is that ISSB espouses its prioritisation of natural ecosystems, which includes water management (see https://www.ifrs.org/news-and-events/news/2022/12/issb-describes-the-concept-of-sustainability/)

standard for water, which we know if a sustainability standard is issued on it, fine. Now that the Financial Reporting Council has chosen to adopt the ISSB standards, … let's even start with sustainability standards if the Financial Reporting Council says companies, you need to prepare your sustainability report… remember in Nigeria, the accounting standards that operate in Nigeria is IFRS, so it can't even be issued by the local standard, it has to be issued at the international standard, … Nigeria has no choice because our law already says we should obey IASB, so it can't be issued locally. So if it comes from IASB fine, it will be applied to the extent to which it is practicable in Nigeria" (Big4 D)

An alternative and more realistic approach, at least in the short term, might be the issuing of guidelines to promote reporting involving water governance and accountability (Participant: AMR1). However, some see this as the role of the government rather than the accounting profession.

Whether or not the accounting standard for water is realised depends on whether the profession views it as critical as developing capacities to address climate change. For instance, AMR1 revealed that:

> *"Looking at any reporting framework or undertaking any standard development in any way depends on the priority and depends on the criticality of that event. Again, as you know too well, sustainability reporting is evolving and even the international community is identifying one aspect among a lot of other sustainable development goals we have and here they're talking about climate. So for us, we have not considered it [water] as a critical point to develop any reporting framework."*

5.2.3.2. Accounting education

Accountants are expected to be trained and retrained to be able to stand up to the increasingly changing societal challenges such as water. One of the approaches identified for doing this is through continuing professional development to sensitive accountants on water-related matters and the SDGs. Another approach identified is the need to expand the accounting curriculum to include water accountability and governance issues. Accounting education around water accounting will promote capacity-building and enable accountants to champion advocacy for water governance and accountability. Some views are presented as follows:

> *"I like what I'm seeing them [accounting profession] do with the awareness creation, the training … at the conference … beaming the importance, education, awareness. You need the accountant*

to take non-financial data, performance reports, management reports all those things… non-financial aspects of enterprise value. I think we need to take it seriously and open our minds to look at how non-financial data, and information, are as important to safeguarding enterprise value and even societal outcomes we need to upscale; we need to be aware, we need to upskill to know how to go about doing the measurement." (Big4 A).

"So this is what we need to do, having the training on the standards, keeping tracks as it evolves because it is a highly evolving landscape, knowing how to help our organisations measure and be more efficient in how we use water." (Big4 A)

5.2.4. Driving water reporting framework: Role of Institutes and the Big-4

As mentioned earlier in section 5.2.2, accountants need sustainability thinking, a change of mindset, and a reorientation towards accounting for a water paradigm shift. Exhibiting a can-do attitude appears to be insufficient, but there have to be drivers of the change. The Big-4 or accounting professionals are expected to drive this change, which again depends on their motivation and perceptions of this cause.

"I think it is something [water disclosure] the Big Four or the accounting professionals can drive. If you look at the issue of the accountancy profession which is about compliance and backed largely by regulations. I think they are in a position to drive this when they themselves see it as a critical resource that needs to be protected." (Big4 C)

5.2.5. Technical skills for water accounting (+ adopting IFRS standards)

While the positive disposition of professional accountants to water accounting or sustainability, in general, is important, having the requisite technical skills to deliver the needful is a different matter altogether. Nonetheless, there is the upbeat that accountants have the relevant technical skills.

"We have the technical skills. It may not be domiciled in the accountancy profession, but we have technical consultation the experts bring to come and help us develop a standard for that." (Big4 C)

In addition to the relevant technical skills required by accountants for this task, accountants can draw from the expertise of non-accounting (subject-matter) experts. It is a longstanding conventional practice that accounting professionals collaborate with other stakeholders in providing expert judgements when

undertaking their assignments, especially working with specialists in technical areas outside accounting expertise. It was noted that water accounting and governance would involve critical technical elements beyond accounting expertise, but accountants could harness the knowledge of other experts as is currently the case with both conventional accounting audits and sustainability assurance. For instance, Big4 BFG suggests:

> *"But it's going to be a collaborative effort. It's not just going to be accountants. It's going to be collaborative. So, for instance, looking at the IFRS standard coming out with the support of accountants of course, but there's that need for subject matter experts as well who might not necessarily be accountants you know, for them to be able to work together such that a holistic approach is developed."*

However, there is the view that the total adoption of IASB standards by Nigeria and Ghana might pose some challenges as the powers for setting standards in these jurisdictions now reside with the IASB.

> *"West Africa, that is, specifically in Nigeria and Ghana, have keyed into global standard, for instance, accounting standards so we have adopted Global standards coming from international bodies like the National Accounting Standard board… We saw that in IFRS now we are looking at that across the ISSB International Sustainability Standards Board which is coming up with the sustainability standards. Now because of that, it will be difficult for the local firms [standard setters] to come up with a standard that will be specific areas of the SDG for instance SDG 6 which is clean water and sanitation, sanitation sorry. Right. So, I am seeing a lot of challenges over there."* (Big4 C)

Despite the above perceived challenge, accounting professionals offer alternative routes to achieve the localisation of accounting for water and dispel the impression that national standard setters cannot set local standards following the full adoption of IFRS. Hence, everyone has a role to play.

> *"Let me correct one impression. That Nigeria adopted IFRS does not mean that we ceded every standard setting right to IASB. Even the IASB constitution, allows a jurisdiction to embark on standards that are not yet on the agenda of IASB… Coming back to probably having a global standard on that, again that is what people like us are fighting ISSB… we have positioned that they should take critical issues relating to emerging economy and develop standards relating to that… Climate-related disclosure standard being developed is being driven by the developed countries and most of the emerging markets have negligible emission in this. It is you and I to*

push forward to propagate like you're doing now this area of water accountability before the ISSB. If they get a significant proposal on it, I rest assured you that they will put it on the agenda but how fast that could be I don't know. But another faster way of going about it is if the jurisdictions see it as critical relating to their own economy they can undertake it. When 1, 2, 3 jurisdictions have undertaken this project there's no way it will not attract the attention of the global body and by so doing we have escalated it to that level." (AMR1)

5.2.6. Adapting global standards or localising global standards

There is equally the argument that the focus should not be on adopting global standards but on adapting them where necessary to fit local contexts. This is quite essential as what would currently be beneficial for the developed economies may not be beneficial for Nigeria and Ghana now.

"We need to think local. .I think for now … our maturity levels are definitely not the same, so I think as of this moment you look at the global standards and try to create something local for now." (Big4 A)

"We can do it but to what extent will it get public acceptance? So, I would rather think that we should dialogue with the regulators and they come up with certain standards and reporting requirements so we looking at even CBN, and we looking at the Nigerian stock exchange to come up with certain regulations. In this case, the reporting entity will have nothing but compliance and the accountant will ensure compliance. That also will not stop the accounting profession from having a conversation with these regulators and saying look you know what, it may not be on our radar but we are seeing challenges in this area how do we work together to make sure that we drive standards for compliance in this area. So that will be my approach I want to say accounting professionals to come up with a standard this is because we have already keyed into global standards and we have to follow those global standards and not be seen as overburdening them complying with international standards also local standard to that I would say that we rather want to work with the regulatory aspect so that once we have the regulations in our local environments then regulation becomes easier." (Big4 C)

5.2.7. Water disclosure culture and water assurance

> *"So, for water-intensive organisations, a lot of them that I've come across do the report but they don't request for assurance"* (Big4 BFG)

For the current reporting framework that most corporations adopt, the GRI, water is not a priority area on which corporations select their KPIs for the purpose of assurance. Given the non-mandatory nature of such reporting practice, it is indicative that water is a neglected area of assurance even among water-intensive entities as some participants assert.

> *"Almost, I would say, 80% of sustainability reports would have made reference to GRI standards. However, the challenge I would [have] with that standard is that you can apply it to selected KPIs in the report… So even though they [corporations] … might have provided some information around other areas like water and sanitation, they would not ask you to provide assurance of that… But in providing assurance [based on GRI], you can be very selective on which areas you want to assure. So that is the challenge I have"* (Big4 C)

Overall, it is evident that the accounting profession and accountants have a role to play in initiating, training and driving the discourse on how to account for water, engaging with relevant stakeholders including the global standard setters to localise global standards on water in both countries. Negotiating support from standard setters and other key stakeholders requires tactful navigation because it is a political process. Moreover, accounting scholars have long noted accounting standard-setting as a political process (Chee Chiu Kwok and Sharp, 2005; Cortese, Irvine, Kaidonis, 2010).

6.0. Conclusion, and policy implications and recommendations

6.1. Conclusion

We set out to develop an understanding of the nature of the current water accountability and governance practices in Nigeria and Ghana and explore the roles the Nigerian and Ghanaian accounting professions can play in developing a water accounting and governance framework in these countries. What is obvious is that various stakeholders have considered water as a crisis requiring emergency attention in Nigeria and Ghana, and in both countries, the water crisis was linked to spatial, socio-political, economic, accountability and governance factors. Our study broadly indicates the ineffectiveness of the extant water accountability and governance in engendering access to the right quantity and quality of water in Nigeria and Ghana under SDG 6's strategic goal of water for all. Although water is a finite resource that must be conserved, providing safe and clean drinking water must become a crucial responsibility for all stakeholders. If SDG 6 is to be achieved, the management and governance of this limited resource for the benefit of all is highly essential, and this study contends that the accounting profession and the accountants have a role to play in the achievement of the SDG 6 targets. In addition, addressing the challenges posed by the lack of access to clean and safe water would entail the establishment and implementation of effective waste management and structures/systems to prevent the discharge of waste products into the environment.

In both countries, our study highlights that dysfunctional water governance and accountability systems have resulted in the inability of established agencies and even NGOs to test water quality and recover costs where water has been provided to communities. However, if SDG 6 is to be achieved, the conflicts of water being viewed as a common good to be made available without a charge and water being a social service to be provided at a subsidised rate need to be addressed in both countries. Our study highlights that until this is addressed, the sector will not be attractive to private investors, and subsequently would hinder the provision of clean and safe drinking water to even the poor in society.

Currently, the burden to provide water is apparently no longer on various tiers of government and its institutions but that responsibility has been abdicated to the citizens, resulting in the growth of mini utilities. The dysfunctional systems and the lack of political will to invest and nurture the provision of safe and clean drinking water are core challenges which will hinder the achievement of SDG 6 in both countries if not deliberately addressed.

To address the problems and challenges enumerated in this report, there is a need for stakeholders in both countries to consider a well-articulated water accountability and governance system as strategically important for SDG 6 to be achieved. Developing and implementing such a system to address the water crisis fundamentally requires a collaborative approach by relevant stakeholders of which the accounting profession can play key roles, including championing such initiative. Thus, there is a need for the accounting profession to look both inwards and outwards to develop effective initiatives and advocacy mechanisms to engage with relevant government agencies, and other stakeholders including academics, NGOs and international standard setters to prioritise sustainable water thinking and practices in both countries.

6.2. Policy implications and recommendations

Challenging and tackling the water crisis in both countries cannot be done overnight but momentum steps need to be taken to drive the sustainable changes required to achieve SDG 6. Given our findings, policies and practice could be directed towards the following recommendations.

i. The accounting profession should leverage its influence, networks and resources to develop and engage with relevant government agencies, institutions and policymakers to drive the establishment of an effective water accountability and governance framework that will operate in the case study countries, which can then be monitored and prioritised by their accounting profession.

ii. Awareness should be created by the Professional Accounting Organisations (PAOs) about the roles that accountants can play in championing water accountability and governance in Nigeria and Ghana.

iii. Attention should be given to developing accountants' skills to engage in water accountability and governance (e.g., through accounting education - curriculum, Continuing Mandatory Professional Education (MCPE), Certifications, Inductions/Orientations; Working with subject matter experts).

iv. The accounting profession should actively advocate for water accountability and governance with relevant government agencies and arms (strategically or tactfully utilising diplomacy, negotiation, and lobbying). This is important as the government and its agencies are key

stakeholders in the development of any water governance, accounting and accountability framework.

v. Prioritise the establishment of a water accounting steering group drawn from accounting practitioners and researchers, in conjunction with other key relevant stakeholders. The committee can then contemplate potential modes of developing water accountability whether by promoting guidelines emanating from the accounting institutions or regulators or by adapting international standards into localised standards (prioritising local peculiarities) to make them easily accessible by accountants in both countries.

vi. Give priority to sustainability thinking to promote the mainstreaming of SDG 6 and other SDGs into accounting practices in Nigeria and Ghana in the future. This might necessitate inaugurating a sustainability think-tank for water.

vii. Continuous engagement with the International Sustainability Standards Board to prioritise or support water accounting initiatives of Nigeria and Ghana in the short term and promote a global water standard in the long term.

viii. Support should be mobilised from various national accounting institutes and bodies across Africa led by the Pan African Federation of Accountants (PAFA) to build solidarity and strong voices at the International Sustainability Standards Board (ISSB) and the International Accounting Standards Board (IASB) agenda-setting stage.

6.3. Closing remark

Accountability and governance of water in Nigeria and Ghana currently presents itself as a difficult task to be addressed due to the ineffective governance framework, structures, and corruption. However, we believe that for meaningful and impactful changes to occur, there needs to be an honest conversation about what the SDGs (particularly SDG 6) imply for both the current and future generations. This conversation should extend beyond a mere political narrative used to signpost what could be achieved so that the implementation of the SDGs, particularly SDG 6, can be well-resourced to create an enabling environment for its actualisation.

Importantly, our study not only highlighted the desirability of well-articulated and functioning water governance and accountability but also the collaborative exigencies for them to achieve their objectives in

reality. Sustainable actions are required to address these challenges and such actions include the government setting the right tone at the top, reform of the extant water governance, decentralisation of the governance framework and creation of effective accountability mechanisms, continuity of government policy, effective data generation, water resources management framework and performance appraisal, planning, financing, monitoring and evaluation of policies. As a corollary, the accounting profession in conjunction with other key stakeholders including citizens, NGOs, and academics, among others, have critical supportive roles to play in shaping and designing water policies and enabling the environment that informs sustainable water investments and decisions. Accountants need to be involved at every stage of water projects. For instance, their involvement is valuable at the conceptual stage of water projects, in setting the standard to ensure that the projects are accurately costed, and adequate funding allocations are solicited to finance them, and the allocated funds are used for their intended purposes. While venturing into this space would create further visibility and opportunities for the accounting profession, it nonetheless broadens its responsibility in a dynamic society, which invariably would require professional re-orientation, sustainability thinking, upskilling and capacity-building, and developing negotiation, diplomacy, lobbying and political skills at both national and international levels.

References

Abubakar, I.R. (2018). Strategies for coping with inadequate domestic water supply in Abuja, Nigeria. *Water International*, 43(5), 570-590.

Accountability for Water. (2020). *Accountability & advocacy interventions in the water sector A review of global evidence*. [Online] Available at: https://static1.squarespace.com/static/5f4e5fb147d4e15989533988/t/60b65d1cf86f515b4fbed240/1622564128965/Global+Evidence+Review_Overview+and+Summary+Results.pdf [Accessed 16 September 2023].

Adank, M., Kumasi, T.C., Chimbar, J., Atengdem, J., Agbemor, B.D., Dickinson, N. et al. (2014). *The state of handpump water services in Ghana: findings from three districts*. 37TH WEDC International Conference, Hanoi, Vietnam.

Adeniji-Oloukoi, G., Urmilla, B., & Vadi, M. (2013). Households' coping strategies for climate variability related water shortages in Oke-Ogun region, Nigeria. *Environmental Development, 5,* 23-38.

Adjei-Mensah, K. and Kusimi, J.M. (2020). Dwindling water supply and its socio-economic impact in Sekyere Kumawu District in Ashanti Region of Ghana: public opinion on the role of climate change. *GeoJournal*, 85, 1355-1372.

Allan, T. (2001). The Middle East Water Question: Hydropolitics and the Global Economy; I.B.Tauris & Co. Ltd.: London, UK.

Arora, N. K. and Mishra, I. (2022). Sustainable development goal 6: Global Water Security. *Environmental Sustainability, 5,* 271-275.

Awuah, E., Nyarko, K. B., & Owusu, P. A. (2009). Water and sanitation in Ghana. *Desalination*, *248*(1-3), 460-467.

Bertule, M., Glennie, P., Bjornsen, P. K., Lloyd, G. J. et al. (2018). Monitoring Water Resources Governance Progress Globally: Experiences from monitoring SDG Indicator 6.5.1 on integrated water resources management implementation. *Water, 10*(12), 1744.

Brinkerhoff, D. W., & Wetterberg, A. (2016). Gauging the Effects of Social Accountability on Services, Governance, and Citizen Empowerment. *Public Administration Review*, *76*(2), 274–286. https://doi.org/10.1111/puar.12399

Carnegie, G., Parker, L. and Tsahuridu, E. (2021). It's 2020: What is Accounting Today? *Australian Accounting Review*, 96(31), 65-73.

Chalmers, K., Godfrey, J. M., & Lynch, B. (2012). Regulatory theory insights into the past, present and future of general-purpose water accounting standard setting. *Accounting, Auditing & Accountability Journal*, *25*(6), 1001–1024.

Chee Chiu Kwok, W. and Sharp, D. (2005). Power and international accounting standard setting: Evidence from segment reporting and intangible assets projects. *Accounting, Auditing & Accountability Journal*, 18(1), 74-99.

Chitonge, H. (2010). Who is subsidising whom?Water supply cross-subsidisation policy, practice and lessons from Zambia. *Journal of Modern African Studies*, 48(4), 599–625.

Chitonge, H., Mokoena, A. and Kongo, M. (2020). Water and sanitation inequality in Africa: Challenges for SDG 6. In M. Ramutsindela and D. Mickler (eds.), Africa and the sustainable development goals (chapter 20, pp. 207-218), Springer: Cham, Switzerland.

Chynoweth, S. K., Zwi, A. B., & Whelan, A. K. (2018). Socializing accountability in humanitarian settings: A proposed framework. *World Development*, *109*, 149–162.

Citinewsroom.com (2022). Sachet water prices, others to increase from October 31. [Online]. Available at: Sachet water prices, others to increase from October 31 (citinewsroom.com). [Accessed on 11/12/2022].

CODE (2017). "Challenges in The Nigerian Water Sector – If the Problem is not Lack of Comprehensive Regimes, then what is it?" [Online] Available at: https://www.main.connecteddevelopment.org/1963-2/ [Accessed 20 October 2020]

Cortese, C.L. Irvineb, H.J. and Kaidonis, M.A. (2010). Powerful players: How constituents captured the setting of IFRS 6, an accounting standard for the extractive industries. *Accounting Forum*, 34, 76-88.

Council on Foreign Relations (2015). "The Consequences of Deteriorating Sanitation in Nigeria". [Online] Available at: https://www.cfr.org/blog/consequences-deteriorating-sanitation-nigeria [Accessed 20 October 2020]

Dailyuide (2022). Students of Nakpanduri Business SHS cry for Potable Water. [Online]. Available at: Students of Nakpanduri Business SHS Cry for Potable Water - DailyGuide Network [Accessed 11 December 2022].

Di Vaio, A., Trujillo, L., D'Amore, G. and Palladino, R. (2021). Water governance models for meeting sustainable development goals: A structured literature review. *Utility Policy, 72,* 101255.

Dubreuil, C., Van Hofwegen, P. and Conseil mondial de l'eau. (2006). *The right to water: from concept to implementation.* France: World Water Council.

Egan, M. (2014). Making water count: water accountability change within an Australian university. Accounting, Auditing & Accountability Journal, 27(2), 259-282.

Fayiga, A.O., Ipinmoroti, M.O. and Chirenje, T. (2018). Environmental pollution in Africa. Environment, Development and Sustainability, 20, 41-73.

Federal Ministry of Water Resources (FMWR), Government of Nigeria, National Bureau of Statistics (NBS) and UNICEF, (2022). Water Sanitation and Hygiene National Outcome Routine Mapping (WASHNORM) 2021: A Report of Findings. FCT Abuja, Nigeria.

FMWR (2016). National Water Resources Policy. Nigerian Federal Ministry of Water Resources.

Frimpong, J., Adamtey, R., Pedersen, A.B., Wahaga, E., Jensen, A., Obuobie, E. and Ampomah, B. (2021). A review of the design and implementation of Ghana's National Water Policy (2007). *Water Policy*, 23(5), 1170-1188.

Ghanaweb (2008). *How residents of Abutia Amegame are forced to rely on filthy water*. [Online]. Available at: How residents of Abutia Amegame are forced to rely on filthy water (ghanaweb.com) [Accessed on 11/12/2022].

Ghanaweb (2008). *Over 87% of Ghanaian households have access to water-Abena Dapaah*. [Online]. Available at: Over 87% of Ghanaian households have access to water - Abena Dapaah (ghanaweb.com). [Accessed on 11/12/2022].

Graphic Online (2013). *India offers US$180million credit facility to Ghana*. [Online]. Available at: India offers $180 million credit facility to Ghana - Graphic Online [Accessed 11 December 2022].

Graphic Online (2013). *Research hints of water crisis by 2025*. [Online]. Available at: Research hints of water crisis by 2025 - Graphic Online [Accessed on 11 December 2022].

Graphic Online (2017). *Water crisis looms in Western Region: Daboase water treatment plant risks shutdown*. [Online]. Available at: Water crisis looms in Western Region: Daboase water treatment plant risks shutdown - Graphic Online [Accessed on 11 December 2022].

Graphic Online (2020). *Use water judiciously to avoid crisis – GWCL*. [Online]. Available at: Use water judiciously to avoid crisis - GWCL - Graphic Online [Accessed on 11 December 2022].

Graphic Online (2022). *Dalun water treatment plant must be saved without delay*. [Online]. Available at: Dalun water treatment plant must be saved without delay - Graphic Online. [Accessed 11 December 2022].

Halbe, J., Pahl-Wostl, C., Lange, M.A. and Velonis, C. (2015). "Governance of transitions towards sustainable development – the water-energy-food nexus in Cyprus". *Water International, 40*(5/6), 877-894.

Hazelton, J. (2013). Accounting as a human right: The case of water information. *Accounting, Auditing & Accountability Journal*, *26*(2), 267–311.

Heller, L. (2022). Affordability in the access to services. In: The Human Rights to Water and Sanitation. Cambridge Studies on Environment, Energy and Natural Resources Governance (pp. 253-275), Cambridge: Cambridge University Press.

Hepworth, N.D., Brewer, T., Brown, B.D., Atela, M. Katomero, J., Kones, J. and Gashaw, M. (2022). Accountability and advocacy interventions in the water sector: a global evidence review. *H2Open Journal*, 5(2), 307-322.

HuffPost (2017*). "Nigeria's Water Bill Could Criminalize Drinking Water For Millions".* [Online]. Available at: https://www.huffpost.com/entry/lagos-water-crisis-bill-nigeria_n_58c8b63ce4b01c029d7758b7 [Accessed 20 October 2020]

Jeil, E.B., Abass, K. and Ganle, J.K. (2020). "We are free when water is available": gendered livelihood implications of sporadic water supply in Northern Ghana. *Local Environment*, 25:4, 320-335.

Jiménez, A., Livsey, J., Åhlén, I., Scharp, C., & Takane, M. (2018). Global assessment of accountability in water and sanitation services using GLAAS data. *Water Alternatives*, *11*(2), 238.

Jimenez, A., Saikia, P., Gine, R., Avello, P. et al. (2020). Unpacking Water Governance: A framework for practitioners. *Water, 12*(3), 827.

Jollands, S., & Quinn, M. (2017). Politicising the sustaining of water supply in Ireland – the role of accounting concepts. *Accounting, Auditing &Accountability Journal*, *30*(1), 164–190.

Kwen, J. (2022). Why the Water Resources Bill 2022 is generating controversies, Nigerian Vanguard, July 31, Retrieved from: https://businessday.ng/news/article/why-the-water-resources-bill-2022-is-generating-controversies/ (Accessed 11 December 2023)

Laban, P. (2007). Accountability and rights in right-based approaches for local water governance. World Resources Development, 23(2), 355-367.

Leck, H., Conway, D., Bradshaw, M. & Rees, J. (2015). Tracing the water-energy-food nexus: description, theory and practice. *Geography Compass, 9*(8), 445-460.

Letza, S., & Smallman, C. (2001). Est in aqua dulci non invidiosa voluptas In pure water there is a pleasure begrudged by none: On ownership, accountability and control in a privatized utility. *Critical Perspectives on Accounting*, *12*(1), 65–85.

Lohdip, Y, N. and Gongden, J. J. (2013). Nigerian water bodies in jeopardy: the need for sustainable management and security. WIT Transactions on Ecology and the Environment, *171,* 11-22.

Marotta, S. and Spina, F. (2020). Civil society and the movement for public water: Water management and its transformation in the UK and Italy. In: F. Barbera, I.R. Jones (eds.), The Foundational Economy and Citizenship: Comparative Perspectives on Civil Repair (pp. 181-204). Bristol: Bristol University Press.

Mutiganda, J. C., Skoog, M., & Grossi, G. (2021). Investigating the implementation of and accountability in PPPs: A case study in public water management. *Journal of Accounting in Emerging Economies*, *11*(1), 122–146.

MWRWH (2007). National Water Policy. Government of Ghana, Ministry of Water Resources, Works and Housing.

MWRWH (2014). Water Sector Strategic Development Plan (2012 – 2025): Sustainable water and basic sanitation for all by 2025. Ministry of Water Resources, Works and Housing: Accra.

Mycoo, M. A. (2018). Achieving SDG6: water resources sustainability in Caribbean Small Island Developing States through imprvoed water governance. *Natural Resources Forum, 42,* 54-68.

MyJoyOnline.com (2022). *Blunt thoughts: Losing from both ends – our natural resources in crisis and our economy in tatters*. [Online]. Available at: Blunt Thoughts: Losing from both ends - Our natural resources in crisis and our economy in tatters - MyJoyOnline.com. [Accessed 11 December 2022].

Naik, P.K. (2017). Water crisis in Africa: myth or reality? *International Journal of Water Resources Development*, 33(2), 326-339

NewSecurityBeat (2017). *"Water Stress, Instability and Violent Extremism in Nigeria"*. [Online] Available at: https://www.newsecuritybeat.org/2017/08/water-stress-instability-violent-extremism-nigeria/ [Accessed 20 October 2020]

Ngene, B.U., Uwafor, C.O., Bamigboye, G.O., Ogbiye, A.S., Ogundare, J.O. and Akpan, V.E. (2021). Assessment of water resources development and exploitation in Nigeria: A review of integrated water resources management approach. *Heliyon*, 7, e05955.

NRC (2019). *"Nigeria is steering towards another deadly Cholera outbreak"*. [Online] Available at: https://www.nrc.no/news/2019/april/nigeria-is-steering-towards-another-deadly-cholera-outbreak/ [Accessed 20 October 2020]

Nwankwo, E., Phillips, N. and Tracey, P. (2007). Social investment through community enterprise: The case of multinational corporations' involvement in the development of Nigerian water resources. Journal of Business Ethics, 73, 91-101

Ogden, S. G. (1995). Transforming frameworks of accountability: The case of water privatization. *Accounting, Organizations and Society*, *20*(2), 193–218.

Ogden, S. G., & Anderson, F. (1999). The role of accounting in organisational change: promoting performance improvements in the privatised UK water industry. *Critical Perspectives on Accounting*, *10*(1), 91–124.

Ogden, S., & Clarke, J. (2005). Customer disclosures, impression management and the construction of legitimacy. *Accounting, Auditing &Accountability Journal*, *18*(3), 313–345.

Ogunmupe, B. (2020). Implications of Water Resources Bill 2020. The Guardian, 8 October, Retrieved from: https://guardian.ng/opinion/implications-of-water-resources-bill-2020/ (Accessed 11 December 2023)

Pacific Council on International Policy (2019). *"Water Stress: A Triple Threat in Nigeria".* [Online] Available at: https://www.pacificcouncil.org/newsroom/water-stress-triple-threat-nigeria#:~:text=Nigeria%20is%20ranked%20among%20the,resources%20make%20governance%20more%20difficult. [Accessed 20 October 2020]

Pahl-Wostl, C. (2017). An evolutionary perspective on water governance: From understanding to transformation. *Water Resource Management*, 31, 2917–2932.

Paré, L., & Robles, C. (2006). Managing watersheds and the right to water: Indigenous communities in search of accountability and inclusion in Southern Veracruz. In *In P Newell & J Wheeler (eds) Rights, Resources and the Politics of Accountability. London: Zed, 06.*

Peloso, M., Morinville, C., and Harris, C. M. (2022). *Water Scarcity Beyond Crisis: Spotlight on Accra*. [Online]. Available at: Water Scarcity Beyond Crisis: Spotlight on Accra - Spotlight On Parched Cities, Parched Citizens (ijurr.org) [Accessed 11 December 2022].

Premium Times (2020). "Amidst coronavirus crisis, millions of Nigerians lack access to potable water". [Online] Available at: https://www.premiumtimesng.com/news/top-news/383423-amidst-coronavirus-crisis-millions-of-nigerians-lack-access-to-potable-water.html?tztc=1 [Accessed 20 October 2020]

Pulitzer (2011). "Many Leaks Yearning for Plugs in Nigeria's Water Sector". [Online] Available at: https://pulitzercenter.org/stories/many-leaks-yearning-plugs-nigerias-water-sector [Accessed 20 October 2020]

Pulitzer (2020)."Water Poverty in Nigeria: Effects and Impacts of COVID-19". [Online]. Available at: https://pulitzercenter.org/stories/water-poverty-nigeria-effects-and-impacts-covid-19#:~:text=With%20no%20water%20or%20sanitation,distancing%20is%20difficult%20to%20maintain. [Accessed 20 October 2020].

Rahaman, A. S., Everett, J., & Neu, D. (2007). Accounting and the move to privatize water services in Africa. *Accounting, Auditing & Accountability Journal*, *20*(5), 637–670. https://doi.org/10.1108/09513570710778992

Reuters (2016). "U.N. warns of water crisis in Nigeria's megacity Lagos". [Online] Available at: https://www.reuters.com/article/us-un-nigeria-water-idUSKBN14B1V9# [Accessed 20 October 2020]

Roberts, J., & Scapens, R. (1985). Accounting systems and systems of accountability—Understanding accounting practices in their organisational contexts. *Accounting, Organizations and Society*, *10*(4), 443–456.

Rogers, P., & Hall, A. W. (2003). *Effective water governance* (Vol. 7). Global water partnership.

Romzek, B. S., & Dubnick, M. J. (1987). Accountability in the Public Sector: Lessons from the Challenger Tragedy. *Public Administration Review*, *47*(3), 227–238.

Roncoli, C., Dowd-Uribe, B., Orlove, B., West, C. T., & Sanon, M. (2016). Who counts, what counts: Representation and accountability in water governance in the Upper Comoé sub-basin, Burkina Faso. *Natural Resources Forum*, *40*(1–2), 6–20.

Russell, S. and Lewis, L. (2014). Accounting and accountability for fresh water: exploring initiatives and innovations. In J. Bebbington, J. Unerman, and B. O'Dwyer, ed. *Sustainability accounting and accountability*. 2nd edition, Oxon: Routledge, pp. 213-229

Sahu, B. P. (2010). *Transparency, accountability in water service delivery, problems and prospects*. IRC Symposium 2010 Pumps, Pipes and Promises.

Sapienza, S., Akpe, A., Agyemang, S., & Sawyer, P. (2012). *What's Causing Water Shortages in Ghana, Nigeria?* Pulitzer Center. [Online] Available at: ehttps://pulitzercenter.org/stories/whats-causing-water-shortages-ghana-nigeria [Accessed 20 October 2022].

Schelder, A. (1999). Conceptualizing Accountability. In A. Schelder, L. Diamond, & M. F. Plattner (Eds.), *The Self-Restraining State*. Lynne Rienner Publishers. pp. 13–18.

Signori, S. and Bodino, G, A. (2013). Water management and accounting: remarks and new insights from an accountability perspective. *Accounting and Control for Sustainability* (*Studies in Managerial and Financial Accounting, Vol. 26*), 115-161.

Silvia, C. (2018). Evaluating collaboration: The solution to one problem often causes another. *Public Administration Review*, 78(3), 472-478.

Sinclair, A. (1995). The chameleon of accountability: Forms and discourses. *Accounting, Organizations and Society*, *20*(2–3), 219–237.

Tello, E., Hazelton, J., & Cummings, L. (2016). Potential users' perceptions of general-purpose water accounting reports. *Accounting, Auditing &Accountability Journal*, *29*(1), 80–110.

The Borgen Project (2018). "Solutions For Nigeria's Water Quality Challenges". [Online]. Available at: https://borgenproject.org/nigerias-water-quality-solution/ [Accessed 20 October 2020]

Tortajada, C. (2010). Water governance: Some critical issues. *International Journal of Water Resources Development*, 26(2), 297-307.

Tortajada, C. (2010). Water governance: Some critical issues. *International Journal of Water Resources Development*, *26*(2), 297–307.

Transnational Institute (2015). "Lagos Water Crisis" [Online] Available at: https://www.tni.org/files/publication-downloads/lagos_water_book_web_publishing_version_0.pdf [Accessed 20 October 2020].

United Nations World Water Assessment Programme (WWAP) (2003). Water for people, water for life: The United Nations World Water Development Report; United Nations Educational, Scientific and Cultural Organization (UNESCO): Paris, France, 2003.

United Nations, 2030 Agenda for Sustainable Development.

United Nations. (2023). *The United Nations World Water Development Report 2023: Partnerships and Cooperation for Water* (p. 189). United Nations Educational, Scientific and Cultural Organization, Paris. https://www.unwater.org/publications/un-world-water-development-report-2023

Vardon, M., Lenzen, M., Peevor, S. and Creaser, M. (2007). "Water accounting in Australia". *Ecological Economics*, *61*(4), 650-659.

Venturelli, A., Ligorio, L. and de Nuccio, E. (2023). Biodiversity accountability in water utilities: A case study. *Utilities Policy, 81,* 101495.

Vinnari, E., & Laine, M. (2013). Just a passing fad? The diffusion and decline of environmental reporting in the Finnish water sector. *Accounting, Auditing &Accountability Journal*, *26*(7), 1107–1134.

Vinnari, E., & Näsi, S. (2013). Financial and technical competence of municipal board members: Empirical evidence from the water sector. *Critical Perspectives on Accounting*, *24*(7), 488–501.

Water and Sanitation Program (2015). *Water Supply and Sanitation in Ghana: Turning Finance into Services for 2015 and beyond*. [Online]. Available at: CSO-Ghana.pdf (wsp.org). [Accessed on 11/12/2022].

Water Journalists Africa (2018). *"World Water Day: Nigeria Faces a Major Water Crisis".* [Online] Available at: https://waterjournalistsafrica.com/2018/03/world-water-day-nigeria-faces-a-major-water-crisis/#:~:text=Jurji%20noted%20that%20most%20of,lapses%20as%20poor%20water%20governance. [Accessed 20 October 2020]

Whaley, L. (2022). Water governance research in a messy world: A review. *Water Alternatives*, *15*(2), 218–250.

Woodhouse, P., & Muller, M. (2017). Water governance—An historical perspective on current debates. *World Development*, *92*, 225–241.

World Economic Forum (2023). The Global Risks Report 2023: 18th Edition. Insight Report.

WRC (2012). National integrated water resources management (IWRM) plan. Water Resources Commission, Accra, Ghana.

WRCA (1996). Water Resources Commission Act. Ghana.

Appendix 1

Goal 6. Ensure availability and sustainable management of water and sanitation for all.

6.1. By 2030, achieve universal and equitable access to safe and affordable drinking water for all.

6.2. By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations.

6.3. By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally.

6.4. By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity.

6.5. By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate.

6.6 By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes.

6.a By 2030, expand international cooperation and capacity-building support to developing countries in water- and sanitation-related activities and programmes, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies.

6.b Support and strengthen the participation of local communities in improving water and sanitation management.

Extracted from the United Nations 2030 Sustainable Development Goals