Governance and effectiveness of public–private partnership in Ghana's rural-water sector

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Abstract

Purpose – This study examined the governance and implementation of public–private partnership (PPP) based on the management contract model in the water sector in rural Ghana.

Design/methodology/approach – It employed in-depth interviews with key management officials and focus-group discussions among residents in selected water-stressed communities in the beneficiary District Assemblies. Thematic analysis was employed for the analyses.

Findings – The governance of the PPP project was characterized by a well-structured institutional arrangement and effective governance mechanisms. The PPP project has increased residents' access to potable and affordable water and facilitated local economic and social development in its catchment areas. However, insufficient funding, political interference, limited infrastructural capacity and pollution are threatening its success.

Originality/value – The study contributes to the literature on effective governance and performance of rural-based PPP water supply projects for the achievement of the sustainable development goals goal six on access to affordable and quality water.

Keywords Public–private partnership, Ghana, Water resources, Governance

Paper type Research paper

Introduction

Water is an important necessity of life. It is unsurprising therefore that the sixth goal of the Sustainable Development Goals (SDGs) has targeted clean water and sanitation for all by 2030. Despite the progress being made toward the provision of safe, clean and reliable water supply for the populace by the Government of Ghana, provision of potable water remains a challenge in some communities in Ghana. According to WaterAid (2021), over 4.4 million persons still cannot access clean water in Ghana. Similarly, one in every five children faces extremely high-water vulnerability [United Nations International Children's Emergency Fund (UNICEF), 2020], and one out of every 10 persons spends more than 30 min per day in search of an improved source of drinking water in Ghana (UNICEF, 2020). The issue is more prevalent in rural Ghana as rural dwellers have significantly less access to potable water than their urban counterparts (Sasu, 2020).

Consequently, the government, through the Community Water and Sanitation Agency (CWSA), has, among other efforts, implemented a public–private partnership (PPP) model christened the "Three–District Water Supply Scheme PPP Project" (initially starting with three districts and later expanded to cover six districts) to help address the issues in water-depressed rural communities and districts in Ghana. The project was a management contract between the CWSA and District Assemblies (both representing the government as owners)

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and VICCO Ventures, a private operator. Under the project 6,000 cubic meters of water was to be provided daily to residents in 162 communities in some six districts; four in the Great Accra Region (Ada East, Ada West, Ningo-Prampram and Shai-Osudoku); and two from the Volta Region of Ghana (North Tongu and Central Tongu). The total cost of the scheme was approximately USD 11 million (including consultancy services and the construction) (CWSA, n.d).

PPP refers to an arrangement between a public and private party for the effective and efficient delivery of public goods and services (Casady *et al.*, 2019; Klijn, 2010). Such arrangements are characterized by cooperation between the public and private sector partners mainly through contracts for the provision of public infrastructural goods and services while collectively sharing resources, responsibility and risk (Casady *et al.*, 2019). For any PPP arrangement to be successful, it needs to be supported by proper governance architecture (Akenkan, 2019; Sabry, 2015; Warsen *et al.*, 2020). Governance in the context of PPP refers to a set of arrangements that prescribe who should make, execute and be accountable for the conduct of a PPP, and how such conduct should be executed in line with the interests of other stakeholders (Wang *et al.*, 2020).

While some studies have examined PPP and governance issues (Sabry, 2015; Warsen *et al.*, 2020), few have focused on the water sector (Silvestre *et al.*, 2018), thereby necessitating further exploration as governance issues differ from one specific PPP to the other (Yun *et al.*, 2015). Moreover, governance in PPPs is under-researched generally in the context of developing countries (Bruton *et al.*, 2015; Silvestre *et al.*, 2018). Given that governance factors driving PPP adoption and success are distinct across countries (Brinkerhoff and Brinkerhoff, 2011; Hassen and Abdulwahed, 2014), empirical examination of PPP governance in the Ghanaian context is recommended (Ahenkan, 2019). Thus, this study aims to deepen the understanding of PPP governance by assessing: (1) the governance architecture, (2) the outcomes and (3) the challenges of PPP in Ghana's rural-water sector.

This study contributes to the literature on governance and performance of PPP in three ways. First, it shows that community-driven governance architecture can increase the success of rural-based PPP water supply projects to facilitate SDG goal six achievements on access to affordable and quality water. Second, there is a dominance of economics in PPP research based on transaction cost theory, neoliberal and new public management theory at the expense of organizational management theories like neo-institutional theory and stakeholder theory (Chetty and Luiz, 2014; Wang *et al.*, 2018). For instance, in Ghana, it has been observed that PPP has not realized the economic and social expectations as it is saddled with governance deficits due to the over-emphasis on public finance rationalization (Asare and Frimpong, 2013). Consequently, this study makes a theoretical contribution by applying the institutional theory and stakeholder theory. This helps in framing PPP beyond its obsession with economic efficiency to encompass critical social considerations and outcomes. Third, its findings can motivate similar future studies in different rural-based PPP models.

The next sections present the literature review, method, findings and discussions, implications and conclusion.

Literature review

Governance and water resources

Governance involves a set of relationships between management of a company, its board, its shareholders and other stakeholders (Puni and Anlesinya, 2020; OECD, 2004). It embraces a complexity of new actors, relationships and tools in the delivery of public service (Wang *et al.*, 2020). The United Nations Economic Commission for Europe (UNECE, 2008) reference guide identifies six core good governance principles: efficiency, accountability, fairness, decency,

transparency and participation. Other key governance mechanisms include monitoring, oversight, accountability and regulatory systems (OECD, 2012; Wang *et al.*, 2020).

Regarding water resources, the OECD identifies 12 principles of water governance, which are clustered around three key elements: effectiveness, efficiencies and trust and engagement (OECD, 2015). Effective water governance involves how governance is applied to clearly define sustainable water policy objectives and expectations at diverse government levels to ensure full and successful implementation of the PPP project. Similarly, efficient water governance is concerned with how water governance maximizes the welfare and benefits of sustainable water management practices while reducing the cost to the parties or society. Finally, trust and engagement aspects focus on how governance positively contribute to building trust or confidence in the society through stakeholder engagement in a fair and democratically legitimate manner to ensure that the interests of stakeholders are well addressed toward effective and efficient implementation of the water PPP projects (OECD, 2015).

PPP in Ghana

PPP has a long history in Ghana's development dating back to the post-colonial era. The first PPP contract saw the building of the Akosombo Dam after President Nkrumah allocated state funds and sourced private sector financial support for the construction of Akosombo Dam project in 1965 (Ansah, 2015). There are three main standard PPP models: (1) co-operation/joint venture model; (2) a concessionary arrangement involving Build, Own and Operate; Build, Own, Operate and Transfer; and (3) a service contract model involving a contract between a public and a privately owned organization (Ansah, 2015).

Through these modes, Ghana successfully delivered several energy projects (e.g. Bui Dam and Atuabo Gas Plant) and water delivery projects (e.g. Ghana Water Company and Aqua Vitens Rand Limited's management contract), among others (Ansah, 2015). The total investment committed to PPPs in Ghana since 1990 amounts to US$ 9,993 million (PPP Knowledge Lab, 2021). In 2011, the Ghanaian government promulgated the national PPP policy with support from the World Bank (Ansah, 2015). The policy has recently been backed by an Act of Parliament (Act 1039 of 2020). It provides direction for entering, developing and monitoring PPP projects for maximum success in the country.

Theoretical framework

This study is underpinned by the neo-institutional theory and stakeholder theory. The neo-institutional theory addresses issues about social arrangements and focuses on the formal processes by which social elements such as structures, rules and norms become conventionally acceptable guidelines for enforcing appropriate social behavior (DiMaggio and Powell, 1983; Scott, 2004). It underscores the role of institutions in exercising oversight over public affairs through rules, regulations, conventions, norms and practices (DiMaggio and Powell, 1983). The neo-institutional theory argues that state institutions create order and predictability, allowing them to fashion, empower and constrain behaviors in a particular manner among stakeholders in the realization of public value (DiMaggio and Powell, 1983; Scott, 2004).

While the institutional theory has been criticized for focusing on why organizations engage in activities that are legitimate in the symbolic realm rather than the material one (Suddaby, 2010), it enables us to appreciate the rationale for organizations to be committed to actions that defy economic logic or norms of rational behaviors (Suddaby, 2010), and the influences of institutional factors on properly functioning organizations. Thus, this theory has proven useful because it explains the structure and contribution of various institutional

bodies in ensuring that the service providers on the water projects act in a manner that provides value for all stakeholders as per the objectives of the intended project.

Similarly, the stakeholder theory asserts that an organization should be considered as the grouping of stakeholders, and its overriding purpose should be to manage the interests of these stakeholders (Freeman, 1984). The theory argues that the notion of stakeholder responsibility makes all parties to a social contract or agreement accept responsibility for the consequences of their actions, including the creation of value for key constituents (Rufín and Rivera-Santos, 2012). However, the stakeholder theory has been criticized for playing into the hands of special interests (Jensen, 2001). It can also potentially over-burden the limited resources of organizations and result in imbalances between stakeholders' demands, and the required economic costs (Anlesinya and Amponsah-Tawiah, 2020).

Nonetheless, it is an influential theory and has been widely used in several fields. For example, in the field of Corporate Social Responsibility (CSR) and strategic management, Anlesinya and Abugre (2022) applied the stakeholder theory to demonstrate that strategic CSR can create shared value for different organizational stakeholders by balancing and addressing their diverse interests. In the field of PPP, Wojewnik-Filipkowska and Wegrzyn (2019) used the theory to argue that balancing the different interests of stakeholders in PPP procurement can facilitate sustainable development.

Thus, in this study, the key stakeholders are the public institutions, the private sector operator, and the beneficiary districts and communities. Hence, the stakeholder theory provides a framework for understanding how the parties of the PPP arrangement manage their relationships and discharge their responsibilities effectively for the benefit of the residents with respect to access to portable water.

Governance of PPP: outcomes and challenges

Private investment in the water sector enhanced service delivery in South Africa by improving efficiency and technical skills without compromising the ability to realize equitable water distribution (Chetty and Luiz, 2014). Wang *et al.* (2018) found that PPP leads to more efficiency in operational performance. Similarly, the World Bank (2018) showed that private involvement in infrastructural projects contributes to improvements in infrastructural services, eases fiscal constraints and provides services for the poor. Likewise, Marin (2009) noted that PPPs are a viable option for reforming water utilities in developing countries.

Despite the above benefits, governance of PPP globally remains a challenge. The World Bank's (2017) assessment of PPP frameworks in 15 countries from both developing and developed counties shows that PPPs' management can be negatively affected by inadequate technical and financial capacity. Political interference also tends to adversely affect the success of PPPs (Ahenkan, 2019; Chetty and Luiz, 2014; Wang *et al.*, 2018). In Algeria, Mouraviev and Kakabadse (2015) found government dominance in PPP management as being inappropriate. Earlier, Brinkerhoff and Brinkerhoff (2011) contended that some level of fairness in decision making, rather than dominance of one or more partners, is key to the success of PPP projects. On tariffs in the water sector, Chong *et al.* (2006) found that average customer prices are significantly higher for PPPs as compared to direct public management.

Likewise, PPP in Ghana has been saddled with a governance deficit, which remains a serious policy problem (Ahenkan, 2019; Asare and Frimpong, 2013). PPP arrangements in Ghana have been characterized by massive elitism and patronage among political and economic actors that has often resulted in exploitation of citizens and wasteful dissipation of public funds (Ansah, 2015). This has been accentuated by the limited role of critical policy advocates in Ghana's PPP regime (Ansah and Takyikwaa, 2018). Similarly, Ahenkan (2019) found that lack of transparency and corruption can motivate the private sector to maximize

its profit at the expense of the public interest in PPP projects. Besides, challenges like poor stakeholder alignment and construction scope have been observed (Yussif, 2017).

Methodology

Research design and sample

The study employed the qualitative case-study method to explore the governance mechanisms and implementation of the Three–District Water Supply PPP project in the rural water sector in Ghana. This method helped in collecting socially specific and contextually rich data to provide an in-depth understanding of the study's objectives using a purposefully selected small sample of experts (Ahenkan, 2019). We focused on this PPP project because it is the largest rural-based water delivery vehicle in Ghana, and governing a large project could be daunting due to its complexity and the diversity of its stakeholders' interests. Besides, this project has significant implications for the socio-economic wellbeing of the beneficiaries in these water-stressed communities.

The study purposively sampled 16 respondents/key stakeholders comprising key public parties (Community Water and Sanitation Development Board [CWSDB], CWSA, District Assemblies), the Private Operator (Vicco Ventures), as well as opinion leaders and residents drawn from the six beneficiary districts (see Figure 1-area map).

The sample size was obtained on the basis of theoretical saturation – the point in the data collection when it was realized that new data no longer contributed additional insights to the research questions under investigation (Guest *et al.*, 2020). The backgrounds of the respondents as shown in Tables 1 and 2 suggest that they have an in-depth knowledge and the experience to provide quality and relevant information on the issues relating to the project.

Data collection. The study employed focus-group discussion and in-depth interviews to enable us to triangulate, complement and obtain comprehensive data to address the research objectives (Natow, 2020). The instruments in Appendices 1 and 2 were designed, based on PPP governance literature (OECD, 2015; World Bank, 2017) and the Ghanaian national PPP policy and law, to collect data on the PPP governance architecture, outcomes and challenges. The in-depth interviews were administered on the Regional Director of CWSA, Chairman of the CWSDB, Chairman of the Presiding Members of the six districts, and the Assembly Member for the project Head Office. The focus-group discussion (Appendix 2) was conducted using purposively selected residents of the six districts comprise three residents (consumers), three vendors and two members of the District Assemblies' Water and Sanitation Committees (WATSANs) who provided their in-depth views on the topic. These participants which included regulators, political heads, supervisors, service providers and end-users helped in us to obtain rich data for the study. The focus-group discussion was also used to triangulate the views expressed by the key informants on the second and third objectives. Similarly, the instruments were assessed by some key players with requisite academia and industry experience and piloted at Department of Feeder Roads for further validation.

Earlier, we obtained an institutional ethical clearance from our university. Subsequently, an informed consent was sought from the study institutions and respondents including permission to record the interviews. The data collection spanned a period of five months from October 2018 to March, 2019, with each interview lasting between 45 and 80 min.

Data analysis

The study used thematic analysis. The authors transcribed and were familiarized with the data via several readings, then identified emerging sub- and main themes, which were subsequently charted and mapped for analyses and interpretation. The themes

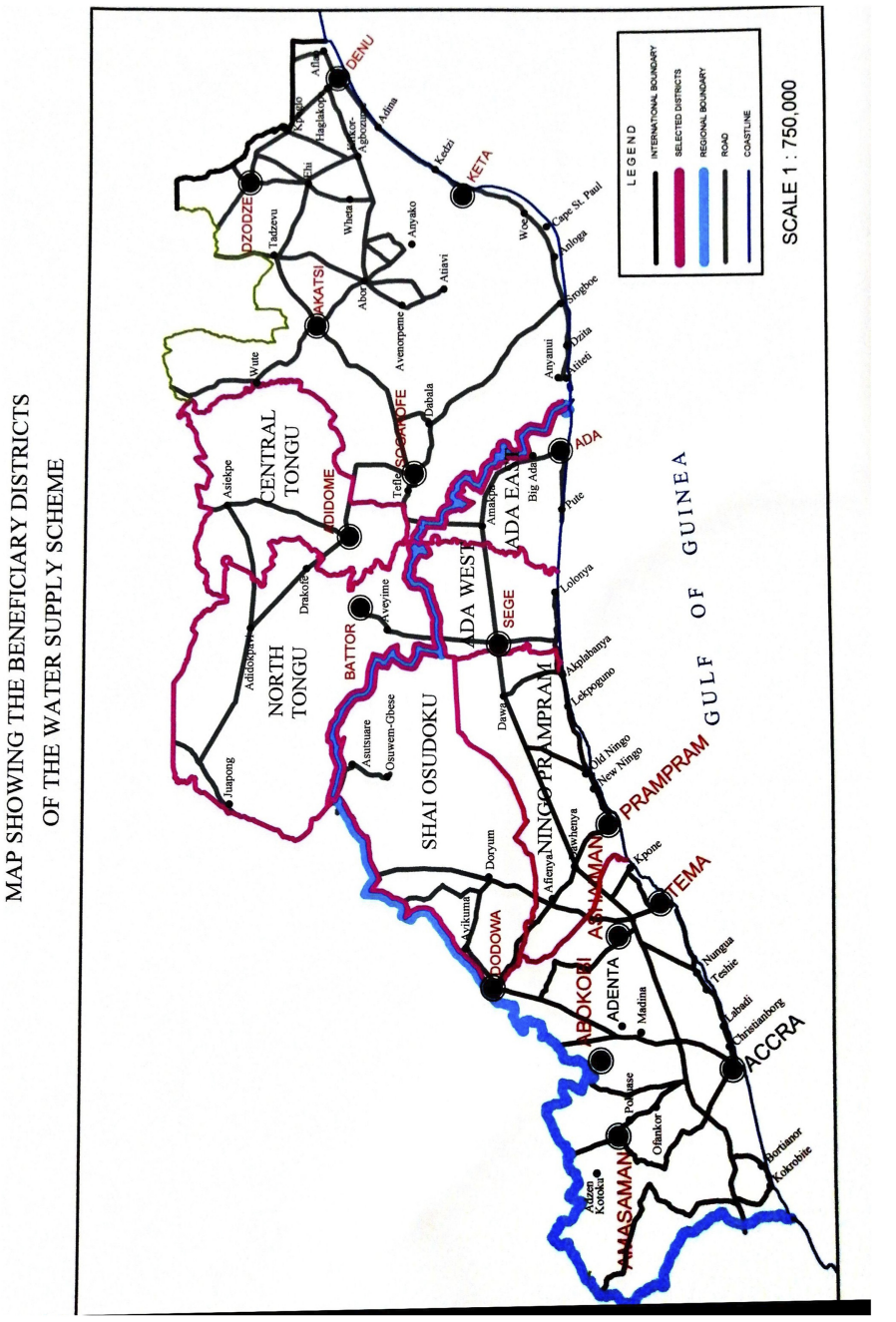

Figure 1.
Map showing the beneficiary districts of the water supply schemes

Code	Job position	Number	Education	Experience	Type of data	Age	Sex
P1	Regional director	1	Masters	30 years	Interview	55 years	Female
P2	Board chairman	1	Bachelor	50 years	Interview	80 years	Male
P3	Chairman of presiding members of 6 district assemblies	1	Masters	20 years	Interview	53 years	Male
P4	Assembly member	1	Bachelor	10 years	Interview	30 years	Male
P5	Administrator	1	Masters	5 years	Interview	34 years	Male
FGD	Residents (Informal sector workers)	8	Basic/ Secondary/ Tertiary	(Over 30 years tenure in community)	Focus group discussion	30–50 years	Mixed

Source(s): Field data

Table 1.
Respondents' profile

and sub-themes emerging from the data are illustrated in Figure 2 and show that the main themes are governance architecture, outcomes of PPP and challenges of PPP water governance.

Results and discussion

This section presents the findings in pure narratives interspersed with direct quotations from the data, and discussed within the context of relevant literature.

Governance architecture of PPP water projects

To understand how the rural-based water PPP project was being governed, respondents were asked to describe the institutional arrangements for the project, key actors and their duties, as well as what constitutes appropriate governance practices of the project. Their responses indicated that the governance architecture of PPP water projects has two main elements:

(1) Institutional arrangement and

(2) Governance mechanisms.

Institutional arrangement. The Three–District Water Supply PPP is a Management Contract between the Government of Ghana (represented by the CWSA and the District Assemblies) and the private systems operator, Vicco Ventures Limited. The institutions responsible for managing this PPP include the Ministry of Sanitation and Water Resources, CWDB, CWSA, the private operator and WATSANs. Other institutional stakeholders include the Regional Coordinating Councils and customers (the users). The membership of CWSDB includes representatives from CWSA, three District Assemblies, the private operator and WATSANs. Figure 3 summarized the governance architecture.

The CWSDB is the highest decision-making body in charge of the operation and maintenance of the PPP water system and provides strategic direction for service delivery and expansion planning. It is also responsible for the approval of water tariffs and procurement of assets, supervision of the private sector and approval of the annual budget of the company.

The CWSA is a body established by Act 564 of 1998, with the mandate of managing and regulating water service delivery in the rural water sub-sector including the Three-District Water Supply project in Ghana. CWSA had the mandate to provide oversight responsibility, checking for procurement, value for money audit of operations and approval at each stage.

Table 2.
Focus-group discussion respondents' profile

FGD Participants	FGD 1	FGD 2	FGD 3	FGD 4	FGD 5	FGD 6	FGD 7	FGD 8
Age	30	45	48	48	49	40 years	47 years	50 years
Gender	Male	Male	Female	Female	Female	Male	Male	Female
Education	Basic	Basic	Basic	Basic	Basic	Secondary	Secondary	Basic
Occupation	Corn mill operator	Trader	Food vendor	Water supplier	Water supplier	Teacher	Business man	Water supplier
Designation	Resident	Resident	Resident	Standpipe vendor	Standpipe vendor	WATSAN	WATSAN	Standpipe vendor
Location	Shai-Osudoku	Ningo Prampram	Ada-East	Ada- West	North Tongu	Ada-West	Ada-East	Central Tongu

Source(s): Field data

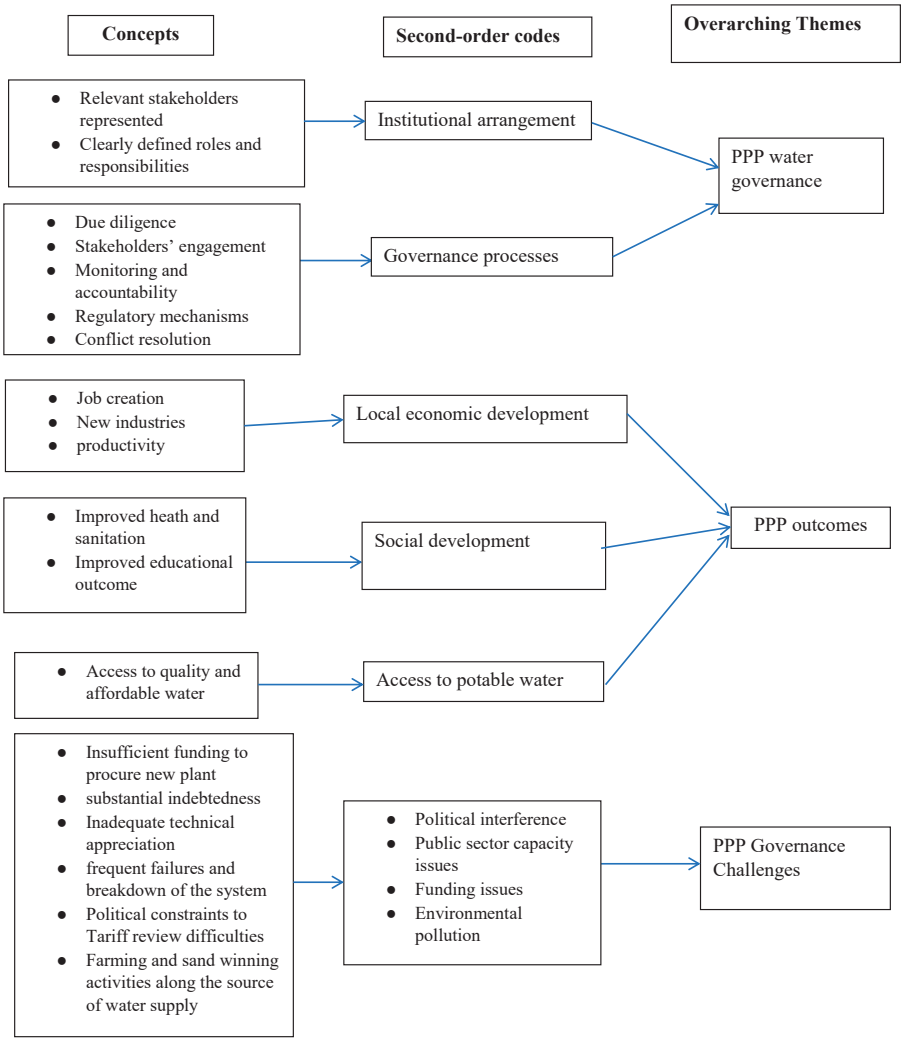

Figure 2.
Data structure and themes

With over two decades of experience in the delivery of safe water and sanitation services in rural communities and small towns, the CWSA implemented the three-district water scheme with a staff of competent professionals and technicians and with the support of experts and consultants from the Danish International Development Agency (DANIDA). These professionals guided the project with procurement, evaluation of tenders and the eventual award of contracts. DANIDA were the sponsors who provided the funds (approximately USD 11 million) for the construction of the project, offered technical assistance and monitored the progress of the project.

The *private operator* assumed the responsibility of the service provider in charge of day-to-day operations of the water supply system. Three key management personnel of the private operator including the general manager, technical manager and administrator are members of the CWSDB. The role of the three members on the CWSDB was in their technical

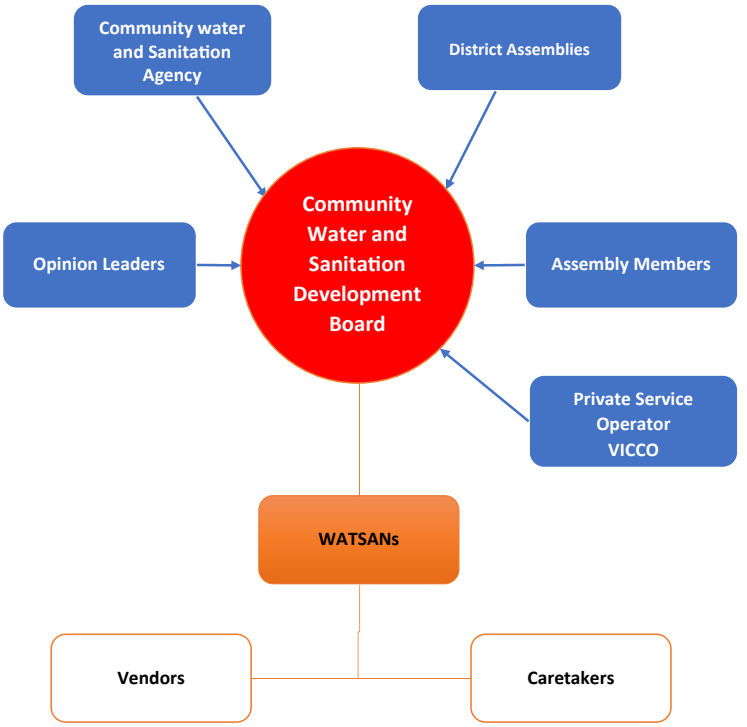

Figure 3.
Governance structure for the three-district water supply scheme

advisory capacities. Therefore, the Board was not bound by their advice, thereby limiting their participation in decision-making on the Board. This is inconsistent with the stakeholder theory (Freeman, 1984) because it does not foster a balance of relationships between the two key stakeholders – public and private partners; and the dominance of the public entity in PPP management may affect its effectiveness (Mouraviev and Kakabadse, 2015).

The *District Assemblies* (Ada East, Ada West and North Tongu District Assemblies) are the Service Authorities and have the legal mandate, as per the Local Governance Act (2016) (Act 936), to ensure that the water services were planned and delivered. Each of the District Assemblies delegated the management of the project to community-level bodies known as *Water and Sanitation Management Teams (WSMTs),* which was later referred to as CWSDB, and the WATSANs. According to the Regional Director at CWSA:

> . . . WSMT/CWSDB was there to oversee the operation of the private operator to ensure that the interest of the community is served by reviewing the tariffs and getting the district assembly to approve the tariffs based on the operations of the private operator.

Furthermore, the WATSANs are tasked to collect all bills and pay them to the operator, as well as provide a platform for discussion and consumer association meetings. Through the WATSAN, members from the beneficiary communities are nominated to sit on the CWSDB. As the Assemblyman for the Ada West District explained:

> WATSANs are a community management team. They were in charge of the various standpipes. Among them, leaders are selected to constitute the board. The board oversees the operations of the private system operator . . .

The above shows that the governance architecture is community-driven and has mechanisms for engaging the local community members through effective communication and consultation. This, as suggested by the institutional (DiMaggio and Powell, 1983) and stakeholder (Freeman, 1984) theories, can inject effectiveness, efficiencies and trust and in the governance of the project (OECD, 2015) and help to minimize potential costs to stakeholders while improving the value for the stakeholders.

Governance mechanisms. The participants were asked about the governance mechanisms that were put in place to ensure that the project is successfully implemented. As suggested in the literature (e.g. OECD, 2015; World Bank, 2017), their responses revealed that the governance mechanisms of this PPP project include due diligence, stakeholder engagement, monitoring and accountability, and regulatory and conflict resolution mechanisms.

Due diligence. The necessary due diligence protocols required of the PPP project were observed. Through the supervisory and facilitative role of CWSA, the project commenced with feasibility studies. Inspection was done with the technical support from DANIDA, and a team of engineers and planners from the District Assemblies. The team of consultants from DANIDA provided extensive consultation, control and ensured value for money during the construction stage of the project.

According to the Regional Director at CWSA:

> CWSA mainly had supervisory and monitoring roles on the project at the inception stage. Consultants come to do the feasibility studies, and then our Engineering Unit aided by the DANIDA technical team looked at the design, made input and suggestions, and then finalized feasibility reports. When it was finalized then the consultants were given the go ahead to go through the next stage which is the design stage.

The above indicates that the ideas of the institutional (DiMaggio and Powell, 1983) and stakeholder theories (Freeman, 1984) underpinned the design of the project since the existence of due diligence mechanisms is a necessary institutional process to create value for key constituents (Rufín and Rivera-Santos, 2012).

Stakeholder engagement. From the planning to the completion stages of the projects, all the key stakeholders, namely CWSA, DANIDA, the beneficiary Districts, the private parties, private consultants, contractors and community members, were involved. The communities were consulted through their leadership and all issues of concern to them were cleared. As the Chairman of Presiding Members of All Six Districts expressed:

> All the stakeholders and beneficiary communities were engaged through forums to assure them of the successful completion of the project. The communities were also encouraged to make their 5% contribution of the project cost.

Similarly, a resident of the Central Tongu District stated that:

> There are committees (WATSANs) in our local communities and towns who meet us regularly. They always came around to oversee the project and to monitor and address all issues anytime we (vendors and residents) call on them.

This means that there was an effective process of engaging the communities during the operation of the scheme, and this positively contributed to building trust or confidence that ensures that the interests of stakeholders are well addressed for successful implementation of the water PPP projects (OECD, 2015). From the stakeholder theory's perspectives, this result means that effective stakeholder management that characterized this PPP was intended to ensure its success because the failure of PPPs in several countries has been attributed to ineffective stakeholder involvement (UNECE, 2008; Wojewnik-Filipkowska and Wegrzyn, 2019).

Monitoring and accountability. The project had comprehensive monitoring and evaluation mechanisms even from the commencement stage. The project worked by creating a

governance system with adequate checks and balances between the CWSDB, who executed its oversight responsibilities of managing the revenues on the one hand, and the District Coordinating Directors (DCD) who were signatories to the checks under the water project. Under the agreement, the Private Operator was expected to prepare and submit monthly revenue reports to the Board. Through this function, the Board was able to conduct financial and performance audit, and assess the oversight functions of other institutions involved in the project. Besides, the issue of revenue sharing was effectively addressed through the functions performed by the Board as evidenced in the response by the Chairman of Presiding Members of the project districts:

> The board's main work was to ensure that the community water works efficiently without problem. They were the main managers that controlled or checked on the private company to ensure that water flows regularly and sufficiently, and further ensured that monies are not misused and the revenue shared according to the contract terms.

Moreover, the CWSDB had a monitoring mechanism for reaching out to the public to gather information about the service quality. The Board transmits this information to the operator as well as investigates all complaints lodged about the service quality. The beneficiary communities were zoned into eight areas for easy organization and mobilization to propagate information and receive feedback on the project operations. Each zone had two centers that served as converging points for holding periodic meetings. Consequently, there was an effective flow of information in addressing problems that were reported about the service delivery within the project operational area. As the Regional Director of CWSA narrates:

> The board meets the communities (zoned into 8), from time to time at least once a year. So we hold meetings at two centers in each of the zones. Before our meetings, we first send notices informing them about the agenda and seek their opinions on how best we can serve them and so on. We (i.e. CWSA) had the DANIDA technical assistance team who were basically at the top monitoring progress and compliance with our monitoring guidelines.

This means that the existence of adequate monitoring systems, checks and balances ensures accountability and transparency and promotes the success of the PPP project. This supported the institutional theory because it underscores the role of institutions in exercising oversight over the project actors via rules and practices to ensure order and predictability (DiMaggio and Powell, 1983).

Regulatory and conflict resolution mechanisms – it was found that the contract outlined the process through which disputes and conflicts such as tariffs determination issues were to be settled between the private partner and CSWA. Thus, if there were issues affecting the management of the project, then it was due to the failure of the parties to follow dispute resolution processes sanctioned by the governance structures. This was summed up by the Chairman of the CWSDB that:

> The Board had the overall supervision over the communities and the private service operator-ensures that water runs sufficiently, also ensure that the correct tariffs are charged and that monies are not misused.

This is corroborated by the Administrator of the Private System Operator who stated that:

> There was a time when we complained that they should increase the tariffs for us to get extra funds to settle our operational cost/ expenses, but the board maintained that the existing tariffs should be applied.

The above may have been instituted because of prior findings, suggesting that a sound regulatory regime and dispute management procedures prevent PPP failure by averting conflicts, contract delays and eventual termination (Currie and Teague, 2015; Pongsiri, 2002).

The above governance mechanism of this rural-based PPP project appears to be effective as it makes it possible for stakeholders to co-operate, monitor and demand accountability to ensure the success of the project (DiMaggio and Powell, 1983; Freeman, 1984). Thus, relevant governance principles are largely followed with respect to this project (e.g. OECD, 2012; UNECE, 2008).

Performance of PPP water projects

We sought to find out from the respondents what they consider to be the success of the project and whether they believe its intended outcomes are being met/unmet. The responses revealed some key direct and indirect benefits of the PPP water project were as follows:

Access to potable and affordable water. The representatives of the residents of the project communities vividly recounted how the project had solved the problem of perennial shortage of safe water for the most part of the year in these communities. Since the construction of the treatment plant, the people no longer had to depend on untreated water from the Volta Lake that was unwholesome for cooking and drinking. It has also addressed the inconvenience of residents having to depend on a rationing system before having access to water; and the evidence suggests the residents make a nominal savings of about 80% on every bucket of water (18 liter) they buy. The discussants expressed satisfaction with the outcome of the project in their respective communities. For instance, a resident of Shai-Osudoku district noted that:

> The water project has been really helpful to us. There has been a vast improvement in terms of water crises relative to the previous times. Formerly, water from our wells was salty and could not be used for many things. Now we solely depend on the water for bathing and drinking. Water flows in our taps regularly and some people who even thought their pipelines were malfunctioning had water through them.

Similarly, the Chairman of Presiding Members of the six districts noted that:

> Community members are now able to buy water at an affordable cost of GH¢0.20p ($ 0.040) per 18-liter bucket as compared to the previous price of GH¢1.00 ($ 0.202) for the same quantity from water tanker distributors (private operators).

The above findings are similar to prior findings that PPP improves equitable water distribution (e.g. Chetty and Luiz, 2014), eases fiscal constraints and provides services for the poor (World Bank, 2018).

Social development

The evidence showed that residents within the beneficiary communities have enjoyed relatively *good health* since the implementation of the project. Prior to the project, high incidences of cholera and malaria infections were reported, which negatively affected learning activities of the students and children on a regular basis. According to the Administrator of Vicco Ventures:

> Those times when there was a cholera outbreak in Ghana, this place is affected most, but ever since this water came, I can tell you that it has reduced drastically. Ever since I stepped here, when there is cholera outbreak in Ghana, there is no reported case from this community.

This was reiterated by a resident of Ada East District:

> We now have better sanitation and good health . . . we were able to avoid many incidences of disease such as cholera and malaria as well as water borne diseases that constantly afflicted them in the past.

Likewise, the Assembly Member for Ada West noted that the general sanitation situation among the inhabitants of the project beneficiary communities has greatly improved. The

project involved the implementation of a strategy geared toward improvement in hygiene and sanitation through the construction of soak-away, household latrines and public toilets, thereby improving the general sanitation and hygiene within the beneficiary communities. Subsequently, the incidence of ill-health conditions such as cholera and diarrhea among the people of the beneficial communities seemed to have reduced significantly.

Moreover, the project has enabled children of school-going age to have access to water in record time and attend to classes in good time, unlike in the past. As the Chairman of the CWSDB expressed:

> You know when it is time for school and children have to trek a kilometer to fetch water in buckets, it is very burdensome and can really affect their learning activities

This implies that access to quality water has positive externalities such as the reduction of time wasted in search for water among children as well as improving their quality of learning. This finding confirms Nauges and Strand's (2017) findings that the accessibility of water in the community and reduction in water collection period for school children means that they can stay in school longer.

Local economic development

Regular water supply had significantly contributed to improved economic conditions of the people; it has led to the establishment of small-scale industries (e.g. sachet water manufacturing firms), thereby creating more employment opportunities in the project's catchment areas. Similarly, workers of various institutions now more readily accept postings to these towns and villages than before. For adults, this translates to higher productivity because less amount of time would be spent in search for water. According to a standpipe vendor at Ada West:

> It has reduced the issue of unemployment due to sachet water companies engaging people to do various jobs. Over here at Sege, for instance, there are five sachets water producing companies that approximately employ more than thirty people.

Further evidence from the data revealed booming business operations in many of the catchment communities as a result of the presence of water. As the Administrator of Vicco Ventures indicated:

> Many businesses have come here, the first thing they do is that they come to us for water. If they don't get water, they don't set up their businesses. A lot of businesses followed; hospitals, clinics, and there are new ones that they are building. So lots of projects came here because there was water here and a lot of health workers, teachers all came here and they were comfortable here. So I can see that economically it has helped the locals.

These findings are consistent with the institutional theory (DiMaggio and Powell, 1983) and stakeholder theory (Freeman, 1984) that effective PPP implementation can create value in the public sphere (see Alford, 2011).

PPP governance challenges

When the respondents were asked about challenges facing the project implementation and why, it was revealed that a range of unfavorable factors are inhibiting the proper functioning of the project, which is discussed next.

Financial issues. The capacity of the service authority to provide sufficient funding to procure new plant and machinery to carry out the project activities as required by the operator is limited. The operator maintains that the management fee is not sufficient to resolve all the expenses incurred on the project. This cripples their efforts to discourage

water vendors from selling water to consumers on credit; thus, making it difficult to collect revenue effectively. Consequently, this led to substantial indebtedness to the Private Partner amounting to about GH¢ 400,000 ($80,000). This is hampering its ability to deliver service to the people adequately as required. According to the Administrator of Vicco Ventures:

> . . . Our challenge was mainly about finance. We were complaining bitterly that the 45% they were giving us was not enough and they made us do things that we are not supposed to do for the benefit of the community members where we had to commit more resources. At the end of it we got nothing from it . . . Paying the bills was becoming a problem . . ..

This situation was compounded by a high default rate on the part of residents that led to intermittent cutting of the water supply, which often resulted in conflict with the communities. According to the Board Chairman:

> So as a matter of fact, indebtedness is a very big problem. As individual members of the board and the zonal reps, sometimes we are attacked verbally; especially when water is not flowing for some days due to default, the people got angry and abused us.

Inadequate technical appreciation. Even though the existing infrastructure for operating the scheme had outlived its usefulness, it was obvious that there was a lack of technical appreciation by the CWSDB and the District Assemblies as to what should be done to sustain the operations of the project as evidenced in a report by the CWSA and data from the respondents. According to the Greater Accra Regional Director of CWSA:

> Some of the issues were beyond the technical skills of the board members. They were mainly volunteers and so they couldn't follow most of the guidelines and this led to regular breakdown of our system.

This was confirmed by the Administrator of the private operator who indicated that

> the caliber of people on the board was not that high because, they really didn't understand water management . . .

This implies that the availability of adequate technical knowledge and skills is required to ensure that the expected outcome of the project is realized (Ahenkan, 2019; World Bank, 2018).

Infrastructural issues. The project was confronted with infrastructural challenges. One such challenge was the difficulty on the part of the private operator to extend and replace pipelines to homes as the cost of procuring equipment is unaffordable. Others include frequent failures and breakdown of the water treatment plant due to pressure on the system. Hence, vendors complained about the pressure of having to wake up so early or working late into the night in order to be able to serve all consumers. A vendor from the Central Tongu District indicated that:

> . . . whenever the public standpipes are crowded, we the vendors find it difficult in serving the buyers and it leads to chaos and all sorts of insult on us, so the extensions can be of great help.

Another vendor from North Tongu District confirmed that:

> As said by my fellow vendor, due to the shortage sometimes, we are compelled to wake up at 12:00 a.m. or 1:00 a.m. whenever it starts flowing till 6:00 p.m. or 7:00 p.m.

A member of the Water and Sanitation Committee noted that:

> . . . there are areas that are still in need of water because the extensions do not get there . . . maintenance of equipment used for the project was not being kept to match the pressure of operations thus resulting in frequent failures and breakdown of the system.

According to the Administrator of Vicco Ventures, the pressure led to a breakdown of the pipelines.

> In 2017, we prepared our annual report and from the analysis of the report we realized that some of the distribution lines needed to be changed immediately but they took it lightly.

Political interference. Political interference is among the challenges that affect smooth governance of the projects. The decision to increase tariffs in order to meet the expectations of the operator had its own political, economic, social and cultural implications. For instance, it was challenging for the Board to effectively prosecute people in court as some influential political figures would not allow this for fear of losing votes in the next election. The Chairman of the CWSDB stated that:

> . . . When people are to be made to do the right things, politics comes in to water it down. I mean it is everywhere. So to this question of taking people to court, we don't negotiate it with the District Chief Executives because they wouldn't want it because it can affect the government's chances of success in the next elections.

The Chairman of all Presiding Members of the District Assemblies confirmed that:

> It is not politically expedient to prosecute people in court because he or she owes water bill, you cannot do that.

This is consistent with existing studies (Ahenkan, 2019; OECD, 2017; Chetty and Luiz, 2014) that political factors tend to make it difficult for the operation of PPP programs, particularly in the water sector.

Environmental issues. Although the project was successful, it faces serious environmental challenges. It is confronted with the issue of sand winning along the source of water intake on the River Volta. The North Tongu District Assembly granted a license to the sand winners operating on the River Volta near the source of water to the treatment plant at Aveyime. According to the Regional Director of CWSA:

> . . . We have a problem with some sand winning companies. There are people dredging sand from the Volta River. Some of them are getting close to our enclave and disturbing the water there so we need to look at the environmental safeguards.

Likewise, the project was saddled with environmental challenges as a result of farming activities. In the views of Regional Director of CWSA:

> Some of the farming activities that they carry out are dangerous to our operations in terms of it flowing into the water and polluting the water. We would engage them and educate them on what needs to be done to ensure that the environmental safeguards are implemented or adhered to.

This indicates that farming and sand winning activities compromised the quality of the water by increasing the turbidity (suspended solids) of the water and water contamination. Additionally, these environmental practices increased operational costs due to the need for regular cleaning of sand filters, procurement of more chlorine, and frequent maintenance of pumps and filters, which further culminates in irregular provisions of water across the scheme; hence, threatening revenue mobilization, and the erosion of gains made by the project.

Theoretical and practical implications

Although there are extant works on the implementation and governance of PPP projects, there is a dearth of studies within the water sector. Likewise, there is a dominance of economic perspectives that are driven mainly by the transaction cost theory relative to organizational management theories (see Chetty and Luiz, 2014; Wang *et al.*, 2018). Accordingly, this

contributes to PPP theory by integrating the perspectives of institutional and stakeholder theories to enhance understanding of the implementation, governance and performance of rural-based PPP water supply projects. It suggests that governance architecture for managing PPP water projects should emphasize adequate representation of all relevant stakeholders with clearly defined roles. This is because it ensures the existence of robust and well-balanced management of the PPP water projects through effective stakeholder engagement, due diligence, accountability, regulation and relationship management at each stage of the project implementation.

Practically, it implies that engagements with all key stakeholders (i.e. farmers, sand winners, the communities, relevant institutions/partners) is necessary for the development of environmental safeguards for the project without compromising the basic livelihood of the communities in question. Moreover, successive governments should express strong political support for the smooth implementation of PPP projects in the water sector. Besides, there should be increased capacity for debt collection from vendors and injection of new funds to expand the infrastructure of the project to meet the growing needs of the residents. Finally, the traditional concept of value-for-money must be extended in the financial and economic outcomes to include the long-term positive externalities, which are all essential elements of the SDGs.

Conclusion

In conclusion, using qualitative data and the theoretical perspectives of the stakeholder and institutional theories, we examined PPP and its governance in the water sector in rural Ghana. Our findings showed that a well-structured institutional arrangement and effective governance processes are necessary for rural-based PPP projects to generate direct benefits and positive externalities in the project's catchment areas. However, its success is threatened by unfavorable political, human resource, economic and environmental conditions that should be addressed so that the project continues to create value to residents in the beneficiary communities. This implies that the success of PPPs hinges on quality public sector capacity, funding, physical infrastructure, political will and stakeholder cooperation.

Limitations and future research

The PPP examined in the present study is a management contract, and its findings may be limited to other PPP models. Similarly, this study focused only on a community/rural-based water supply PPP project. Moreover, the use of the qualitative method may limit the generalization of the findings. These limitations offer useful future research opportunities on governance and PPP projects in the waters sector. For instance, future researchers can employ a quantitative method to validate our findings with a larger sample of respondents. They may also focus on other PPP models in urban and rural-water supply contexts.

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Appendix 1
Interview guide
A1. SYNOPSIS

This research is a PhD work, aimed at exploring public–private partnership (PPP) governance issues in the Ghanaian water sector. In seeking to bring about a successful project outcome, the roles of governance institutions on PPP must be identified and thoroughly examined. The outcome of this research is expected to contribute to knowledge, theory and practice in the field of academia and public policy management. To Ghana as a country, this research will significantly contribute toward achieving the goals of PPP in the water sector through the implementation of an appropriate governance framework. In terms of PPP policy formulation and implementation, this work has the implication of providing the framework for successful delivery of PPP agenda in the water sector. It would therefore be appreciated if you could help by way of answering the questions that follow. All responses will be used for the purpose of this study.

JOSEPH GERALD NII TETTEH NYANYOFIO
PhD Candidate TEL. 0243585061

ITEM	VARIABLE	CODING CATEGORY
1.1	Interview Date	(MM/DD/YYYY) ----------
1.2	Time of interview	From …….to …….
1.3	IDI Participant Number	
1.4	Sex	Male ---------- 0 Female---------- 1
1.5	Name of Organization	Ministry of Finance----------0 Ministry of Water----------1 PURC ---------- 2 Ghana Water Co Ltd ------- 3 Comm. Water and Sanitation Agency-- 4 Other ---------- 5
1.6	Type of *governance institution*	Monitoring---------- 0
		Due-Diligence------ 1 Regulation ----------2 Oversight ---------- 3 Accountability ------4
1.7	No. of year with the Org.	----------
1.8	Designation of Interviewee	Middle level ---------0 Senior Level --------- 1

A2. Issues Regarding Institutional Governance Mechanisms

2.1 What is your opinion about the institutional arrangements for the project?

2.2 What has been the role of your organization in the governance of this project during the following stages?

- o Initial stage
- o Intermediate level
- o Post-contract stage

2.3 Please give a brief description of the main duties, roles and responsibilities of your unit/institution in the following governance areas (indicators):

- o *Monito*ring
- o Due-diligence
- o Regulation
- o Oversight/Supervision
- o Accou*ntability*

2.4 In what specific ways has your institution influenced the implementation of the project in order to achieve the needed outcomes?

2.5 Please what is your impression about the National PPP policy framework?

2.6 What is your assessment of the roles of the various institutions is as indicated in the national PPP policy framework?

2.7 So far, how has your institution been engaged on matters regarding your role on the project?

2.8 In your opinion, what constitute appropriate governance practices that affect the implementation of the project?

- o Please share with me how they are actually being done.

2.9 In your opinion, which are the additional governance practices/mechanisms you believe should be put in place to make this project a success?

2.10 In your opinion, what has been the extent of coordination among the governance institutions on the project?

- o So far which institution has done what?

A3. The Influence of Governance on projects outcomes (stakeholders' interests)

3.1 In your opinion, how is governance influencing the implementation of the project? *(Both negatively and positively)*

3.2 What is your opinion about the claim that governance is central to the success of such projects?

3.3 How is the central government supporting your organization to undertake its governance responsibilities on the project?

3.4 What obstacles do you think remain in the system which may inhibit your institution's efforts in performing its governance responsibilities?

A4. Issues regarding the challenges of the project

4.1 What are the challenges in the implementation of the project?

4.2 What in your opinion accounted for the challenges currently being faced on the project?

4.3 Kindly list some of these reasons/factors

4.3 On a scale of 1–5 how would you rank these factors?

4.5 In your opinion, how should those challenges be resolved?

4.6 What practical suggestions do you have aimed at making the project a success?

A5. Issues regarding projects outcomes

5.1 What is your assessment of the success or failure of the project outcomes in the following areas?

- Access to potable water
- Cost of water (per bucket/cubic meter)
- Water quality
- Value for money
- Apart from these, what other outcomes do you believe were/are being realized under the project?

5.2 In your opinion, do you believe the intended outcomes of the project are being met/unmet?

5.3 Please have we missed something you think is important or is there anything else we should talk about regarding this project?

Thank you

Appendix 2

Focus-group discussion instrument

A1. SYNOPSIS

This research is a PhD work, aimed at exploring public–private partnership (PPP) governance issues in the Ghanaian water sector. In seeking to bring about a successful project outcome, the roles of governance institutions on PPP must be identified and thoroughly examined. The outcome of this research is expected to contribute to knowledge, theory and practice in the field of academia and public policy management. To Ghana as a country, this research will significantly contribute towards achieving the goals of PPP in the water sector through the implementation of an appropriate governance framework. In terms of PPP policy formulation and implementation, this work has the implication of providing the framework for successful delivery of PPP agenda in the water sector. It would therefore be appreciated if you could help by way of answering the questions that follow. All responses will be used for the purpose of this study.

Joseph Gerald Nii Tetteh Nyanyofio
PhD Candidate TEL. 0243585061

A2. Issues regarding stakeholder (community) engagement

- How did you know about the implementation of this project?
- For instance, before the commencement of the project how were you involved and how did you get to know that the project had been initiated?
- How do you get information about happenings on the project?
- How are your complaints reported (if any) and how are they resolved?

A3. Issues regarding the challenges of the project

- What do you know about the problems of the project?
- What is your opinion regarding what accounted for the challenges currently being faced on the project?
- How do you think the challenged can/should be resolved?
- In your opinion, explain why/why not you would want the government to continue with the project.

- What practical suggestions do you have aimed at making the project a success?

A4. Issues regarding project outcomes

- How were you getting water before the project was implemented?
- How different is the situation after the project came into existence?
- Please explain why in your opinion you believe the intended outcomes of the project are being met/unmet in line with the following indicators
  - Access to potable water
  - Cost of water (per bucket/cubic meter) vs other means of getting water
  - Water quality
  - Apart from these indicators, what other outcomes do you believe were/are being realized under the project?
- Please have we missed something you think is important or is there anything else we should talk about regarding this project?

Thank you

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