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Access to services in low-income city communities

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Contents

1. Introduction

The Rurban Africa project is exploring the connections between rural transformations, mobility, and urbanization processes and analyzes how these contribute to an understanding of the scale, nature and location of poverty in sub-Saharan Africa. It is advancing the research agenda on rural-city connections in sub-Saharan Africa by addressing a range of crucial components: agricultural transformations, rural livelihoods, city dynamics, and access to services in cities. The project has worked in four countries: Cameroon, Ghana, Rwanda and Tanzania. This report is the fourth Deliverable under Work Package 4, Access to services in low-income city communities.

The first Deliverable under Work Package 4 presented an overview of selected public services in Sub-Saharan Africa, based on review of literature supported by analysis of Demographic and Health Surveys (DHS) data and country reports on the four countries (Medland et al. 2014a and Ngouanet et al. 2014; see also Medland et al. 2014b).

The services considered were sanitation, water, electricity, education, health, mobile phones, urban transport and street lighting. For each service the Deliverable presented an overview of provision and access to services in urban and rural areas of Sub-Saharan Africa, together with more detail on the service in the four case study countries: Cameroon, Ghana, Rwanda and Tanzania.

The second WP4 Deliverable (Smout et al. 2015a; Smout et al. 2015b) was based on the results of fieldwork carried out in urban areas of Cameroon, Ghana and Tanzania. It presented urban residents' perspectives on the accessibility and acceptability of services in four sectors: water, sanitation, electricity and transport. Fieldwork and data collection for this were done jointly with work package 3 on City Dynamics, and details are described by Gough et al (2015). Within each city, up to five residential areas were selected to cover a range of settlement characteristics – older and newer areas, income levels and types of location and population movement. Data were collected for work packages 3 and 4 from a total of 28 settlements in the six cities - Douala and Bafoussam in Cameroon, Accra and Sekondi-Takoradi in Ghana and Dar es Salaam and Arusha in Tanzania.

A qualitative methodology was followed, using focus group discussions, semi-structured interviews and in-depth interviews. The fieldwork findings were written up as 28 Settlement Profiles (Gough et al 2015, Appendices). The country teams also completed a standard table for each settlement, summarising the findings related to access to services, quality of services and the focus groups' ranking of the services according to their priority for improvement (Smout et al 2015a - Appendices).

Unfortunately there was a delay in conducting fieldwork in Rwanda, but a later report presented the fieldwork results from Rwanda for WP3 and WP4 together (Twarabamenye E and Singirankabo A 2015).

A third WP4 Deliverable was prepared on Mobile-based services and rural-urban linkages (Fisher et al, 2015). This found that 75% of individuals in urban areas in the case study countries have access to mobile phone services, even if they do not own their own phone. Benefits to users include social and business contact without the need to travel, and money transfer facilities.

This Deliverable D4.4 focuses on the governance of services in five sectors - water, sanitation, electricity, transport and mobile phones – in three countries: Cameroon, Ghana and Tanzania. The

five services are very different and the report is structured by service, to draw out common themes across the countries. The objectives of this deliverable are

1. to understand the governance of water, sanitation, electricity, access roads and mobile phone services in the six cities

2. to identify implications for future planning and regulation of these services in low income urban communities.

The report presents the results of fieldwork carried out in six cities - Douala and Bafoussam in Cameroon, Accra and Sekondi-Takoradi in Ghana and Dar es Salaam and Arusha in Tanzania. The research focused on governance of services within the same settlements as studied for the previous deliverables.

After this introduction, section 2 provides a brief explanation and overview of governance of services, followed in section 3 by a description of the research methodology on which this deliverable is based. The results are set out in sections 4 to 8, considering each service in turn. The findings are then discussed in section 9 for all the services, together with their policy implications.

Detailed supporting information is provided in the Annexes.

2. Governance of Urban Services in Sub-Saharan Africa

Governance was defined by the UNDP (1997) as

The exercise of political, economic and administrative authority in the management of a country's affairs at all levels. Governance comprises the complex mechanisms, processes and institutions through which citizens and groups articulate their interests, mediate their differences and exercise their legal rights and obligations. Good governance has many attributes. It is participatory, transparent and accountable. It is effective in making the best use of resources and is equitable. And it promotes the rule of law. Governance includes the state, but transcends it by taking in the private sector and civil society. All three are critical for sustaining human development. The state creates a conducive political and legal environment. The private sector generates jobs and income. And civil society facilitates political and social interaction - mobilising groups to participate in economic, social and political activities.

Governance is widely regarded as a key issue in international development, especially by donors. For example, the UK Government 2006 White Paper on International Development was entitled "Eliminating World Poverty: Making Governance Work for the Poor" and the Secretary of State stated in a preface:

Whether states are effective or not – whether they are capable of helping business grow, and of delivering services to their citizens, and are accountable and responsive to them – is the single most important factor that determines whether or not successful development takes place. Good governance requires: capability – the extent to which government has the money, people, will and legitimacy to get things done; responsiveness – the degree to which government listens to what people want and acts on it; and accountability – the process by which people are able to hold government to account.

As in the quote above, accountability is widely regarded as a component of governance. Afrobarometer has been conducting public attitude surveys across Africa since 1999 and results for Round 6 (2014/15) covering both urban and rural areas in 36 countries include the following (Walker 2016, Oyuke et al 2016, Bentley et al 2015):

- Asked what were the most important problems facing their country that governments should address, respondents across Africa rated Unemployment, Health and Education as the top three priorities overall, with Infrastructure/transport as 4th priority, Water supply 5th and Electricity 11th. More details of the service ratings in the RurbanAfrica countries are shown in Table XX

Table 1: Services rated as a Top Three Priority

	Africa	Cameroon	Ghana	Tanzania
Infrastructure/transport	22%	24%	30%	26%
Water supply	20%	15%	20%	29%
Electricity	13%	13%	31%	15%

Table 1 shows % of respondents who identify each issue as one of their country's three most important problems.

- The current government's handling of providing water supply and sanitation services was rated as "fairly badly" or "very badly" by 55% of respondents across Africa (including Cameroon 61%, Ghana 66% and Tanzania 55%)
- Among citizens who tried to obtain water, sanitation or electricity services from government in the past 12 months, 55% of respondents said this was difficult or very difficult (including Cameroon 65%, Ghana 64%, and Tanzania 56%) and 20% said they paid a bribe (including Cameroon 34%, Ghana 35%, and Tanzania 22%).

A literature review on the governance of urban service delivery in developing countries was presented by Jones et al (2014). The services considered were transport, solid waste management, social housing, emergency services and water and sanitation. Their findings included:

- There is considerable evidence that governance plays an important causal role in the effective delivery of services in urban areas, alongside financial challenges and technical concerns, but there are few studies on systematic links between these.
- It is difficult to identify the most important governance challenges and lessons, but common issues are: decentralisation; policy incoherence between interrelated sectors and organisations; performance monitoring and oversight; local problem-solving. Different models of governance seem to fit better in different contexts.

3. Methodology

3.1 Literature Review

A search was conducted of relevant academic and research literature relating to governance of each service in Cameroon, Ghana and Tanzania. The searches were applied to the Google Scholar, Loughborough Library Catalogue plus and WEDC databases, and limited to results in English. It was found that using the search term "governance" (and variations) did not identify a relevant set of literature, and instead the keyword of regula* was used which incorporated variations such as regulation, regulations or regulatory. This was used in each search for electricity, mobile phones and water supply and yielded a useable number of relevant documents published since 2010. Identified documents were reviewed considering both regulation and other aspects of governance.

3.2 Fieldwork

The literature provided an overview of issues at national level, in particular the organisational structure and regulation of the different sectors. For a different perspective, the fieldwork in Cameroon, Ghana and Tanzania concentrated on the delivery of services at settlement level, including the relationship between service providers and households. It focused on governance of the services in those settlements which were studied in 2014/15 for earlier deliverables D3.2, D4.2 and D4.3 (Gough et al, 2015; Smout et al, 2015; Fisher et al 2015). A draft interview schedule for key informants was prepared for each service in the settlement (e.g. the water engineer for the area), as shown in Appendix 1. This schedule was used as the basis of semi-structured interviews by the country teams. The interviews were transcribed and summaries compiled for each country using the following structure:

- Organisations involved and their responsibilities
- How do these organisations interact?
- Residents' perspectives in the settlements and who do they interact with about problems with the service
- Residents' actions related to the service, e.g. management committee, cleaning, unauthorised connections
- Regulation of the service – quality check, setting of tariff/charges
- How is the service paid for?
- Other findings e.g. key constraints, areas of policy which are difficult to implement

4. Governance of Water Services in Cameroon, Ghana and Tanzania

Issues highlighted in Literature Review

The literature on governance of water services, as with other sectors, highlights both physical and 'soft' issues, which are often inter-related and complex. Poor infrastructure and power supply problems are the major physical issues whilst a lack of financial support; lack of proper governance; poor billing methods; population growth; lack of local community participation; institutional bottlenecks like water utility management capacity and weak regulatory mechanisms; infrastructure problems such as poor urban planning; and rapid growth of squatter communities comprise the major 'softer' issues faced by the sector (Rugemalila and Gibbs, 2015: 418; Ainuson, 2010).

With this in mind, the World Bank issued advice to donors and governments: "Do not fix the pipes, fix the institutions that fix the pipes" (World Bank 2004:32).

Governance/Regulation

There are many instances of a disparity between reformers' "talk" and actions, between policies and practice, between vision and reality (Nordmann, 2010). Appropriate policies may be formulated, but they are not always effectively implemented (Rugemalila and Gibbs, 2015: 418). This can be seen in many sectors, not least in water.

Although abundant water resources support the provisioning and delivery of drinking water and enhanced sanitary conditions, it is not a sufficient condition towards its attainment. According to Oumar and Tewari (2013: 761) Cameroon is an example, with copious amount of freshwater resources, but ill thought water management policy and poor governance. By 2010, the water laws adopted since 1998 were not enforced, demonstrating that policy alone is not enough (although a necessary first step); it must be backed by actions if success is to be achieved (Ako Ako et al. 2010: 1335).

The main institutional constraints stems from the large number of sector players, leading sometimes to fragmentation and overlapping of responsibilities and poor co-ordination of their operations (Ako Ako et al. 2010: 1328). This confusion is also evident when considering the local populations as they are not associated in projects carried out in their regions. All the decisions are taken at the level of the central government and implemented on the field without taking into consideration the aspirations of the local populations (Ako Ako et al. 2010: 1334).

Within these institutions, there are also some regulatory issues. Wolf et al. (2010: 43) found that the regulatory commissions, WRC and PURC (Ghana), did not have sufficient financial and human resources to carry out all the required monitoring work (see also previous work by van Edig et al., 2002). This results in difficulty enforcing their regulations and decisions, due to weak legitimacy (Wolf et al., 2010: 43).

In order for the water sectors in the project countries to develop, they have had to go through various stages of change. This is a challenge for many who occupy(ied) positions of power/authority and may lead to resistance to such changes. Several researchers have discussed this in the context of sector reform in Tanzania. Mollinga (2007) reported that the officials at MoWI were still in the mind-set of the erstwhile position of power that MoWI held in the past. Nordmann (2010) characterises Ministry personnel as engineers who have a predominantly technical view of water management

and neglect its political and institutional aspects: “It is an engineering affair and it has been an engineering affair.” Nordmann (2010) describes how a former MoWI Director suggested that foreign advisors already had a strategy in mind before consultations started. This frustrated the Tanzanian Ministry, leading to them initially rejecting the proposed changes. A Deputy Director pointed out that the changing of the role from delivering services to just monitoring and policy making was a big change and “bitter pill to swallow”. It was seen as relinquishing power. This resulted in a limited willingness of the leadership to promote the reform. According to Hepworth (2009), lower level civil servants in the water administration also doubted the commitment of the bureaucratic elites but Nordmann (2010) suggests that when Tanzania was going through some of these changes, upward of 70% of the Ministry’s staff were against the institutional changes. Hepworth (2009), claimed that it was a lack of political will and commitment which undermined the implementation policies, which were, in the words of a consultant, “not implemented even 25 per cent”. This resulted in the threat of withdrawal from a number of the donors, which constituted more than 70% of the sector budget! Rugemalila and Gibbs (2015: 415) say that access to water was still managed “by force, by power, by influence“.

A key element of governance failure is limited community involvement in planning and decision making (Rugemalila and Gibbs, 2015: 418; Bayliss, 2008). While community participation is a condition of much donor funding, their research has found that it is frequently focused on the implementation stage of water projects, rather than on planning. Language is also cited as a cause of exclusion, as many of the project plans are written in English, rather than the local language spoken by the community. Further, information is regularly distributed via the Internet, yet many people do not have computer skills nor access to computers or the Internet (Rugemalila and Gibbs, 2015: 420).

There is an issue of false promises raised in the literature with regards to the governance aspect. For example Bayliss and Fine (2008: 179) observe that the Tanzanian Government had stuck closely to policy advice from donors and consultants in theory but not in practice, in particular commitments to privatise and for the government to disengage from service delivery.

Private Sector Participation

While water service provision had been perceived as a public responsibility for many years, the involvement of international private operators was widely seen during the 1990s as the only means to enhance its quality and efficiency. However, attempts to privatise urban water utilities did not lead to the expected service improvements. Rather, they caused high losses for the companies, and negative social externalities led to widespread public resistance to private sector participation (PSP). Private investments today play a marginal role in the sector, with many international companies withdrawing from the developing countries market. The PSP “fashion” seems to have passed. Nowadays public utilities provide more than 90% of the world’s drinking water, and it seems likely that the state will continue to play the key role in the water sector in the future (Tropp 2007) (Nordmann, 2010).

The supply of water is rightfully a topic that is can stir some emotion among the populous. This can be seen in the case of Cameroon, with the National Water Supply Company of Cameroon (SNEC). As a public-private partnership, the early stages of SNEC’s control were mired in unpopular policies and decisions. The new management with its corporate outlook raised the unit price of water to approach full cost recovery and introduced universal metering and regular monthly bills (Ngefor,

2014: 75). With its commercial orientation, it was seen as grasping and inefficient. The struggle between the public, who were facing increasing prices, and the SNEC came to a head when confrontations between the two began. The largest such incident was in Kumbo, where a rioting crowd drove the SNEC officials out of their office before looting it. It came to an end after the Cameroonian armed forces got involved, but residents still refused to pay their bills issued by SNEC after that. Instead, they continued threatening the SNEC officials and took control of the infrastructure, with members of the community cleaning the spring intake and local plumbers reopening taps closed by SNEC. They formed their own organisation called the Kumbo Water Authority (KWA) who took over the operation of the infrastructure and who have continued to manage the network (Ngefor, 2014: 76). SNEC was subsequently replaced by the public-private partnership of CAMWATER and CDE

PSP has been advocated by external agencies as a vital step to developing the water sector. Under pressure from multilateral financial institutions, the IMF, and World Bank, Tanzania conceded to privatisation of public water services (Mushi, 2004). In 2003, DAWASA partially privatised its water management, as it was a condition of Tanzania receiving Heavily Indebted Poor Countries debt relief (Kjellén, 2006 in Rugemalila and Gibbs, 2015: 416).

Whilst the Tanzanian government began the process of privatising the water utility with the hope of obtaining new technologies, improving operation and maintenance efficiencies and accessing funding for rehabilitation and improvement (Kjellén, 2006). Bayliss (2008: 167) argues, that “Faith in the private sector stems more from the failure of the state to deliver rather than the intrinsic merits of private provision per se.” (Rugemalila and Gibbs, 2015: 416)

This faith has been rewarded in some instances, but there are certainly occasions whereby the private sector has also failed in its attempts to establish a water supply network. In 2003, City Water took over water and sewerage operations in urban Tanzania (Kjellén, 2006 in Rugemalila and Gibbs, 2015: 416). It turned out to be a complete failure, only lasting 18 months. Dilapidated infrastructure, rapidly growing population as well as corruption were the main reasons cited for its demise. When private sector offenders are tracked down they either bribe the collectors or negotiate for postponements (Wolf et al., 2010: 43). In May, 2005, the Government of Tanzania terminated the contract claiming that City Water had not delivered its contractual responsibilities, by investing less than half of the expected US$8.5m by that point (Abdul-Aziz, 2005). As a result, DAWASCO (Dar es Salaam Water and Sewerage Corporation) was formed, and took over operations (Rugemalila and Gibbs, 2015: 416; Abdul-Aziz 2005 in Bourque, 2010: 112).

Privatisation did not bring the expected benefits. In low-income areas the majority of households still had no direct access to piped water, relying instead on buying water from vendors or neighbours, sometimes at greatly inflated prices (Kjellén, 2006).

While the donors that encouraged less public sector involvement in the economy also encouraged greater regulation in order to increase competition, the forms that regulation was supposed to take were seldom agreed upon. This was an important contributory factor to the difficulties associated with the water and electricity sector reforms (Aryeetey, 2002: 38).

Poor Infrastructure

In each of the project countries there has been literature written about the issues faced in the water sector, specifically about the poor or lack of infrastructure in place. Whilst the World Bank talks (see quote above) about fixing the institutions that fix the pipes, that implies that those institutions will then go on to get the pipes fixed. This leads on to another of the issues faced in Dar es Salaam, among other urban areas, that the supply and distribution system is inadequate to fulfil the city's needs, and is poorly maintained (Rugemalila and Gibbs, 2015: 418). Non-revenue water (NRW) is a major issue in many developing countries, caused by leakage, water theft, unpaid bills etc, In Dar es Salaam for example, Government of Tanzania (2014) reported NRW to be over 50% - see also Oumar and Tewari (2013: 749).

The problems of poor infrastructure are compounded by the rapid population growth that many towns/cities have experienced. In Dar es Salaam, this outstripped the city's ability to adequately service much of the urban population, particularly informal and peri-urban areas in the city (Kyessi 2002 in Bourque, 2010: 110) and UN-Habitat (2009) reported that only 25% of the city's residents had access to water managed and distributed by DAWASA [The Dar es Salaam Water and Sewerage Authority]; the remaining 75% predominantly live in unplanned and unserved areas (Rugemalila and Gibbs, 2015: 418). In such areas the sole water source may be a vendor of unsafe and expensive water (UN-Habitat 2003 in Bourque, 2010: 107).

There is also the issue of the interpretation of data. Bayliss and Fine (2008: 164) point out that just because a house has a piped connection does not necessarily indicate access as water may not have flowed through the pipes for days, months or even years.

There are other issues that were mentioned in the literature, but by far the most significant structural constraint of the new regulatory agencies remains the wide information gap existing between providers of services and the users of those services.

Financial Issues

Many water providers face a shortfall in their funding which causes enormous logistical difficulties. The limited financial support makes it difficult for them to attract and hire key technical personnel for the development of enforceable standards (Aryeetey, 2002: 45). Budds and McGranahan (2003: p. 106) explain in their review that, Tanzania was in somewhat of a Catch-22 regarding improvements to DAWASA, as it did not have the funds to improve its infrastructure enough to attract a private company, but the World Bank would not assist the country financially until a private contract was identified (WaterAid 2002). (Bourque, 2010: 111). Similarly, micro-political strategies of exerting pressure and referring to higher authorities were used by making decentralisation a precondition for continued budget support and they also argued that decentralisation in the water sector is part of a multi-sectoral reform supported by the President‟s Office (Nordmann, 2010). This is no longer on a project by project basis and is instead at a national level through the Sector-Wide Approach (SWAp). "That has really turned around the sector helped Development Partners to have such an influential position at national level which was not the case before." (Nordmann, 2010).

Operating budgets also depend on costs and tariffs. There are many factors that influence the price paid for water such as location, supply source, season and infrastructural issues such as intermittent power supplies. This variability can make it very difficult for those with less income to afford to pay for water. Rugemalila and Gibbs, (2015: 419) state that prices from various sources in Tanzania range

from around 20 to 200 Tanzanian Shillings (Tsh) per 20 litre bucket. When all of these factors are unfavourable, the price of the same bucketload can go up to 400 Tsh. In this context the urban poor remain the most marginalised members of society (Rugemalila and Gibbs, 2015: 417).

In Ghana, Wolf et al. (2010: 38) reported that the official tariffs had not been cost covering, so they were raised in several steps. Whilst this caused issues for the served population, the increase in tariffs did not result in increases of revenue for the utility company because of inefficiencies. For both water and energy the regulated tariff increases have been set below the proposals of the providers in order to create incentives for the reduction of the inefficiencies in production and bill collection.

Cameroon Fieldwork Findings on Governance of Water Services

Organisations involved and their interactions

The City Council and the CAMWATER publicly-owned company are responsible for planning and financing new infrastructure, CAMWATER is responsible for implementing the infrastructure and the CDE private company manages, operates and maintains the system, supplying water to customers and collecting tariff payments. Regulating the service is the responsibility of the Ministry of Water Resources and Energy (though national-level contracts with CAMWATER and CDE and its city-level delegation office) and of CAMWATER and CDE.

Many households however are not customers of CDE, and obtain water from vendors or directly from privately owned boreholes (as shown in Fig 1) or public boreholes which are provided and managed by the Local Council. Residents' bodies may be responsible for collecting tariff fees. The Ministry of Water Resources and Energy is responsible for regulating the quality of these supplies, but there is no regulation of tariffs for water which is not provided by CDE.

Figure 1: Residents collecting water from a private borehole, Douala, Cameroon

How do these organisations interact?

There is intensive collaboration between CDE and CAMWATER and less collaboration between the two institutions and others. Councils and urban communities intervene where there is no CDE network and put in place boreholes and wells. The MINEE assists councils and urban communities in the mounting the tender dossier and ensures the role of project engineer during execution. MINEE also collects project proposals from councils and submits these to the central government for financing.

Residents' perspectives and actions

The population is confused about the complaining possibilities. CDE receives most complaints on the quality of service and MINEE sometimes.

Management committees are created for wells and boreholes created by the administration under the supervision of the local councils.

Residents also develop alternative solutions, individual wells and boreholes water paid for voluntarily or the use of water from rivers and rainfall;

In Bafoussam, it has been reported that some residents break into CDE water pipelines in order to get water free of charge.

Regulation of the service

The quality of water in the CDE network is checked by CDE and CAMWATER. The price of water from CDE is define by the CDE in collaboration with the MINEE. For CDE Water, 1000 litre cost 350 CFAF (0.5 euro). For other water supply system either it is free or the price is set by the owner.

The MINEE and councils are supposed to control the quality of water from wells and boreholes but nothing is done for now. People sell water without any authorisation. The population complains that water bought from private sources is very expensive but they don't have choice. The water administration authority (MINEE) tolerates the selling of water without authorisation, certainly because CAMWATER and CDE don't have enough water for their subscribers.

Ghana Fieldwork Findings on Governance of Water Services

Fieldwork confirmed earlier studies that there are enough water bodies within Metropolitan Accra to guarantee constant adequate water delivery for all (See Ainuson, 2010, Adank et al, 2011, Songsore, 2014). The irony however relates to why there still exist pockets of water stress communities with periphery communities being more pronounced. The 2010 population census revealed that about 70% of Accra's population depends on Ghana Water Company Limited (GWCL) for their water needs (2012). In Sekondi-Takoradi, about 48% of the population have access to water through desirable sources, with 20% of households having domestic connection, while 59% buy potable water from vendors.

With the increasing unplanned urbanization with unprecedented sprawling in the face of chronic financial and human resource capacity, most interviewees in our research locations were skeptical about cities' ability to meet residents' water needs. This point was corroborated by most interviewees (about 85%) as exemplified the various quotes:

Ghana Water Company is the main supplier of water in the Abuja community. There are no tanker services and there are no boreholes. The community depends solely on Ghana water for the water supply (PRO of GWCL Accra Central)

Ashaley Botwe is part of the urban communities and Ghana Water is responsible for providing water for all the urban areas in the country. So the company is responsible for water supply in Ashaley Botwe (District Manager of GWCL Adenta District).

Regarding the level of interactions between GWCL and its customers, it was established that the company has Customer Relations Department (i.e. a Customer Care Unit) in all its regional and district offices. Technically, communities directly serviced by GWCL, beneficiaries lodge complaints directly at the offices of GWCL or call their customer care line. An official at GWCL Regional office noted:

The residents of STMA [Sekondi - Takoradi Metropolitan Area] channel all their complaints about water supply to this unit. They can do this in two ways, either they come to the Customer Care Unit direct/in person to lodge a complaint about water services or phone the unit about any problem relating to water supply. With respect to phoning we have a "toll free number" (a certain number that the customer can call free of charge) the customers can call to inform the unit about problems affecting water supply (Official; GWCL Regional Office STMA).

Most complaints from the two cities generally centre on burst pipes and interruptions of water supply. However in Accra, the concerns of residents in communities like Ashaley Botwe normally relate to extension of service lines to under-served areas, spearheaded by their respective resident's association. In STMA, communities like Mampong and Whindo without access to in-house connections or no GWCL distribution network and depend solely on water from streams and boreholes agitate for inclusivity or GWCL connectivity. Although service beneficiaries described GWCL responses to their grievances (lodged concerns) severally: as frustrating, unprofessional, mind-blogging, unpatriotic, lackadaisical and anti-development, the officials think otherwise. . A landlord in Gbawe described his experience as:

….. not only frustrating and shameful but also time consuming.

An interviewee from Abuja teasingly remarked:

the commitment of the authorities to respond to our water needs is reflected in the way service lines are connected. Here, most connections are installed in ad hoc ways, mostly illegally; tapping into the distribution mains at different points and are laid on or close to the surface and can be easily damaged and contaminated.

An official in STMA however intimated:

The relationship between the company and our customers is cordial. Although I will not say this is 100% because GWCL is a human institution and we cannot be perfect. We often attend to most of the problems raised by our customers, you can ask our customers and they will testify to this. Last time we did some research about our services in STMA, majority of our

customers (over 60%) indicated that our services and customer relations are good. Although we have good relations with our customers, there is still more room for improvement.

Our findings reveals that operationally, the GWCL responds only to its customers and unless is officially connected to their mains, one is not recognized as a customer of the company even though one consumes water. Additionally, the Public Utilities Regulatory Commission (PURC), which is an independent body, solely responsible to examine and approve reasonable tariff and quality of utility services, is aware of the existence of multiplicity of secondary and tertiary service providers but these are not recognized, monitored and regulated as expected of the commission. The challenge seems to be the inability of the PURC to facilitate the convergence among interests of governments, the private-profit motivated sector and civil society, making the reliance of the policy as a tool to achieve equity in service provision controversial.

This has festered a variety of intermediate poor regulations and privately managed independent service providers, servicing disadvantaged residents on their own terms and charges. These charges tend to be disproportionally over and above GWCL rates that are based on an increasing block tariff (IBT) system whereby costs per "gallon" (jerrycan) rise as consumption increases at the meter point. Table 2 presents the current charges.

Table 2: Regulated Tariffs for Water Supply in Ghana

Category of service	Monthly consumption (1000litre)	Approved rate in GHC per 1000 litre effective July, 2015
Metered domestic (household)	0 - 20 21 and above	178.3326 267.3313
Commercial/industrial	Flat rate	380.0075
Public institution/government department	Flat rate	298.212
Unmeterd premises	Flat rate per house per month	1,160.7090
Premises without connection (public stand pipes) per 1000litres		176.3036
Special commercial per 1000 litres		1,080.6204

NOTE: Special Commercial refers to bulk customers who use GWCL treated water as the main raw material for bottling water for resale.

Source: http://www.gwcl.com.gh/pgs/tarrifs.php [accessed 26 March 2016]

Most participants held the view that, a good working relation between GWCL and customers or community members is critical for the survival of GWCL activities. The quotes represent some of the participants' remarks:

… better relationship provides the enabling environment for education and sensitization programmes. It also means that customers will be willing to report any problem regarding supply and conditions of facilities, particularly where their systems are not automated to detect problems and rely on the benevolence of residents for such information.

….. with respect to their household connections, when they experience pipe burst or broken taps or leaking pipes, they engage the services of private plumbers to work on such cases. But when there is a problem with the main pipeline, which is within 8 inches within their domain, they quickly call us to solve. I will also say that they do well [Customer care relations officer, GWCL Accra Central].

For maintenance we will thank them; elsewhere they have an automated system, one man sits in the control room and is able to monitor the whole system, so if pressure drops at a point he knows there is a possibility of leakage somewhere. So ho promptly alerts the field men to get the problem address. Ones our system is completely manual; we rely on information from the community because the truth is that we can't be everywhere at the same time. So when there is a burst the community calls and we respond.

*In some communities, their residents' association also strives for the improvement of services; we have a number of areas without pipelines. So they organize and hand in hand we are able extend pipelines to distressed communities; We have confidence in the association because they provide security for the pipelines (*Adenta District Manager of GWCL).

The GWCL and customer collaboration was seen as particularly useful in slum and informal communities. Essentially, providers of water services (water vendors) in the communities were particularly said to be willing (voluntarily) to corporate, apparently because they earn their livelihood from water sales. Officials of GWCL attested that they could count on some of these groups in reporting illegal connections (a practice most of them are guilty of) with their infrastructure. The quote below illustrate this point

You see these people use water for commercial purposes and get a lot of money, they make sure that any report any major problem to us and they also solve their internal problems quickly to get water. So I will say they have the potential to get more involved in maintaining the service (Customer care relations officer, GWCL Accra Central)

Figure 2: Examples of residents of peri-urban communities (Accra) sourcing water from independent private vendor and a container for water storage.

In policy-wise, apart from the consumer charter that sets out duties of suppliers and users of water, the GWCL has two main policies that guides charges for water services provision and this include the flat rate system and the metering system. The flat rate involves a flat amount charged on the usage of water provided by GWCL. This is done taking into consideration the number of people in the house, average water used etc. This option is much more preferred in slum communities because of the prevalence of illegal connections and the penchant of consumers to tamper with meters. This quote illustrate this point

> *One thing we have also done to improve service in the area is to charge people on flat rate. Because of the illegal connection and upsurge in unaccounted for water, we have adopted a strategy where we install a meter for a household, monitor it for 2 months to know the average use and then calculate the average charge for the people on a flat rate basis* (Customer care relations officer, GWCL Accra Central)

A district manager from Ashaley Botwe hinted of the company's resolve and intent to change the flat rate system nationwide:

> *Every new connection we do now goes with a meter. In time past, the problem was about accessing meters. If you are connecting for the first time and you have never had a meter, you are expected to buy a meter.*

We observed that (confirmed by most of our respondents), following the increase in water tariffs of about 60%, a large number of users are opting for the metering system, possibly to take advantage of the lifeline subsidy. This is because even if you reduce the amount of water used and you are on the flat rate system, you will still pay for the increased adjustments, but when you are on the metering system, the charges reduces with a reduction in water usage.

Our respondents recounted a number of operational challenges confronting GWCL. These include poor and outdated infrastructure. Officials from GWCL intimated that low tariffs have thwarted their efforts to generate much revenue to embark on the needed expansion and routine maintenance. The community participants however blamed the water company for its poor or low revenue generating potentials. Most community participants admitted that the future is bleak with increasing rates of unaccounted for water, emanating from physical (27%) and economic (33%) losses (representing lost income of about $140,000). A participant noted:

> *….. The GWCL appears to have over-trumpeted the lack of financial resources mantra. Indeed, a critical assessment of the situation put the blame in the doorsteps of GWCL modus operandi. Without doubt, there are high commercial losses, yet there are equally compelling evidences linking the situation to ineffective revenue collection procedure and illegal consumptions and connections.*

Even in situations where some investments have been made to increase supply, connection to houses is another challenge. Currently, people with in-house water connection in urban areas constitute just about 31% (GSS, 2012). This has made illegal connection a major bane of the company and a source of increasing volumes of unaccounted for water. A landlord in Takoradi noted:

….some residents frustratingly struggle for months to get connected GWCL mains due to complicated procedures and legal boundaries including the over 46% of residents living in slums and informal settlements.

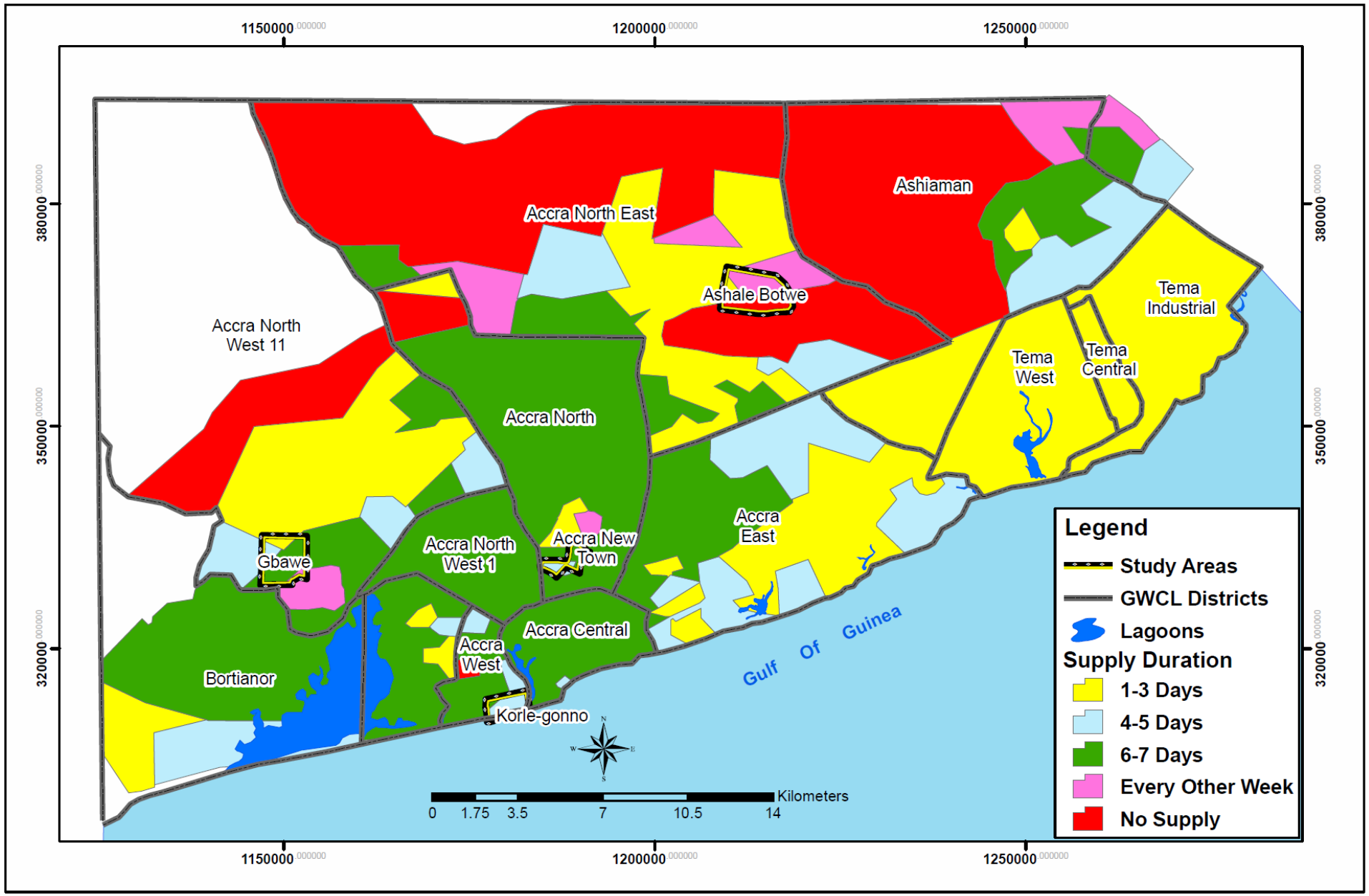
GWCL officials further the need for regular flow of electricity (power) and condemned the operations of small-scale mining [galamsey].

The current load shedding exercise by the Electricity Company of Ghana (ECG) is affecting our operations. When the light goes off at our head works it affects our plant and hence disrupts the supply of water. We have agreed some terms with ECG to give us some power for our operations but this is not working according to plan. The whole country is suffering from this power crises and this is impacting negatively on us. [].

Galamsey activities around some of our water bodies we rely on have polluted these water bodies so we have to buy more chemicals to treat the water before we can supply to our customers [].

To improve water supply services, our facilities such as pipelines and plant capacity need to be expanded. We need expansion of our facilities to enable us to serve more communities especially supply water to areas which are not having regular water supply and beyond our catchment area.

Figure 3: The spatiality of water poverty levels in Metropolitan Accra



Tanzania Fieldwork Findings on Governance of Water Services

Organisations involved and their interactions

The water supply service in urban areas of Tanzania is governed by the National Water policy of 2002 and Water Supply and Sanitation Act of 2009. The Ministry of Water and Irrigation overall in charge of water resources and supply in the country. Energy and Water Utilities Regulatory Authority (EWURA) is responsible for regulating water services including setting water tariff. The Tanzania Bureau of Standards (TBS) is responsible for setting water quality standards. Monitoring of water quality is done by the Ministry of Water, Ministry of Health, National Environmental Management Council and the Water Authorities in each urban area. In each urban area water services and sanitation are provided by Water supply and Sanitation Authorities (UWSSAs) including DAWASCO in Dar salaam and Arusha Urban Water and Sanitation Authority (AUWSA) in Arusha.

The regulations for interaction of key stakeholders in water service provision are provided in the respective acts of water supply and sanitation and EWURA. The Ministry of Water and Irrigation is responsible for policy setting, planning and financing of large water projects. EWURA is responsible for annual monitoring of urban water and sanitation utilities. EWURA produces annual performance report for each water authority. On tariff setting UWSSAs makes a request tariff review to EWURA. EWURA through public participation processes the request resulting in approval or rejection.

In Arusha city water supply is provided by AUWSA in all three case study areas. However AUWSA does not fully meet water needs in the city and as a result of the deficit, water supply is supplemented by formally or informally by private sector. AUWSA is responsible for treatment, transportation, storage, distribution of water services and maintenance of water infrastructure and quality. AUWSA supplies water to houses that have installed plumbing system using private contractors. In addition to AUWSA the city engineer who is responsible for all engineering works in Arusha is one of the key players for water services especially in water service planning and implementation. In each ward there is a water committee that handles day to day water services. This is mostly been done by reporting water problems to AUWSA.

At Arusha city level interaction between key institutions is normally done during water services plan preparation, evaluation and implementation. During the operation phase it is mainly done when an individual or a ward is requesting for water supply services or when there is a problem with water services. The interaction between the utility and the local population or water ward committee is done by using phones or by directly visiting AUWSA offices.

The situation in Dar es Salaam is similar to Arusha.

Residents' perspectives and actions

The main problems identified by residents in the settlements are intermittent water supply in the areas or specific houses, leakage and non-receiving of water bills. These problems covering the water supply infrastructure only are normally reported to the AUWSA offices by individuals or the ward water committee. The AUWSA sends a team or a technician to investigate the

problem and solve it. Depending on the nature of the problem it normally takes between three and six hours before a team is sent to solve the problem. Problems related to plumbing within a house are normally handled by private technicians at a fee. The residents appear to be satisfied with this arrangement.

There are a number of actions taken by the local communities in regard to water services. This includes the formation of a water committee in each ward. These committees are responsible for security provision in their respective areas, reporting problems related to water supply and putting up some ideas to water utility authority issues that can be taken into account to improve water services in the area. At times the ward committee can replace broken pipes of small diameter. In addition individuals are responsible for taking care of water service problems within their houses.

In Kilakala settlements (Dar es Salaam) the local residents formed a water user association called "JUWAMAKI" to improve water supply in the area by constructing boreholes, water storage tanks and selling water to the general community. Initially the association was funded by a donor but at the moment they are on their own but working closely with DAWASCO water supply company. In Ununio (Dar es Salaam) which is to a large extent a planned area majority of residents depend directly on water supplied by DAWASCO. There for water supply services are handled by the water company. In both cases residents are willing to contribute to improve water supply services. In Kilakala through their water association and in Ununio cash contributions to improve water supply services.

Regulation of the service

The regulations for water service as already discussed are done through water and sanitation act, EWURA, TBS standards. In addition to this each urban water authority has a protocol for collecting and analysing water samples in their respective water laboratories or the water laboratory at the Ministry of water and irrigation. Note that these regulations apply only to water services provided by urban utilities but not informal water supply services.

How is the service paid for?

The water service is paid up by different users including households, businesses, institutions and industries. As already pointed the tariffs are set by EWURA. The main challenge facing the water services is slow expansion of the services in relation to population growth and urban sprawl.

5. Governance of Electricity Services in Cameroon, Ghana and Tanzania

Issues highlighted in Literature Review

Much of the identified literature related to Ghana and Tanzania, with relatively little regarding electricity regulation in Cameroon. Issues were identified from literature on all three project countries, and they are highlighted in the following sections.

Organisations and structure, sector reform

Dramani and Tewari, (2014: 261) present the following useful categorisation of institutions in the electricity sector, with reference to Ghana:

i. Policy-making Institutions: in particular the Ministry of Energy in Ghana.

ii. Regulatory Institutions: These include institutions for planning the system, licensing operators and regulating tariffs and the quality of service delivery to consumers

iii. Generation, Transmission and Distribution Institutions: In the case of Ghana, these are all separate institutions and thus described as "vertically unbundled" (which is reviewed later in this section) but this is not the case in all countries.

iv. Arbitration (Electricity Courts): Used in Ghana to prosecute cases involving electricity theft and other related cases.

Whilst these categorisations were designed when considering the structure in Ghana, they also seem appropriate for analysing the structure of the electricity sector in all of the project countries.

The overall structure of the sector has been debated in the context of sector reform. This issue arises in much of the literature and there have been various approaches to this in the project countries. This takes the form of private sector participation (detailed in the following section) as well as ways that new entities were created to oversee a sector reform. One such entity was the Power Sector Reform Committee set up in Ghana in 1997 to come up with some recommendations for a sector wide reform strategy (Bayliss and Fine, 2008, 132). This was to be Ghanaian driven solutions for Ghanaian problems. The reforms were aimed to remove the monopolistic and centralised structure of the industry (RCEER, 2005), by restructuring and allowing for a regulatory body to be created, and withdraw the government from direct service provision. However, ESMAP (2005) says that the aim of creating a competitive energy sector had been described as more rhetoric than serious intent (Bayliss and Fine, 2008: 133).

One of the reoccurring themes within the sector reform issue is that of external pressures. This is in relation to global organisations such as the World Bank or the IMF, applying financial pressures (e.g. by withholding finances) on these developing countries to reform the energy sector but often with their particular agenda in mind. This was the case in Ghana when the World Bank refused to finance VRA's expansion at Takoradi (to which the Bank was contributing

US$175.6m) without the implementation of basic structural reforms in the electricity sector (Edjekumhene and Dubash, 2002 in Bayliss and Fine 2008, 131).

Private sector participation – including disputes and performance issues

Private sector participation (PSP) is one of the topics that was included in nearly all of the literature about the governance of the electricity sectors in the target countries. There are many facets to the topic, but the consensus is that PSP is seen as a positive thing which allows the gradual withdrawal of the state from the direct production of goods and services and an attempt to promote the "private sector as the engine of growth" (Aryeetey, 2002: 28). There is empirical evidence that privatization of electricity provision has been associated with improvements in efficiency but only if other reforms especially with respect to regulation and increases in competition have also been introduced (Wolf et al., 2010: 44). It is recommended that a truly independent regulatory body first be established with full authority to monitor the performance of companies and to be alert for potentially damaging strategies (Wolf et al., 2010: 44).

The lack of an enabling environment is one of the more common issues which was faced in all of the countries. Reegle, (n.d.) noted that the institutional environment of Cameroon did not encourage private investment and that insufficient investment regulations and a lack of standards and quality control mechanisms made it almost impossible to collaborate with traditional financial institutes. To encourage PSP, it requires both the physical as well as 'soft' aspects to be in place. Unreliable infrastructure, insufficient distribution networks, anticompetitive commercial framework as well as administrative bottlenecks and financial insecurity are the most significant risks and barriers (Reegle, n.d.).

Rugabera et al., (2013:245) echoes this issue, when writing about PSP in the electricity sector in Tanzania by saying that this enabling environment would have to be in the form of guarantees that the country will maintain its political stability, commitment and determination, which would guarantee private sector investment returns without interference. This would also allow private companies to set up their own electricity generation and to sell excess supply to other customers (Wolf et al., 2010). Bayliss and Fine (2008, 135) argue however that there is a fundamental discrepancy between aiming to attract private sector investment and the idea of a competitive wholesale market. Risk-averse investors will want long-term Power Purchase Agreements (PPAs) rather than competition.

Another of the issues raised in the literature is that of national ownership and control. In a number of instances, when private organisations have been brought in to operate in the sector, they have come from outside the country in which they are to work. This has been met with some criticisms in the project countries.

Following a call for bids in July 2000, The Government of Cameroon chose AES Corporation, mainly for its investment program, its social impact and its tariff policy (Reuters, 2001). As part of the deal, AES got the exclusive management responsibilities of generation, transmission and distribution assets for 20 years (Pineau, 2002: 1004). The transfer of ownership, along with the exclusive management rights effectively transferred the monopoly and energy security, from the government to a foreign-owned private company instead of creating a competitive market (Reegle, n.d.).

In the case of Tanzania, the early power sector in Tanzania consisted of small, privately owned companies but in 1964, the power supply company was nationalised into one company, Tanganyika Electricity Supply Company (TANESCO) with a view to correcting the private sector's inability to increase access to the majority of the population (Bayliss and Fine 2008: 154). However, in 2003, a sector policy document was issued, declaring the government's decision to disengage itself from direct production activities. It continues to suggest that competition within the sector would bring benefits – "Competition as a principle to attain efficiency shall apply to the electricity market". (Ministry of Energy and Minerals, 2003: 28). The government decided to award a management contract to NETGroup Solutions, a South African firm (Bayliss and Fine 2008: 157). This contract led to some of the senior positions (including Managing Director) being held by expatriates who then report to the board of TANESCO. However, three years later, following questionable management fees, the contract with NETGroup was terminated, and control reverted to local management (Bayliss and Fine 2008: 157). Nellis (2006b: 22) explains that "there was some bitterness and dismay that a handful of white South African managers had been able to do in three years what Tanzanian managers could not accomplish in 40. The fact that the expatriate managers were very well rewarded for their services…is a compounding matter. The level of public grumbling is such that, despite the much improved electricity situation, the Government was under some pressure to terminate the contract and reinstate Tanzanian management".

The final issue that was commonly cited was that of the financial implications of PSP. Whilst it was seen as a way for governments to save money by withdrawing from service provision, it has come at a cost. In Tanzania, in order to minimise the risk exposure and to attract the private sector investments, the state signed long-term, high cost PPAs which resulted in a return on equity of 22% for both the major electricity generators, IPTL and Songas (Gratwick et al, 2006 in Bayliss and Fine 2008: 162). In January 2006, it was reported that the government was negotiating with the Malaysian owners to take over IPTL in order to reduce the electricity tariff and lower the subsidy paid to the company. It seems that the deal would save the government US$1.5M/month suggesting that the country would have been better off if the plant that they had built had been built by the state rather than the private sector in the first place (Bayliss and Fine 2008: 161).

Horizontal and vertical unbundling

The terms vertical and horizontal unbundling were used in many pieces of the literature, when discussing some of the issues across different countries and utilities. Vertical unbundling refers to separating the various stages in a process into individual parts. In the electricity sector, this would mean separating generation, transmission and distribution. Different organisations then take control of the different parts. Horizontal unbundling is aimed to foster competition by dismantling a monopoly. This usually refers to multi-utility organisations whereby unbundling separates them into different businesses which can then compete with the net result benefitting the customer due to market forces driving prices down.

It is widely argued that vertical unbundling of the main utility has to be implemented to prevent conflicts of interest between the competitive and non-competitive parts of the sector (see OECD, 2001; Pineau and Hämäläinen, 2000; or Zaccour, 1998, for different papers on this issue).

However, neither horizontal nor vertical unbundling was proposed or even suggested in the IMF–World Bank electricity sector reform in Cameroon (Pineau, 2002: 1005).

In Ghana, the Volta River Authority was to be unbundled into two separate generation companies (hydro and thermal), a transmission company and the distribution company (NED). Each would be established as business units, and performance contracts drawn up for VRA and ECG. VRA was to compete with other IPPs to sell power to the national grid as well as directly to large consumers (Bayliss and Fine, 2008: 132). The separation of generation and distribution is an important precondition for the entry of new electricity generators into the market. ~~However, VRA had not yet been unbundled, and ESMAP (2005) says that the aim of creating a competitive energy sector had been described as more rhetoric than serious intent (Bayliss and Fine, 2008: 133). Under an on-going Power Sector Reform, a merger of ECG and NED to form one distribution company is being considered (Kemausuor et al., 2011: 5150) which contradicts the benefits of unbundling, but as yet, nothing has happened.~~

Regulation

As previously mentioned, there has been somewhat of a conflict of interests between the government and the private sector with regards to the enabling environment. This issue is reflected in the regulatory role too. Whilst the government aims to promote PSP, by signing long term agreements, allowing those in the private sector to make profit, they also have a duty to protect consumers and monitor the sector's financial equilibrium and approve tariffs (Reegle, n.d.).

In Cameroon, Reegle (n.d.) argued that this duality had the potential to cause further issues as the regulatory bodies put in place for competition and electricity were designed to be independent from the political system, but remained under the respective ministries. With the judiciary and legal systems yet to undergo suitable reform, Pineau (2002:1004) suggests that until this this is done, bringing cases before the country's discredited courts is unlikely to strengthen compliance.

To try and attract investors, a key element of the sector reform in Ghana, was to establish independent regulators so that the private sector would be assured of impartiality and non-interference by government. The regulator was to be responsible for transparency and predictability in tariff-setting with a structured methodology and to ensure that there was open access for IPPs and large consumers (ESMAP, 2005 in Bayliss and Fine, 2008: 132).

The Energy Commission (EC) has numerous roles within electricity regulation in Ghana. It was established to regulate, manage and develop the utilization of energy resources in Ghana. It is also responsible for granting licences for the transmission, wholesale, supply, distribution and sale of electricity (Wolf et al. 2010: 40). It also has a role as a provider of legal, regulatory and supervisory framework for all energy providers and to promote competition within the energy market. Whilst these are what the EC was established to carry out, it is restricted to licencing and technical regulation with responsibility for energy planning, policy formulation and implementation remaining with the Ministry of Energy (ESMAP, 2005 in Bayliss and Fine 2008, 133). A key function of the EC relates to the regulation of entry of entry and exit into the sector but there has been very little of either entry or exit since the organisation was established. Meanwhile the Commission regulates the two state electricity utilities but with questionable

powers as there is little the Commission can do should the enterprises fail to meet performance targets. The ultimate sanction is to take away the licence but realistically this cannot be done to ECG or VRA (Bayliss and Fine 2008, 133).

Also in Ghana, donors continue to play a major role in supporting the regulator, PURC. The World Bank, USAID and DfID (the Department for International Development; UK Government) have been the major sponsors of its institutional development as well as the development of its programmes. The World Bank has provided technical support through consultants in the setting of electricity tariffs as well as financial support for the Commission. DfID has supported the Commission's work by sponsoring study tours of UK regulatory agencies for water and electricity. Similarly, USAID has sponsored a tariff study to assist the PURC through a consulting firm, and supported study tours of power and water regulatory agencies in a number of states in the US. In sum, the donor influence in getting regulation to occur has been significant (Aryeetey, 2002: 44), and therefore have external influences.

Contrary to this, it is stated in its [PURC] Act that, "subject to the provisions of this Act, the Commission shall not be subject to the direction or control of any person or authority in the performance of its functions". The reasoning behind this provision is to protect the consumer from utilities that are still largely owned by the state in the fixing of price caps and the setting of standards. The most important checks on the authority of this commission is the appointment of its board and management by the President and its financing from funds approved by Parliament (Aryeetey, 2002: 23).

Policy, governance and management

One of the major issues, which has not got enough attention is that of the 'soft' side of the sector. The founding of new regulatory agencies poses new challenges, as identified by Pineau (2002). These include inconsistencies in the newly formed regulations that may overlap, as well as incompetency/inexperience of the personnel in the new agencies. This encompasses issues such as weak staff motivation due to conditions of service and high staff turnover (ECG, 2005 in Bayliss and Fine, 2008: 130).

Billing – pricing/tariffs, comparison to costs, billing methods

Electricity theft is an issue that is faced by many sector stakeholders and is a problem in each of the project countries. Following the genocide in Rwanda in 1994, Electrogaz (a public utility) found it very difficult to bill and collect revenue from customers. In 1995, they introduced an electricity prepayment billing system (EPBS). In 2008, over 80% of customers were enrolled in the EPBS. The prepayment system by itself was not sufficient to reduce electricity theft but the system was important in identification of suspected frauds, meter tampering and low usage of power. Ability to timely recognize cases of meter tampering accompanied with heavy penalty assisted in curbing non-technical losses (Mwaura, 2012: 77).

The other major financial issue within the electricity sectors of the project countries is that of pricing and tariffs. There are different methods of price setting, one of which is to remove the government from that decision, so that the regulator takes that responsibility. Electricity pricing may be based on the Long Run Marginal Cost of power supply, covering fixed and variable costs (Mwihava and Mbise, 2003) but there have been problems introducing full cost recovery as consumers cannot afford the levels of price increase that would be required (Bayliss and Fine

2008: 160). Tariffs are, therefore, often described as 'cost reflective' and may be subject to regular increases through an Automatic Tariff Adjustment.

Price increases are a topic of debate, as increases are rarely happily received by the consumer, and as the regulator has an interest in keeping both sides of the transaction happy, usually limits how much those prices can increase. At the beginning of 2002 in Ghana, the VRA and the EC requested an increase of about 105% in the end user tariff for electricity. In July, the PURC decided on a 60% increase with effect from August 2002 and another average 12% increase to take effect in March 2003. However, the increase in tariffs did not result in increases of revenue for the utility company because of inefficiencies. For both water and energy the tariff increases have been below the proposals of the providers in order to create incentives for the reduction of the inefficiencies in production and bill collection. This is however countered with external influences, and in this instance, it is the donor that has stepped in. The country is required by the IMF to ensure that increases in costs in the supply of both water and electricity (due, for example, to rising oil prices, inflation or currency devaluation) are passed through as increases in consumer prices via an automatic formula. This is implemented by the regulator and takes the government out of price-setting (IMF 2004b). (Bayliss and Fine 2008, 126)

Other issues – security of supply

The literature also notes that generation from hydro-electricity is reduced in years of low rainfall. Whilst outside the direct control of the sector's stakeholders, the impact of this reflects the lack of contingency planning and flexibility in their service provision. Gyamfi et al., (2015: 1038) explains that Ghana's electricity sector has long been saddled with challenges regarding supply security and power quality. One of the main factors affecting supply is the overdependence on hydropower in the generation mix. The total amount of energy that can be delivered is constrained by several factors, which include the variability in rainfall that results invariability of the amount of electricity that can be generated from the hydro plants. Almost all of the recent power crises (1998, 2002 and 2007) have been triggered by low rainfall patterns in the Volta basin that supply water into the Akosombo dam (Gyamfi et al., 2015: 1038).

Cameroon Fieldwork Findings on Governance of Electricity Services

Organisations involved and their interactions

The key organisations involved are the Ministry of Water Resources and Energy (MINEE), Energy of Cameroon (ENEO), Electricity Sector Regulatory Agency (ARSEL), the City Council and local councils. How do these organisations interact?

There is intensive collaboration between ENEO and ARSEL but more difficult collaboration between these two institutions and the others.

The Electricity section of MINEE is responsible for:

- the development and implementation of policies and strategies in the field of electricity;
- Planning and development of the field of electricity activities in conjunction with the administrations and agencies;
- monitoring and control of production, transport, distribution, import, export and sale of electricity in conjunction with relevant agencies and organizations;

- the preparation of development master plans in the field of electricity;
- the development of technical standards and safety regulations in the field of electricity, in conjunction with relevant agencies and organizations;
- control of the conformity of electrical equipment and installations;
- the definition and monitoring of actions to be taken for the management of environmental implications in all major projects in the field of electricity, in conjunction with the Ministry for the Environment and the concerned administrations;
- analysis of technical progress reports of public institutions and to public capital in the field of electricity companies;
- pricing of electricity, in conjunction with relevant agencies and organizations.

ENEO is a flagship company in the Cameroon energy sector; it is a semi-public company with 56% of capital held by Actis and 44% by the State of Cameroon. ENEO is in charge of generating, transmitting and distributing of electricity in order to satisfy the growth in electricity demand by supplying reliable and safe energy. ENEO responsibilities are also to provide quality service and facilitate access to electricity to the greatest number and protect the public through awareness campaigns on electricity-related risks.

ARSEL was established by Law No. 98/ 022 of 24 December 1998 governing the electricity sector. ARSEL regulates, control and monitor activities of electricity sector operators in the framework of the policy defined by the Government. It is particularly responsible for:

- To participate in promoting the rational development of the supply of electric power;
- Ensure economic and financial stability of the electricity sector and the preservation of the economic conditions necessary for its sustainability;
- Ensure the interests of consumers and to ensure the protection of their rights in terms of price, supply and quality of electric power;
- To promote competition and private participation in the areas of generation, transmission, distribution, import and export and sale of electric energy, in objective, transparent and non-discriminatory :
- To arbitrate disputes between operators or between operators and consumers ...
- Intensive collaboration between ENEO and ARSEL and difficult collaboration between the two institutions and others

The City Council (or urban community, *Communauté urbaine*) is responsible for

- Study and realization of the expansion or maintenance of the public lighting network;
- Work relationships with public service concessionaires.

The Local council (or subdivisional council, *Commune d'arrondissement*) is responsible for:

- Contribution to the extension of electric power network where there is a need;
- Ensure public lighting service

Douala city is divided into five local councils, and Bafoussam three.

Residents' perspectives and actions

The quality and durability of the service is not guaranteed by ARSEL. Long periods of energy shortage and low voltage may occur daily, mostly in the dry season.

The service contacted in case of problems is ENEO.

Residents in need of electricity put in place a small association and contact ENEO for their connection. When the billing is done, they share the charges. In some cases, some residents contact ENEO subcontractors who put in place the energy network in their settlement and contact ENEO only when they want to connect their subnetwork to the one of ENEO. The consequence is the poor quality of the material used and the low voltage. In Douala, unauthorised connections are reported from low income settlements

The population developed alternative solution against frequent and long energy shortage: the use of kerosene lamps, candles, solar system of generators for high income households.

Fires resulting in deaths and loss of houses and contents have been mentioned as caused by kerosene lamps, candles, overloaded transformers etc.

Regulation of the service

The price of the electricity power is fixed by ENEO, ARSEL and MINEE. 1kw is 50 FCFA for social service (less than 110 kw) and 79 FCFA/kw for big consumers (> 110 KW).

The regulation is done by ARSEL but most of electricity consumers ignore the role of that state institution.

Ghana Fieldwork Findings on Governance of Electricity Services

Electricity Company of Ghana (ECG) is the only institution mandated by law to distribute electricity in Ghana. The company's main responsibilities include the distribution of power and the day-to-day maintenance works on their infrastructure such as overhead transformers, poles and meters. A maintenance engineer indicated:

> ….. *regarding the daily operation and maintenance of electricity supply, three main teams are constantly present and operate at every given time. These are overhead lines team, underground cable team, and the fault section team* (Maintenance Engineer, ECG, Legon District, 2016).

We established that these maintenance works (only on poles, transformers and main overhead lines) do not go beyond meter installation and management level. Thus, any fault occurring at the household level is taken care of by 'trained' electricians contracted by the customer though these electricians are not mandated to work on the meter or any pole.

With respect to interaction with residents, the ECG officials revealed that a cordial relationship exist between their outfit and residents. This is reflected in their creation of customer care centers and fault reporting lines which enables residents to make enquiries, complaints and report faults.

We have a customer care line which is much publicised so our customers are aware of that and use it to contact our Customer Care Unit. In fact, when we send out electricity bills to customers, the bills come out with the customer care lines printed boldly on them. This is not only available to our post-paid customers but to our pre-paid customers as well. When our pre-paid customers buy their pre-paid units the receipt that we give them also has the customer care line. When our customers call this line and report any problem they have with our services, appropriate actions are taken to address the situation [Customer care officer, STMA].

…..we have a help line, (0302611611) which takes the details of the complainer, and relay the information unto a system called Incidence Management System (IMS). The information is subsequently relayed to the district concerned for redress (Engineer, ECG, Korle-Bu district, 2016*).*

Admitting to some challenges in the interactions with its customers, an official of ECG in Accra noted:

Our relationship with our customers is cordial because once they place a call about a problem, we move in to address their problems. Admittedly we might not be able to satisfy all our customers because of the size of our network and the number of customers we are dealing with as against the number of our staff so it is sometimes difficult to address all their complaints. But we try as much as possible to address these complains. In going forward, I think we should look at is how quick we resolve customer complaints. We try to avoid a lot of mistrust. What we are doing to improve this is to work on our response rate to customer complaints and make it as smart or fast as possible. We also have to improve the customer to staff ratio as the gap is a bit huge for now (An official of ECG in Accra).

Apart from the call centers, we also observed that some residents do make direct contacts with ECG officials to report faults, make enquiries or complaints. Besides, others place direct calls to individual engineers or ECG officials to lodge their complaints. Some also report their concerns to their opinion leaders who subsequently channel them to their contacts at the ECG office.

Within the two research communities, participants identified almost identical faults that often affect the ECG system. These include faults with power lines or break of electric cables, overloading of transformers, the issue of illegal connection (pirating of electricity), among others.

…..ECG is fundamentally an engineering company so we always have our engineers on standby every now and then, and we also rely a lot on our customers because of the size of our network. If there should be a fault for instance in "Cape Three Points" area which is far away from STMA, we rely on our customers to inform us so that we can quickly move in to fix the problem. Fortunately, we have Customer Service Centres also in most part of the region where we have fault operators and cashiers so they are quick to respond to some of these complaints when it comes to our attention [Regional engineer, STMA].

…..Yes, illegal connection comes in interesting forms. You know, it is the phenomenon of illegal electric connections through which our customers misuse power. They use power without paying and power is not for free. Illegal power connections is a major issue so currently we have even launched a revenue protection exercise to make sure we visit every electric meter in the system to ensure the integrity of our meters. Tampering with our electric meters is probably the major issue relating to misuse of our equipment and that is what we are trying to put a stop to that. Fortunately, so far our efforts to stop the illegal connections have been very good as we have been able to identify many illegal connections in the system and surcharged some of the customers to court to make sure they pay us the money that is due us.

It was further revealed that:

Not all the faults on our facilities or services are repaired promptly. If the fault is associated with damaged transformer, it goes through a process before the transformer is replaced so addressing such faults take much longer time. However, if it is a cable fault, that is much easier to address. On the other hand, if there is an outage of power we just have to explain to our customers what caused that outage. If the outage is as a result of load shedding then that is beyond ECG but if it is a fault in our electric lines, then we move in to repair the fault. For us, we have two forms of power outage, the planned and unplanned outages. If there is a planned outage where we want to work on our lines we informed our customers 48 hours ahead of time. If it is unplanned outage, eg load shedding, that presents a bit of difficult but we try our best to resolve the problem.

Operationally, most residents do not play any key role in the management of electricity in the communities. Their role appears restricted to reporting of faults on major lines and about power outages, and occasional contribution of labour (manpower), particularly in the peri-urban areas in the erection of poles. Like water services, the management of internal faults and repairs remain the sole responsibility of the beneficiaries. Technically, local electricians are not allowed to work beyond in-house wiring. In some disadvantaged communities slums and informal settlements, electricians, which coincidentally have high incidence of illegal connections defy this due to poor response rate of ECG officials. In a discussion with the engineer of the area, he asserted that;

Private electricians are not supposed to operate beyond the internal wiring. ECG works on that but as I am saying, some of them find themselves on the pole. Sometimes, they do what we call changing of phase. The fuse on one line may go off and instead of lodging official complain, they use private electricians to change the wiring from their line to a second line, at times with connivance with some ECG officials (Engineer, Korle-Bu district, ECG)

The engineer participants unanimously attested to this illegality:

…three main types of illegal connections are common and include (1) wires within the house surpassing meters to the main poles, (2) having different phases into the meters so that a phase goes off another phase is connected to the meter and (3) connecting

directly from the poles straight into the house without meters (Legon district engineer, ECG, 2016)

Equally important challenge identified particularly in the slums and informal settlement is the lack of access routes to undertake maintenance works and repair faults. This is due to haphazard development and encroachment on public lands which residents do with impunity. In most low-income communities residents have the penchant to build on access roads leading to the ECG transformers belonging such as the typical situation in Abuja. An engineer working in Abuja remarked;

You know, the area is very congested. It is more of a like a lorry station than residential. So getting access to even our poles is very difficult. We necessary need to go with our vehicles; We need to have a place to place our ladder; indeed access to such places is a big challenge (Korle Bu District Engineer, ECG, 2016).

'…there have been serious transformation and extension of houses. This has led to little space available for any extension work to be carried out. The place has become so congested that it is even difficult to carry out repairs when the problem is with underground cables, because people have built all over and you might have to cut through verandas of people's houses. This situation have presented difficulties in getting an area for siting transformers because no one want transformers at their backyard, because they think it is too dangerous' (Accra North District, Engineers ECG, 2016).

A peculiar challenge facing ECG in some communities like Ashaley Botwe and Anaji is the rapid population and uncontrollable urban sprawling. This has placed a huge load on their transformers hence the frequent breakdown of the transformers due to overloading. A engineer of ECG (legon sub-station) indicated:

…the fast pace of residential growth has led to a situation where transformers are unable to cope with the loads (demand) made on them, thus leading to incessant transformer breakdowns and power outages. This creates potential fire hazards (Legon District Engineer, ECG, 2016)

Coupled with the aforementioned challenges associated with the transformers, the evidence of most residents overloading the transformers were captured in the comments of an engineer at Accra New Town:

Though supply of electricity was basically for domestic purposes, recent times have witnessed the emergence of commercial activities ongoing in people's homes. There is evidence of transforming certain part of houses into stores or mini-shops and drinking spots. Besides, small-scale home-based enterprises such as "pure water" [sachet water] production are also beginning to emerge. These overload the transformers in the communities (Accra New Town ECG Engineer 2016).

We noted one consequence of the apparent overloading of the transformers mostly associated with informal/slum and peri-urban areas due to increasing illegal connections, and these partly explains the frequent outbreaks of fire in such communities.

To improve revenue mobilization and mitigate financial stress of the company, the participants acknowledged that the communities are undergoing the installation of new prepaid meters to replace the old postpaid meters. An official in Accra remarked;

> …*about 80% of residents are currently using the pre-paid meters, which is more efficient and has improved revenue mobilization Consumers purchase the power in a form of credit and when exhausted, the lights go off and you will need to reload to get power. This will help check illegal connections and enhance tariff collection* (Engineer, Accra West Region, ECG, 2016).

In Gbawe, the engineer indicated:

> …..*the mechanism for installing the meters outside was to check illegality. It is a good system and has increase our revenue generation far and above the postpaid era where bills are consumed after a month of using the electricity*' (PRO, Accra West Region, ECG, 2016).

Apart from the installation of the prepaid meters, ECG has also instituted a load monitoring system to ensure that transformers are not unduly overloaded. This is in addition to the close monitoring of poles, overhead wires and general monitoring of meters installed on the poles. With respect to local policies guiding the distribution of electricity in the communities, the engineers and the PROs revealed that, the operations of ECG in any community follows the same general policies of the company in the country. An official in Accra noted;

> *There is no special regulation for individual communities but there are electricity regulation that binds everybody especially the Act 860 that looks at illegalities. That is, you are not supposed to tamper with facilities without the knowledge of ECG and this legislation is binding on everybody who uses electricity* (Engineer, ECG, 2016)

An engineer indicated that ECG has a number of policies aimed at increasing access in various communities; including shared cost of processing the materials. For example, if a prospective customer requires a pole to connect to the main grid, the customer has to bear the cost of the pole. Nonetheless, in cases where the connection will require two or more poles, the ECG has an obligation to foot that bill. It was however observed that generally, the residential development of an area is usually not coterminous with ECG extension plan. In such cases residents will have to mobilize funds and purchase a number of poles so that ECG will then connect them to the main grid. This is the current trend of policies that is adopted to enable expansion of the service in the new areas.

In addition, major policy challenge relates to how to prevent people from commercializing (retailing) power particularly, in the slums and informal settlements. Legally, the ECG that is only agency mandated to supply and distribute power. However, in several slums and informal communities, commercialization of power to friends and acquaintances has become a common practice. The engineer responsible for the area acknowledges the practice being widespread, but added " it is difficult to ensure the right thing is done".

We further observed that most low- and middle-income communities are against the installation of the prepaid meter initiative to the extent that ECG officials are sometimes denied

the right of way to carry out this exercise. Described by some respondents as difficult to implement, constant meeting with opinion leaders and increasing public education have helped reduced the tension. An official noted;

> *'…following the mass replacement of the credit one, we have about 55 per cent of the residents currently using the prepaid'* (, Accra New Town Engineer-ECG 2016)

To abate the overloading of transformers especially in peri-urban areas, the ECG has started a project called High Voltage Distribution System (HVDS) which involves the installation of small transformers (of about 50 KV) at vantage points within the community to serve small units. A key challenge negatively impacting on the activities of ECG is the lack of corporation and coordination among the other stakeholders at the district- Town and Country Department, the Planning Department among others. A case in point is Abuja and New Takoradi where the high level of congestion has hindered ECG to expand their services by installing more transformers and also clump down on those who pirate electricity. An engineer suggested;

> *Abuja should just [be] demolished so as to build a proper market shed, structured like the way they did for Odawna market. Well-structured market with shop numbers with alleys will reduce fire hazards. If they want to use the place as a market place, they should just demolish it, build those things so that when you want to distribute electricity there, you can have proper networks, proper distribution lines so that nobody taps illegally and those things'.*

Commenting on the challenges facing ECG and the way forward, an engineer in STMA remarked:

> *We face huge challenges. Some of these are logical such as low staff strength, inadequate operational vehicles and all these are based on inadequate finances of the ECG. Because of that too, you cannot employ new staff. . Our current staff-to-customer ratio in Western Region is too large, having in excess of 300,000 customers and a staff strength close to 650 serving the whole of this region, so the company has to out-source to third party contractors to do some of its jobs such as meter readings. If you take Takoradi district alone, we cover the whole of the Ahanta West with a staff of just 50.*
>
> *To improve electricity services, the primary thing is to make sure that generation of electricity is always available to meet the demands of our customers. ECG is only a distribution company and we distribute what we have to our customers. A load-shedding regime fundamentally means there is a generation shortfall; this is not a distribution problem. I think to improve electricity services, generation of electricity should fundamentally be able to meet the demand in the system which means at any point in time there should be enough generation of electricity to meet consumers demand. The ECG as company will also have to invest in the electricity network such as installing new transformers, building new primary and secondary sub-stations to ensure the network is stable to guarantee a quality and reliable electricity supply. Ghana as a country has to work on the generation capacity of electricity which is very important.*

Tanzania Fieldwork Findings on Governance of Electricity Services

The main guidelines for provision of electricity in Tanzania are provided for in the draft National Energy Policy of 2015 and Electricity Act of 2008. The main supplier of electricity in Tanzania is TANESCO, a government owned company. Like water and sanitation electrify provision is regulated by EWURA, which monitors its activities and determines tariffs. Apart from TANESCO Arusha city council plays a key role in planning of provision of electricity. TANESCO is responsible for the distribution of electricity from power stations through major and minor power lines and also connects electricity to buildings. The owners of properties are responsible for electrical wiring of their properties using licensed technicians. Before connecting electricity to a building TANESCO checks if the wiring was properly done.

The regulations for interaction of key stakeholders in water service provision are provided in the respective acts of energy and EWURA. The Ministry Of Energy and Minerals is responsible for policy setting, planning of large power projects. EWURA is responsible for annual monitoring of power generation and distribution. EWURA produces annual performance report of TANESCO. On tariff setting TANESCO makes a request tariff review to EWURA. EWURA through public participation process the request resulting into approval or rejection.

Residents perceive the electricity services as inadequate due to limited coverage, high connection fees and outages. The residents interact with service providers for all issues related to electricity supply to their buildings, for example when there is no power in the area or building but not to issues related to electrical wiring of the building . Residents can also contact TANESCO to provide power to a new area or any other area that still does not have electricity.

Some of the challenges facing the area include illegal connections and tampering with meters. TANESCO takes action including forcing the illegal connectors to pay heavy bills or permanently disconnecting power to the building. Electricity charges are paid directly by the users depending on the category in which they are in. There are different rates of payment for residential, commercial and industrial users.

The main challenge is that the demand for electricity is much higher than the supply. Maybe this problem can be overcome now due to the construction of new generators using gas that has recently been discovered in the country.

6. Governance of Sanitation Services in Cameroon, Ghana and Tanzania

Issues highlighted in Literature Review

According to WSP (2011a: 26), the issues faced in sanitation are often overlooked in favour of developments in other sectors, such as water supply, with it being easier to produce tangible figures for donors.

According to the literature, the issues primarily stem from the 'soft' side of sanitation, such as a lack of capacity/HR, funding issues and poor monitoring and evaluation. These are discussed below. Peprah et al. (2015: 320 observe that sanitation is a concept that demands a broad understanding due to its complexity and that sprawling urban settlements are normally characterised by sanitation problems due to the density of people and industries located in the settlements. This suggests that the logistics and infrastructure contribute to many of the issues. A study in Ghana on treatment plants, found that the majority were non-functional (Murray and Drechsel, 2011), largely due to human and financial factors, and inappropriate technology - an example is the complete dependency of these plants on electric current, while frequent blackouts occur (Galli et al., 2014).

Lack of Capacity

Ako Ako et al. (2010: 1328) observe that municipal technical departments, local contractors and consulting firms often lack the skills necessary to conduct studies and works properly for sanitation, especially the design and implementation of labour-intensive works. Poor institutional and human capacity at the levels of elected officials, officers and other sector players, together with a lack of project monitoring and evaluation, also hinder the sector's development (ibid.).

Monitoring and Evaluation

With M&E being an important part of project management, it would appear that in its absence, it would be impossible to assess the situation in any given sector. This is true of the sanitation sector. In Ghana, monitoring is poorer in urban sanitation than in other sectors (WSP, 2011), as there is a lack of institutional ownership of monitoring and evaluation (KMA, 2015 in Furlong and Mensah, 2015: 8). There is a framework to enable and guide investment from the public and private sector. There is often provision made for M&E in these frameworks, but without any reports being made available, it is unclear if these frameworks or M&E activities are being implemented (Furlong and Mensah, 2015: 7)

Lack of reliable data

Information about M&E activities is not the only material difficult to get hold of. Information on urban sanitation at a city level is difficult to access; this includes basic data on coverage, functionality and investment (Furlong and Mensah, 2015: 7). Presently, there is no credible provider-based data for access and coverage in the sanitation sector (ibid.).

Regulation

In any sector, if the regulation is weak, then there is little chance that it will be successful. There are a few examples of how sanitation suffers due to this issue. In Temeke, Tanzania, the institutional weaknesses observed by Mwalwega (2010: 57) are the lack of a national sanitation and hygiene policy, low public expenditure on sanitation and the fact that sanitation is a cross-sectoral issue because the responsibility is shared by a number of ministries (van Dijk et al., 2014: 211). This is also the situation in Ghana where there is no well-defined institutional responsibility for monitoring, enforcement, registration and licensing of operators (KMA, 2015, WSP, 2011 in Furlong and Mensah, 2015: 6).

Where there are laws, they are only as effective as the enforcement agency responsible for them. For example, Furlong and Mensah, (2015: 5) discuss that there are bylaws in Ghana (specifically Bylaw 5 and 7) that state that bucket latrines are banned, and that houses aren't to be constructed without a toilet or latrine, and that households are prohibited from emptying sanitation systems in an inappropriate way and disposing of their contents into drains (WSUP, 2014c). Despite these Bylaws being in place, they are not strictly enforced there is still a low number of household facilities and the population is highly reliant on public toilets Furlong and Mensah, (2015: 5).

Financial Issues

As with many of the different sectors in developing countries, finances play a major role in their success, or failure. Lack of adequate funding for the sanitation sector is another major obstacle to its development. In the context of decentralization, the transfer of competencies to local municipal councils has not been accompanied by allocation of adequate financial resources which enable them to assume these responsibilities (Ako Ako et al. 2010: 1328).

Cameroon Fieldwork Findings on Governance of Sanitation Services

Organisations involved and their interactions

The key organisations involved are the Ministry of Water Resources and Energy (MINEE), Ministry of Housing and Urban Development (MINHDU), Ministry of Environment, Protection of Nature and Sustainable Development (MINEPDED), Hygiene and Sanitation of Cameroon (HYSACAM), the City Council and local councils.

MNEE is responsible for:

- participation in the definition, design, formulation and implementation of national policies and strategies sewerage;
- the definition and monitoring of actions to be taken for the management of environmental implications in all major projects in the field of water, in conjunction with the Ministry for the Environment and concerned administrations;
- participation in the definition of rejection systems standards in the receiving environment;
- conduct outreach and promotion of investments in the field of liquid waste;
- of maintaining and updating files of works and sewerage data, in conjunction with relevant agencies and organizations;

- of maintaining and updating files of works and sewerage data, in conjunction with relevant agencies and organizations;
- support to local councils in liquid sanitation in the areas under its jurisdiction.

MNHDU is responsible for:

- Defining sanitation and drainage standards and ensuring their respect;
- Defining standards for hygiene and sanitation, disposal and /or treatment of household waste, and ensuring the respect and control of these standards;
- Beautifying urban areas I collaboration with appropriate (interested) ministries, regional and local authorities;

MINEPDED is responsible for:

- Formulation and implementation of government policy on the environment, protection of nature and sustainable development
- As such, he is responsible for:
    - The definition of the terms and rational and sustainable management principles of natural resources;
    - The definition of environmental messures in conjunction with the ministries and specialized agencies concerned;
    - The development of sectoral master plans of environmental protection in conjunction with the departments concerned;
    - monitoring the environmental conformity during the implementation of major projects;
    - Of public information in order to encourage participation in the management, protection and restoration of the environment and nature.

HYSACAM was created in 1969 to collect and dispose of household waste in Douala and Yaounde cities. It now works in partnership with 11 city councils (including Douala and Bafoussam) and 5 councils. It is responsible for collection, transport, treatment, recycling and recovery of urban waste

The City council is responsible for:

- the study and implementation of various sanitation work in the city except large-scale works
- maintenance and repair of primary networks (drains), secondary (gutters) and hydraulic structures.
- cleaning of roads and community public spaces;
- the collection, removal and treatment of household waste;
- the creation, development, maintenance, operation and management of community facilities for sanitation, wastewater and rainfall water;
- the development of community action plans for the environment, particularly in the fight against pollution and protection of green spaces;

The Local Council is responsible to ensure the protection of the environment, to take accordingly appropriate measures to prevent or eliminate pollution and nuisances, to protect green spaces and to contribute to the beautification of the town.

How do these organisations interact?

There is intensive collaboration between HYSACAM and City Council:

- HYSACAM collects, transports and treats solid waste according to the contract signed with the City Council;
- The emptying of individual toilets is done by City Council directly or through some service providers in the town;
- Urban communities, local councils sometimes create improved toilets in some public places like schools and markets.

The MINEPDED is completely absent, their presence is noted during the control wastewater from hotels and industries.

Residents' perspectives and actions

Associations of residents are very efficient in low income communities but don't function well in middle and high income settlements. In Nkolbong in Douala, some residents expressed their difficulties to involve some high income residents in their association.

In Douala, in some settlements located in wet environments like Bobongo, residents face difficulties for the drainage and toilets. Local councils and City Council sometimes supply residents with cleaning tools. In Douala and in Bafoussam, Thursdays morning are reserved for cleaning, there are penalties for those who don't follow the rule. The work is done under the control of Hygiene and sanitation service of the local councils and the City Council.

Regulation of the service

The quality check is done by the Hygiene and sanitation service of the local councils and City Council. Payment is allowed only for public toilets in public places like markets and other popular places.

The MINEPDED and MINEE control wastewater from Hotels and industries.

Other findings

In Douala, the drainage system doesn't function well due to the flat topography. Drains are always blocked by waste and mud. In Bafoussam, the hilly topography facilitates drainage but the absence or inadequacy of the drainage system results in water flow on the earth roads which are destroyed;

Many households don't have toilet and use drains to ease themselves.

It is very difficult to implement many aspects of the regulations on sanitation.

Ghana Fieldwork Findings on Governance of Sanitation Services

Our study identified three categories of latrines in the research location including; the household or residential latrine, public latrines and the private latrines. According to a Public Health Officer, district assemblies are the main institution responsible for the provision, maintenance and management of public latrines. Besides, individuals who put up their houses are responsible for the building of latrines in their houses. Consequently, a common trend that is characterized with all the communities is the emergence of privately-owned latrine blocks which are built by individuals to complement the public ones and serve the community. These private latrines are mostly water closets which are built with at least 10 rooms.

In Accra, our study revealed that Ashaley Botwe has 11 latrine blocks, made up of two publicly-owned ones and nine privately-owned ones, while Abuja has three private latrines with no public latrine. Ironically, in a middle-income community, we counted 11 privately-owned latrines and 3 publicly-owned latrines. Lastly in Gbawe, the environmental health officer noted that there are four publicly-owned latrines and about 15 privately-owned latrines.

In Takoradi clearly, the number of latrines built for commercial purposes are more than public latrines. There is also an uneven distribution of these public and private latrines in the communities. An environmental health officer in Accra revealed;

> *when you come to the well plan residential areas, they use the household latrines but in the poor and least planned areas including the squatters, they use the public or private latrines. Or at times they engage in the 'free range'* (Environmental Health Officer, Accra).

The day-to-day maintenance of the latrines is undertaken by their respective owners. For instance, within the household, the residents maintain their latrines while the private owners also maintain theirs. Even though the assembly constructs the public latrines these are leased to individuals to manage and maintain them while paying a percentage of the proceeds to the assembly. An environmental health officer in a discussion stated:

> *…. you see, the public latrines are given to a contractor to take care of and the individual operators maintain them. However, we come in to see to it that what we asked them to do is up to our standards'* (Environmental Health Officer, 2016).

A major reason for the assemblies leasing their latrines for private management is the perception that the private sector manages better than the public sector. Nonetheless, the Public Health Departments and the Environmental Health Units of the various districts are the overall institution mandated to ensure sanitary and hygienic conditions of all communities. An environmental health officer posited;

…there are metro public health officers who do random inspection and report problems. That is, they ensure that public toilets, household latrines and the private latrines are in good condition and care of the day to day maintenance is done to them.' (Environmental Health Officer, Accra).

Aside from the few residents who use the household latrines, it was observed that majority of residents in low- and middle-income households use public and private latrines, with much preference for private latrines because they are usually better maintained, perhaps because of the guidelines set for the operators. A Unit committee member in Gbawe noted;

*the private latrine pay much attention to the service they render. Residents who use the public latrines lodge frequent complaints about its unhealthy conditions. Others also send their concerns bordering on leakages, damaged or overflowing septic tanks and pungent smells emanating from the latrines directly to the district assembly (*Environmental Health Officer, Accra).

…we have ensured that all those operating private latrines are registered with the sub metro so we can supervise them. We do periodic inspection of the facilities to ensure they conform to best practices. This is to ensure they do not become a medium for transfer diseases in the community (Environmental Health Officers; STMA)

Box 1: The cost dilemma and the case of 'flying toilet'

Most urban residents use shared or public toilet, which generally costs GHc 50 per use. On the one hand, it might be argued that paying GHc 50 to visit the toilet is a high fee proportionate to the average income of urban poor residents. More importantly, the fact that one is not assured a descent facility makes the cost even higher to bear. In most cases, one needs two empty milk tins to stand on after carefully negotiating one's way to use the facility. Meanwhile, the GHc50 can also secure food such as a ball of kenkey albeit, without fish. For a casual wage labourer working in the informal sector, earning less than GH 20 a day, that cost remains too huge to bear. A kayaye (head-portering) or a truck pusher in Accra might earn even less and therefore tend to use other options "to attend to nature call". It is therefore not unusual for the group to adopt the 'free range' style (open defecation at the beach) or the 'flying toilet' method, where people defecate in black polythene bags and 'fly' it to an unknown destination. Clearly, people's desires depend on their perceived needs and, especially when budgets are limited, budget allocation priorities are grounded in a series of habits that are not easily altered. City authorities are conscious that it would take significant efforts for the urban poor to pay willingly for certain poor services since most of them '*are ignorant and we have to change their mindsets*'

We further observed that no individual who takes any action or engage in any initiative to ensure that public latrines are hygienically kept. Rather those who patronize the facility use it as and when necessary. An Assemblyman revealed;

> *The people in this area seem not to care about their sanitation and environmental health. Even the National Sanitation Day, instituted by the government has received less enthusiasm. The people themselves don't care about their surroundings. Individuals take care of their in-house toilets, leaving most public toilets' floors, door handles and even the toilet seats defective.*

There are some commonalities among the challenges facing the sanitation sector. In Accra, these range from lack of adequate space to construct in-house latrines, thus defeating the assembly's desire to implement its *one-house, one-latrine* policy. The continuous use of pan latrines creates dislodgement difficulties leading to situations where community drains become receptacles for faecal matter.

Another major constraint facing the assemblies under consideration has been the non-adherence to building regulations. For example, Ghana's building code states that every house must have a toilet facility and this must be indicated in the building yet some of the structures are devoid of toilet facility.

The interference from political figures, opinion leaders and some traditional authorities also interfere with the law. An environmental health officer explained that, whenever a resident or an individual breaches the law, key personalities within the committee intervene. He opined;

> *'…at times you take action against somebody and by the time you realize, the Assembly man comes, chief comes, political heads come in and these unsolicited interventions make our work very difficult to do* (Environmental health officer, 2016)

> *'…we also have mobility challenge. Sometimes we use our own money or rely on our pockets which is not being taken care of by anybody. Most of the time, it makes the work ineffective. These are some of the problems we encounter on the field.*

Irrespective of these challenges, there are several policies as detailed above that have been enrolled to maintain proper sanitation in the communities.

Figure 4: Examples of (a) publicly-owned latrines and (b) privately-owned latrines used in peri-urban areas of Accra.

Tanzania Fieldwork Findings on Governance of Sanitation Services

Organisations involved and their interactions

Sanitation issues in Tanzania are imbedded in a number of policies including those covering water services. The key institutions for sanitation service are the same ones as for water with the addition of the Ministry of Health. The Ministry of Health apart from having its officers in all urban centres has also prepared a draft policy for sanitation and hygiene 2009. The health officers that can be found in the offices of all urban areas play a key role in awareness creation on sanitation issues, approving of sanitation facilities and monitoring sanitation conditions in urban areas.

In Arusha as in many other urban areas in Tanzania the central sewer covers only a small part of the city. The majority of the city dwellers use pit latrines especially in unplanned areas followed by septic tanks. The city authorities are responsible for the provision of the central sewerage system and the property owners are responsible for planning and constructing sanitation facilities within their property boundaries. This means that many sanitation facilities in Arusha are provided by owners of the properties because there is no central sewerage system. It is the responsibility of City Health officers to inspect toilet facilities in residential and commercial buildings. A fine of Tshs 50,000 is normally imposed for toilets that are in poor conditions. Emptying of toilets or septic tanks that are full is normally done by trucks owned by city council or private small companies.

There is limited interaction among key stakeholders because of predominant use of septic tanks and toilets in the area as many of the sanitation issues are handled by property owners and private sector. However an interaction occurs between city engineer, health officers and property owners when an approval for construction of a sanitation facility is required. This is a key requirement for building that have more than one storey even if they are located in unplanned area. It can be said that in the study area interaction is common between the house owners, private truck owners and city healthy officers.

Everything is more or less the same in the Dar es Salaam settlements except in the Ununio settlement where majority of the local community have better sanitation services due to the fact that they are using septic tanks and have better water supply services. In addition sanitation issues are handled more formally by DAWASCO and private companies.

Residents' perspectives and actions

As already pointed out in the earlier report the majority of resident perceive sanitation services as poor. They interact mostly with local technicians or truck owners for solving day to day sanitation problems including blockage of septic tanks and emptying of pit latrines.

Actions taken by residents in regard to sanitation services focus mostly on maintaining and cleaning of the sanitation facilities. On the other hand the local leaders visit and inspect the toilet facilities to insure cleanness. The city authorities and EWURA are responsible for quality check but this is limited due to the fact that majority of residents use pit latrines or septic tank systems. EWURA responsibilities cover only line sanitation infrastructure. However the city authority has designs of standard septic tanks and all individuals constructing their house in planned areas have to use an approved design.

How is the service paid for?

In residential houses sanitation services are paid by tenants as part of monthly house rent. It is only in public places including markets and bus stands where individuals directly pay for the use of public toilets.

Other findings

The key constraints in Arusha as in other many urban areas in Tanzania is lack of resources to contract a central sewerage system to be used at a cost by the majority of urban dwellers. A central sewerage system requires among other things adequate water supply and financial resources for the city council to maintain it.

7. Governance of Access Roads in Urban Settlements in Cameroon, Ghana and Tanzania

Our previous research found that people in the project settlements rated access roads as high priority for improvement. The condition of these roads determines the availability of public transport (minibuses or motor bike taxis) and the time, cost and inconvenience incurred in going to work or the market. They are often earth roads which get seriously rutted in the rainy season and may remain unrepaired for many months, as shown in Figure 5. They may have road side drains, but these are often blocked by rubbish and ineffective.

Figure 5. Access road in Douala, Cameroon in the dry season (November 2015)

Cameroon Fieldwork Findings on Governance of Access Roads in Urban Settlements

Organisations involved and their interactions

The local council is in charge of the creation and maintenance of secondary roads (roads inside the settlements). More generally for roads and transport within the city, the organisations involved are the Ministry of Housing and Urban Development (MINHDU), City Council and local councils, with responsibilities as listed below:

MINDHU:

- Drafting and implementing strategies to improve traffic in large urban centres;

City Council:

- Definition, implementation and monitoring of infrastructure, equipment and networks projects
- Realization of facilities and necessary equipment for implementing the traffic plan
- Study, programming, maintenance and management of different transport equipment: untarred roads and paved roads with the exception of heavy maintenance programs for paved roads;
- Carrying heavy maintenance of road infrastructure and various networks.

Local council:

- Creation and maintenance of secondary roads (unclassified roads);
- Construction, maintenance and management of crossings infrastructure

There is active collaboration between MINHDU, Urban Communities and Ministry of Public Work (MINTP). National roads are maintained by the central government through MINTP. City Council / MINHDU actions regarding roads creation and maintenance are oriented to primary roads serving settlements. The local council is in charge of the creation and maintenance of secondary roads (roads inside the settlements).

Residents' perspectives and actions

In case of problems, the population contacts the local council or urban communities. In new settlements like Bonendale and Bojongo in Douala, Ngouache in Bafoussam, associations of residents are very active in road opening and maintenance. Their initiatives are not sustainable however because they lack expertise and suitable tools/equipment, constructing most of the roads and crossing infrastructure manually.

Regulation of the service

There is generally no quality control, the most important problem is the participation of all the residents. It is a big challenge that sometimes create disorder in settlements. Regulation is completely absent on roads serving low income settlements.

Ghana Fieldwork Findings on Governance of Access Roads in Urban Settlements

The provision of motorable roads in Metropolitan Accra has been treated as part of other social services (e.g. electricity, water, etc) which cities provide to make livelihood comfortable. Access roads are an important infrastructure for community development in urban areas. Bad roads can severely impair economic activities by increasing cost of transport fare, cost of maintaining vehicles and causing environmental nuisance through pollution. In Ghana provision of access roads in cities is the responsibility of urban roads which is an agency of the Ministry of Transport. However the local government comes in because it is in charge of development

programmes and projects including road projects. In this regard the Department of Urban Roads (DUR) has offices within the MMDAs.

Our respondents intimated that though administratively most government functions have been decentralized, they remain financially centralized. To that extent, DUR is still in charge of financing the construction of the roads, while the MMDAs or local government maintain these roads through their office of urban roads in the assemblies. The initiative for new road project comes from the urban roads section of the MMDAs but DUR remains the sole executioner and financier while the responsibility for maintenance reverts to the Assembly. A frustrated road engineer made this point clear:

> *It is the Assembly that takes care of all roads under its jurisdiction. If something goes wrong, they [Assembly] being representative of the Local government is expected to fix; they are in-charge of roads. But when it comes to financing and constructing new roads, urban roads takes charge (Osu-Klottey, sub-metro road engineer.)*

Discussion with road engineers reveals a semblance of harmony between the Assembly and DUR though who has the oversight responsibility over the department at the MMDAs remain uncertain.

On the part of the communities, it was clear that they do not know exactly who is in charge of road construction and maintenance. A clear case is Abuja in Accra, where settlers currently squatting on Railways land think it is their responsibility to address problems relating to roads in the community. Nonetheless in other communities they are aware that road maintenance is the responsibility of the Assembly and they do contact them whenever there is a problem. The engineer of the Ayawaso sub-metro noted,

> *most residents have my number (mobile) and they contact me whenever they have any challenge regarding roads. Under normal circumstance and more preferably, complaints regarding roads are to be channeled to the Assembly (MMDAs), who then through their department in charge of roads, will address the problem by communicating with the urban roads head office depending on the nature of.*

While provision and maintenance of access roads is the responsibility of the MMDAs and urban roads, residents' involvement in the provision and maintenance have been critical, sometimes borne out of frustration and neglect. The box below shows the situation of Abuja, who through their own initiative and effort has provided their own access roads.

Box 2: Demanding for Access roads: Frustrations of informal settlers, Abuja

As for the roads we have a problem in this community. You know is like we've experienced fire 3 times, so when the last one happened, the fire services people came here and their PRO, said that Abuja should either be evacuate or they should place solid material along the roads to prevent encroachment, especially the charcoal sellers. He denounced poor access roads in the area exacerbating the externalities of the fire outbreak. About 10 years ago, there was a road but then here wasn't all that congested. There was a road from here to coca cola and from coca cola there was another road to Kaneshie. But sometime people here built to cover all these roads. So we are facing problem with access roads here. So what we did was that, after the fire, we all agreed that we will not allow people to erect structure again on the access roads left. So we wrote to the MP and the AMA that we will not allow the remaining access roads to be encroached on say they should come and help us. So the MP responded that we should go to the civil engineer/ urban roads who were stationed at Jamestown. Later our people themselves said no, this people when they come they might even go beyond the normal section or demarcated area for the roads and clear most structures even not within the access roads. So we later decided to create just an access road here, so that whenever there is a problem car can go in. so we were able to create one. (Unit Committee Member in Abuja)

In some communities, the inability of the local authorities to respond positively to increasing road deterioration compels some residents to independently (voluntarily) fill potholes on roads as a way soliciting financial rewards from some of the road users. Though per the local authorities regulations, the practice is illegal yet it remains a common practice in most deprived and peri-urban areas.

Additionally, another area where one sees residents' involvement has been in situations where companies are recruiting labourers to work on new roads project. Most of the community youth, especially those unemployed are proposed by opinion leaders to officials for such employment considerations. In other cases also, community opinion leaders contact Department of Urban Roads at the MMDAs to erect speed rumps ostensibly to prevent accidents.

This was the case for Ashaley Botwe where after the construction of the road, speeding of vehicles and a number of accidents led to the agitation for speed rumps.

Our engagement with the stakeholders revealed a number of institutionalized community challenges facing DUR. There is inadequate capital to finance most of the road projects. This has even worsened following the devolution of the functions of the department to the MMDAs' level. There is no proper co-ordination between the departmental agencies including land, water at the district level and the other agencies on several occasions have had to cut through newly constructed or existing roads to lay their infrastructure. A road engineer noted:

> *….. the other challenge relates also to the outfall of our drains. You know, you cannot construct drains and leave them anyhow. You have to develop a proper outfall at the*

lowest end. That means you have to channel all your water to a place that will not cause havoc or disturb other residents. Yet as you know, all the swampy areas in Accra have been taken over by developers. We don't know how they get their permit so when we are constructing the drains, we get to a place and it becomes a serious challenge (Urban Roads Engineer, Adenta Municipal Assembly)

At the community level, the misuse of roads by residents was identified as another big issue (see Box 2) The increase in commercial activities, coupled with incompatible land-uses have led to a situation where sides of the access roads are taken over by commercial activities (see Figure 6). Not only this, but also these road sides are also used as parking lots for vehicles especially trotros (public minibuses) which leads to serious traffic congestion. This situation is peculiar to communities closer to the Central Business District, like Accra New Town. Moreover these activities have significant impact on the longevity of the roads.

Washing bays along access roads leads to a situation [where] water incessantly flows onto the roads which is not good for the bitumen component of the road. Another issue was the penchant for community members to block the road and use them for social gatherings.

Figure 6: Encroachment of businesses on to road, Accra.

Tanzania Fieldwork Findings on Governance of Access Roads in Urban Settlements

Organisations involved and their interactions

In urban areas in Tanzania provision of access roads is the responsibility of the city council. In planned settlements access roads are provided for in the detailed urban plan scheme. In unplanned settlements there is no physical plan and therefore no planned access roads. Areas for access roads are provided for during the preparation of squatter upgrading scheme. The local residents are responsible for proper use of roads including non-disposal of solid waste in storm water drainage channels.

In unplanned settlements there is a lot of interaction between the city authorities and residents either during the preparation of squatter upgrading scheme or upgrading of an access road. This is done in order to attain agreement as to where an access road should pass. Otherwise the city authorities are responsible for the construction and maintenance of the access roads. The residents through their local government leaders report to the city authorities problems related to access roads for sorting out.

Residents' perspectives and actions

In Arusha the road conditions are perceived by local residents as inadequate due to many roads not being paved and/or lack storm water drainage channels. The main issues related to access roads in unplanned areas are encroachment of road reserve and disposing of waste water or solid waste. Therefore residents through their local government in the Arusha study areas do take some actions to prevent individuals encroaching road or disposing waste on roads. In many cases local residents take action especially those with cars in making roads more easily passable. This is done either by filling soils on the potholes or by removing stagnant water.

Road services in Dar are better than those of the settlements in Arusha. In Kilakala settlement a number of roads are being improved from earth to gravel surface. In Ununio the main road passing through the area and some of the access roads has a tarmacked. The issues in Ununio are to prevent overloading, illegal parking and some residents allowing their livestock to use local roads. In both cases the residents are willing to contribute in kind or cash to improve road conditions.

Regulation of the service

There are regulations for planning, constructing and using access roads in terms of Right of Way (RoW), construction codes and maintenance procedures. There is no direct payment for the use of roads in Tanzania. It is done indirectly by including road costs in car fuel price. A key constraint again is the financial resources required to construct good and enough roads for rapidly expanding city

8. Governance of Mobile Phone Services in Cameroon, Ghana and Tanzania

Issues highlighted in Literature Review

Whilst there are many success stories in the development of the mobile phone industry in SSA countries, there are also some underlying issues. There are still many people in Africa that are still marginalized or excluded from accessing the benefits of mobile telephony because of barriers that include cost and the lack of adequate regulation and policy (Etzo and Collender 2010: 7). This could lead to the widening of the gap between the poor and the ultra-poor, leading to what Manuel Castells has defined as the 'fourth world' – a non-consuming and non-producing marginalized group which is 'structurally irrelevant in the current structure of the global economy' (ibid.).

The emergence of information communication technologies (ICTs) in developing countries has been hailed as a major step toward a solution to the problem of the underdevelopment of many of them. Obstacles such as corruption, delays in service delivery, lack of public sector accountability, and so on, can many believe be overcome with ICT: particularly, the Internet and cell or mobile phones (Ohemeng and Ofosu-Adarkwa, 2014: 297). Selwyn, (2004: 342) says that ICTs offer "an unprecedented opportunity to overcome existing social divisions and inequalities" in all societies, and especially developing countries (Ohemeng and Ofosu-Adarkwa, 2014: 298). An analysis conducted by Waverman, Meschi, and Fuss (2005) in some developing countries, has shown that a 10% growth of mobile penetration was associated to 0.6% of economic growth (Dayang, 2013: 17).

There is also concern that conclusions are being drawn on unreliable data. May et al. (2014:50) states that most macro-studies that investigate the contribution of ICT to socio-economic development rely upon evidence that has been collected at a level that is too general, thereby neglecting the micro-level data required for the interpretation of macro-level trends. This could result in inaccurate conclusions being drawn.

Regulation

One of the prime reasons why ICT is lacking in Africa is that it wasn't until after the turn of the millennium that it has become a talking point in political echelons. For example, during the Ghanaian elections in 1992, 1996, and 2000, none of the political parties really appreciated ICT, or made it a vital part of their manifesto for governance (Ohemeng and Ofosu-Adarkwa, 2014: 306). Neither was it heavily featured in the Ghana Vision 2020 document - a plan developed by the National Democratic Congress (NDC)-led government in the 1990s, which had been developed as the map for Ghana's road to middle income status (Ohemeng and Ofosu-Adarkwa, 2014: 307). This has led to a situation where they are catching up with those economies that have long incorporated ICT into their development strategies and economies.

With this delayed uptake, the national governments had also the need to adapt, and some have done better than others. For example, Tanzania does not have adequate capacity to maintain a proactive legal framework or coordinate the respective ministry, and there is no law that enforces the national ICT policy (Behitsa and Diyamett, 2010). As a result, an enabling

competitive and innovation environment continues to experience challenges (Calandro et al., 2010). Miroro and Ofwana Adera, 2014: 62)

Pierskalla and Hollenbach (2013:219) also state that a potential issue could be that poorer African countries were forced to introduce regulatory reform in light of budgetary pressures and demands by outside actors, such as donors or support agencies such as the World Bank.

There are multiple ICT policy and programme initiatives in place for the establishment of an East African regional ICT policy and regulatory framework (Waema et al., 2010), but the process is slow due to disquiet among some member states that a harmonized ICT policy framework would favour some countries (Calandro et al., 2010: 5 in Miroro and Ofwana Adera, 2014: 62).

In a Research ICT Africa report it was stated that: 'It is up to policy makers to create an environment that supports innovative applications and to adjust regulation to evolving institutions'. Without governments and private– public partnerships, successes in one part of the continent cannot automatically be replicated elsewhere. Mobile banking, which has been extremely successful in Kenya, is having much less impact in other countries, demonstrating that building the service is not a guarantee for success. Etzo and Collender 2010: 9).

SIM Cards

One of the topics that appeared in many of the articles was that of mandatory SIM card registration. The idea was to legally give ownership of a telephone number to the registered user, and in turn, strengthen them to demand better services, as well as to increase subscribers' power of choice of service provider in the competitive telecommunications market. Such registration had not been conducted in the past, but is now required by the governments in all of the project countries in response to rising crime and fraud schemes involving mobile phones (Jentzsch, 2012 :608). This means that within a specific period, all existing users had to register their SIM cards and that all new customers must also be identified. Once the deadline passed, active unregistered SIM cards were deactivated (Jentzsch, 2012: 613). This process became an issue for many across the different project countries for a variety of reasons.

Firstly, there are some issues with the registration process. The major issue is that of documentation, as some people may struggle to assemble the required formal identity documentation. ''In some instances the requirement to become a prepaid GSM customer is more rigorous than that to open a bank account in the same market!'' (Scanlon, 2010: 43). In other cases, these procedures might be so lax that it defeats their very purpose. Having a registration procedure is only effective depending on how strict the measure is enforced and whether identification is based on proper due diligence of the employees of telecom operators (Jentzsch, 2012: 611).

For those wanting a post-pay service, a bank account is required. However, the prerequisite for holding a bank account in Cameroon is that the account owner provides a proof of monthly or regular income. Thus, it is almost impossible for a farmer, for example, to hold of a bank account (Dayang, 2013: 22). This may account for the fact that prepaid is the preferred mode of paying for mobile use (Stork, et al. 2013:40).

Various SIM-cards are sold across the streets without proper registration done by the buyer (Dayang, 2013: 19), resulting in inaccurate figures for ownership/subscriptions. Unfortunately, there is no information available on whether the regulators in these countries rigorously enforce the registration procedures (Jentzsch, 2012 :613).

Secondly, the deactivation process caused issues for both consumers and operators. With registration not being possible for many Africans, it is reported across many African countries that millions of active SIM cards were deactivated (Musarurwa, 2011). SIM card disconnections have taken place in Cameroon, and Ghana (Jentzsch, 2012: 613). Moreover, there could be a negative impact on the operators' revenues as mandatory registration leads to an immediate drop in the number of active SIM cards after the registration deadline passed (Jentzsch, 2012 :609).

Not everyone agrees that this system is a good one, especially when there are essentially no robust empirical studies that show that such measures make a difference in terms of crime detection as criminals have a number of ways of circumventing the rules (Jentzsch, 2012 :611).

Financial Issues

There are a number of facets to the financial issues faced in the ICT sector, such as the billing/tariff methods, the costs of the infrastructure and services, as well as the impact of what is coined as the digital divide. Since the introduction of prepaid tariffs, mobile phones have become far more accessible and are the second most owned ICT after radio in Tanzania (May et al., 2011 in Miroro and Ofwana Adera, 2014: 67). This emphasizes how big an industry this is, and is growing year on year. Unlike in many sub-Saharan African countries, whereby prepaid is the preferred mode of paying for mobile use, Ghana somewhat bucks the trend as the use of post-paid contracts is growing (Stork, et al. 2013:40).

Cost and usability problems restrict many from benefiting from the full functionality of mobiles. There are many articles that mention that often people are limited to 'beeping' to curtail costs. A widespread practice in Africa, this involves dialling a mobile phone number and hanging up before the owner can answer. These beeps usually refer to a certain pre-arranged meaning. In some instances, it is a sign for the recipient to call the caller back. In other cases, it can mean anything, as pre-defined by the individuals, with multiple beeps having different meanings. The difficulties of scaling up mobile phone technology have also been highlighted by development practitioners and grassroots NGOs (Etzo and Collender 2010: 8).

The problem of the digital divide is more serious in underdeveloped countries (Avgerou & Madon, 2005; Brooks, Donovan & Rumble, 2005; Selwyn, 2004). This is whereby a divide is formed between those that have, and those that have not, got ICT – similar to the 'fourth world' as mentioned earlier. There are many services and facilities that are available to those with mobile phones that are otherwise unavailable, creating a rift between the two camps. To address it, a number of countries have developed or are developing policies designed to reduce this gap so as to ensure that all, or at least a greater number, of their citizens benefit from ICT. Ghana is one such country (Ohemeng and Ofosu-Adarkwa, 2014: 298).

Mobile phones were seen as a method to save on transportation costs, as many transactions could be conducted via the mobile network. Whilst convenient, in a study of older people's

mobility in rural Tanzania, the benefits of mobile money received from city-based children were recognized, but some elders regretted the reduction in face-to face contact that often accompanied this form of exchange (Porter, 2015: 4). The savings were only made when those each end of the transaction were on the same network. If contact was made with friends/family in other countries, then expensive roaming charges were levied. This has been done away with in numerous places around Africa with the introduction of 'borderless mobile networks'. End of roaming was an outcome of an enabling policy and regulatory environment which allowed operators to integrate separate national networks into cross-border operations (Gillwald and Mureithi, 2010 in Miroro and Ofwana Adera, 2014: 67). To this end, the interconnection fees that can be charged for calls connecting between networks are generally regulated to be near cost (Björkegren, 2014: 40).

Cameroon Fieldwork Findings on Governance of Mobile Phone Services

Organisations involved and their interactions

Ministry of Posts and Telecommunications (MINPOSTEL)

Elaboration and putting in place of sectorial policy in consideration with the technology progress, development needs, governmental priorities; Supervision of telecommunication sector, Representation of the state in international events, selection and authorisation of service providers, definition of pricing policy and carrying out sectorial strategic studies.

ART

State institution in charge of regulation, control and monitoring of telecommunication service providers' activities. In this regard, ART has the following responsibilities: to ensure the implementation of laws and regulations regarding Telecommunications and Information and Communication Technologies ; to ensure that access to the public network is carried out in an objective, transparent and non-discriminatory ; to ensure fair competition in the Telecommunications and Information and Communication Technologies sector; to penalize operators for infringements of their obligations as well as anti-competitive practices ; to define the principles governing the pricing of services provided; to ensure consumer protection; ...

Telephone companies (Orange, MTN, CAMTEL, Viettel)

How do these organisations interact?

Intensive collaboration between mobile phone service providers (Orange, MTN, CAMTEL and Viettel) and ART and difficult collaboration between these institutions and others.

Residents' perspectives and actions

In case of problems, the mobile phone company is contacted, most of the population ignore responsibilities of ART.

There are 25 mobile phone users' associations in Cameroon but the West_North-West_South-West and Littoral agency doubt their representativeness. Many leaders of these associations represent themselves and some associates.

Regulation of the service

The quality check is done by ART. The population complains about the price of mobile phone services. They think that it is high compared to the pricing of West Africa for example.

Other findings

According to the Chief of ART in Douala, ART's responsibilities for regulation need review. Now with the optical cable, a connection includes TV images which are managed by the Ministry of Communication. It is therefore complicated for ART to regulate that aspect.

Ghana Fieldwork Findings on Governance of Mobile Phone Services

Generally, 81% of the urban population in Ghana has access to mobile phones in contrast to about 72% of the rural population. The large percentage of the people with access to mobile phones provides an indication of the role played by mobile network providers and how their service will be more critical going forward. During the interviews, most vendors and accredited agents indicated that MTN has the largest market share followed by Vodafone.

> *No doubt MTN has most subscribers and we come next but when you look at those who provide the best services then is Vodafone, we are top in that aspect* [A customer relation officer at Vodafone, STMA]

Mobile network providers are in charge of the daily operations and maintenance operations of the network service. However on several occasions' identification of the problem and fixing them are informed by complaints made by users or agents of the network service. The quote below illustrates this point:

> *Yeah, each network provider is responsible for the operations and maintenance of its network. This is because if there is a problem it starts from there. Like MTN mobile money, if you are sending and there is a problem, let say a cut off, you will have to call the office and they will resolve the problem there at the office* [A mobile phone agent; Accra New Town].

In terms of getting the concerns across to the network providers, a number of mechanisms are available and used by users. The most common way is to call the network service and lodge the complaint. Some also do complain to the vendors or accredited agents. However this vary across communities, so that in some communities vendors or accredited agents are the first point of call, then these agents or vendors report to the appropriate network providers. For instance in Abuja (Accra), the cordial relationship developed between some agents/vendors and users has made them the preferred point for any complaint regarding network services. In addition one can also talk about the characteristics of the community which is basically an informal settlement and likely to have residents who may not be attune with the official complain mechanisms of the network providers. The quote below corroborates this point:

> *Actually, service users are to lodge their complaint with the service providers, but some don't know so they come here. But if it is a normal problem like for instance regarding money transfer for which no notification has been received, then I will try to resolve it. However, with cases beyond me like SIM card block, I will refer the complaint to the network office* [An agent in Accra].

Most of our customers contact us by calling the number 100. We have different lines that our customers call us to lodge different complaints. We have Vodafone Foundation so if it is a health issue most at times they call the foundation line which is 255, if it a network complain they normally call 100 or come to our shops or our associate distributor shop. This is very effective because we use time lines to address complaints on our network. For example, if it a mobile issue it is supposed to be addressed between 8 and 24 hours depending on the kind of problem that is reported. If it is a broadband issue, it is mostly done within 5 working days depending on the problem; and if it is problem like cable cut or cable theft for that one we don't have time lines because it can delay but while it is delaying we give back-up services. For instance, if you are on our fixed broadband and you have been affected by cable theft, whilst we are resolving the problem we will give you mobile data to use in your iPad or laptop so that you will not been affected much by the problem [A customer relation officer at Vodafone, STMA].

According to most participant customers, vendors and service providers, they face a number of challenges when it comes to the usage of the services of the various networks. These include Sim card fraud, network jamming and network unavailability, which may even span several days. Vendors mostly bear the brunt of some of these challenges as they directly depend on uninterrupted network for their work, particularly those engaged in mobile money transfer services. In addition, most vendors reported of the increasing incidence of fraudsters, who have taken advantage of various promotions and services such as mobile money to dupe people.

One significant challenge is the sim fraud issues. With sim box issues, some people route calls coming from outside Ghana through normal Vodafone sim line numbers (i.e. 020, 026, 027). This is a fraudulent activity that people undertake to dupe the network companies. Apart from this people also use our phone numbers to send fraudulent messages to unsuspecting people informing them that they have won award and therefore should send money through those numbers to get the award [A customer relation officer at Vodafone, STMA].

I know most people in this community have been victims of mobile phone fraud. For instance a friend narrated how somebody came to him ostensibly to transfer two thousand cedis. The person's demeanour raised after the transfer has been made and when he searched, with the assistance of people around only GHC 5 was found on him. Sometime too, some customers do get fraudulent messages. The other day too, a woman came to me to transfer money, but ended up introducing to someone on the phone, who told me that the woman had won a promotion of GHC 1000 and needed to send a processing fee [An agent in Accra].

For regulations guiding access to and usage of the network by various providers, discussions indicated that all customers are to register their SIM cards before usage. Additionally, accredited agents have to be appropriately registered with the required network provider before you may be allowed to carry out some services on behalf of the network provider.

Our operations are guided by regulations of National Communication Authority (NCA). We therefore go strictly by the policies and regulations of NCA which is a governing body for all telecommunication networks in Ghana. One key regulation of NCA that is

binding to all telecommunication networks in Ghana is that your network cannot go down for more than 15 minutes without explanation. Around last year June (June, 2014), Vodafone was fined and banned from selling for a month in Ghana because our network was off for the better part of the day [A customer relation officer at Vodafone, STMA].

Each service provider personally monitors the quality of its services for improvement but NCA also monitors it to make sure that we are giving customers value for their money. That is why the NCA can charge you for not providing better services to your customers. They have access to our system so they can check when your links are down and prompt you to fix the problem within 10 minutes. If you don't address the problem they will charge you [A customer relation officer, MTN, Accra].

Getting proper registration for all our customers is something very difficult to implement. The elderly people hardly know their date of birth in most cases. Some may inform you he was born on 6th January, 1935 but next time, that will be completely lost on him. In their days, they hardly kept proper records. So not all our customers have accurate information but the NCA insist that we register all customers, something very difficult to achieve under the current circumstances [A customer relation officer, STMA].

9. Discussion and Policy Implications

Previous deliverables under this workpackage showed that the service with the poorest access was sanitation (Medland et al, 2014a) and that households rated access roads within settlements as the highest priority for improvement (Smout et al 2015a). This deliverable shows that the governance of sanitation and access roads in the six cities is very different to governance of water, electricity and mobile phone services, which are generally provided by regulated private companies who charge users directly for the service and are subject to regulation.

Sanitation is a private matter with little external involvement and although some regulation by local government was noted – planning requirements for new buildings, and monitoring of public toilets – the enforcement is weak. Despite the poor access to sanitation and the targets for improving this in both the Millennium Development Goals and the Sustainable Development Goals, there was little evidence that this was prioritized in these cities and settlements.

Maintenance and repair of access roads are also the responsibility of local government which has limited resources for the task. As well as impacting on residents' travel and livelihoods, poor access roads inhibit the provision and maintenance of other services. Electricity poles and transformers are difficult to install and maintain, similarly for water pipes, and pit emptying vehicles cannot access latrines. The poor electricity network increases the risk of fire, which is exacerbated by poor access.

The main policy interest in governance of services has been on organizational structure and regulation. There are clear structures for the supply of water, electricity and mobile phone services through formal networks, with public/private service providers subject to regulation of their charges and the quality of their services. Much less attention has been paid to the informal service providers who serve large numbers of households in low–income settlements. In particular, residents buy water by the jerrycan from neighbours, vendors, kiosks and boreholes at costs which are several times higher than the network charges its customers and without confidence in its quality. In electricity too, there is informal selling on of electricity to neighbours or tenants which is not subject to regulation. Informal mobile phone services are provided by agents, but competition is encouraged by the number of phone companies and agents, even at settlement level.

More policy attention is therefore needed to the informal supply of services. The research also shows a lack of priority and resources within existing governance arrangements for sanitation and for access roads within settlements, and these services need increased policy attention across the cities.

There are multiple problems with the supply of services in low-income settlements. Poor access makes it difficult for service providers to install and maintain their networks. The equipment is subject to tampering and illegal connections, causing loss of revenue and damage. In high density settlements it is difficult to provide adequate sanitation facilities and poor access makes pit emptying problematic. The status of many households is uncertain and insecure, with large numbers of tenants. Collecting payments for water and sanitation is clearly challenging, though

low-income households are paying informal service providers much higher rates. Prepayment meters may help address these issues. They are not popular, but they are reported to be widely used for electricity in Ghana and improving revenue collection. Experience from Rwanda also shows that prepayment meters can help identify irregularities.

The Sustainable Development Goals include provision of water, sanitation, energy and transport services to all by 2030. For details see Box 3.

Box 3. Water, Sanitation, Electricity and Transport Services in the SDGs

From the Goals and Targets adopted by the UN General Assembly (2015) the following relate in particular to water, sanitation, electricity and transport services:

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….
- 6.4 By 2030, substantially increase water-use efficiency across all sectors…
- 6.a By 2030, expand international cooperation and capacity-building support to developing countries in water- and sanitation-related activities and programmes…
- 6.b Support and strengthen the participation of local communities in improving water and sanitation management

Goal 7 Ensure access to affordable, reliable, sustainable and modern energy for all

- 7.1 By 2030, ensure universal access to affordable, reliable and modern energy services
- 7.b By 2030, expand infrastructure and upgrade technology for supplying modern
- and sustainable energy services for all in developing countries

Goal 11 Make cities and human settlements inclusive, safe, resilient and sustainable

- 11.2 By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons…..

Source: UN General Assembly 2015

Achieving these goals will require more attention to improving services to low- income communities and to households with insecure tenure, which currently have inadequate services. This research has shown that current governance arrangements give only limited attention to services for these communities and households, and that there are real challenges in improving their services. Addressing these problems and achieving the SDGs will require policy makers to put increased priority on improving services to low-income communities and to households with insecure tenure.

Increased policy attention and priority is the first step. There are no easy solutions to how to improve these services in low-income settlements and further research will be needed in each country on the issues and constraints, possible options for improvement and appropriate governance arrangements.

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Appendix 1: Schedule for Semi-Structured Interviews of Key Informants, with example fieldwork data from Dar es Salaam

A1. Water Supply at Kilakala low-income settlement, Dar es Salaam

Activity	Respondent	Findings
Who provides water supply services for respondents to use in this settlement?	WEO/SUBWARD (mtaa leader) Councilor	JUWAMAKI
Who is responsible for solving day to day operation and maintenance problems with water supply in this settlement?	WEO/SUBWARD (mtaa leader) Councilor	JUWAMAKI
	JUWAMAKI	JUWAMAKI
How should people from the settlement contact the responsible people about any problems (Who do they contact? What are the mechanisms and how effectively do they work?) How could the relationship between users and the responsible people be improved?	Mtaa leader	Through formulated water committee
	JUWAMAKI / mtaa council	**Ways of contact** There is water committee that works with JUWAMAKI, its role is reporting the issues to JUWAMAKI, then the issues are solved Sometimes there is delay in solving issues due to different factors such as shortage of facilities and fund. **Ways to improve the relationship** There should be an increase of experts so as to improve the relationship between users and responsible people Also the experts should be faithful in their work, they should stop illegal connections, in 2014 some of the experts were fired out due to illegal connection and collecting money from the residents secretly To raise awareness on who to contact when the problem arises
How have problems with facilities and services been resolved (e.g. broken taps, leaking pipes, lack of supply, poor water quality)? Please give examples what are the main difficulties faced in resolving these problems?	JUWAMAKI	The reported problems are solved as early as possible within 48 hours by JUWAMAKI in corraboration with the committee.. Example there was a private well at Kigunga now not part of Kilakala where the quality of water was poor (too much salty) JUWAMAKI closed

		it. **Difficulties** -Few experts -Shortage of fund and facilities as it is a community based project
Identify actions to improve service provision carried out by responsible bodies such as the utility or the local government. Describe the process and any difficulties that had to be overcome.	JUWAMAKI	**Actions** The government should provide space to build more wells for easy distribution of water to the community. Currently the wells are constructed to the individual area **Difficulties** It is difficult to distribute water to Unplanned settlement, therefore to some areas the domestic points are constructed to serve few households.
Do residents take any action to maintain or improve the water supply service or to care for facilities? Describe these and identify whether residents undertake work themselves or contract a third part. Is there potential (willingness, financial, skills, tools or materials) for residents to become more involved?	JUWAMAKI /mtaa leader Councilor	Yes, through willingness, also they contribute labour example in excavation also in reporting all illegal connections.
Is there evidence of facilities being misused? What are the different forms of misuse of facilities?	JUWAMAKI council	Illegal connection.
Are there any clearly defined user groups, for example, for certain sources of water including water supply points? Describe the groups and any regulation of their activities.	WEO/SUBWARD (mtaa leader) Councilor	Yes,there is water committee The committee has following responsibilities -to supervise the water projects with JUWAMAKI -collecting bills -Preparing the budgets for solving day to day issues -supervising the quality of water and cleaning the water tanks after every three month.
Is there any regulation of water supply in this area/settlement? If so how does this work?	JUWAMAKI council	Yes we have regulation under DAWASCO. We also use the water resource management and sanitation policy 2002
Is there any monitoring of the water supply service (e.g. quality, usage?) and if so what is the monitoring system put in place?	JUWAMAKI council	Yes, visiting after every 3 month for checking the water quality and cleaning the tanks with chlorine .
Are there any particular aspects of official policy/local regulation for	WEO/SUBWARD (mtaa leader) Councilor	No

this service which are difficult to implement? If so, what aspects?		
What do you think should be done to improve water supply services in the settlement? What steps are needed to do this and what has stopped it being done already?	JUWAMAKI	- **Way forward** -Everyone who is connected with water should have water meter so as to charge rightly -high quality mortar for easy distribution of water to users -water treatment is required sometimes water change from soft to hard water, so sometimes residents disconnect from the water service -paying the bill on time **Challenges** -shortage of fund -lack of meters to count the volume used per month -lack of quality mortar for easy distribution of water -informal settlement,it is difficult to design the water ways in informal settlement **Steps** For residents who are not connected with water service the steps are as follows Filling Registration form that costs 5000/= Cost analysis to figureout the facilities required and professional fee After connection the payment of bills should be on time

- JUWAMAKI- Jumuiya ya watumia maji Kilakala

A2. Electricity Supply – schedule for key informant interviews

Activity Checklist	Findings
Who provides electricity supply services for residents to use in this settlement?	
Who is responsible for solving day to day operation and maintenance problems with electricity supply in this settlement?	
How should people from the settlement contact the responsible people about any problems? (Who do they contact? What are the mechanisms and how effectively do they work?) How could the relationship between users and the responsible people be improved?	
How have problems with facilities and services been resolved (e.g. damaged overhead wires, burnt out transformers, lack of network, power cuts)? Please give examples. What are the main difficulties faced in resolving these problems?	
Identify actions to improve service provision carried out by responsible bodies such as the utility or the municipality. Describe the process and any difficulties that had to be overcome	
Do residents take any actions to maintain or improve the electricity service or to care for facilities? Describe these and identify whether residents undertake work themselves or contract a third party. Is there potential (willingness, financial, skills, tools or materials) for users to become more involved?	
Is there evidence of facilities being misused? What are the different forms of misuse of facilities?	
Are there any clearly defined user groups for electricity in the area? Describe the groups and any regulation of their activities.	
Is there any regulation of the electricity service in this area/settlement. If so, how does this work?	
Is there any monitoring of the electricity service (e.g. quality, usage?) and if so what is the monitoring system put in place?	
Are there other electricity providers in the settlement? How are they regulated?	
Are there any particular aspects of official policy/ local regulation for this service which are difficult to implement? If so, what aspects?	
What do you think should be done to improve electricity supply in the settlement? What steps are needed to do this and what has stopped it being done already?	

A3. Access Roads at Kilakala low-income settlement, Dar es Salaam

Activity	Respondent	Findings
Who provides access roads for respondents to use in this settlement?	WEO/SUBWARD (mtaa leader)	Temeke municipal council
Who is responsible for solving day to day operation and maintenance problems with access roads in this settlement?	WEO/SUBWARD (mtaa leader) Councilor	Temeke municipal council
	Council engineer	Temeke municipal council
How should people from the settlement contact the responsible people about any problems (Who do they contact? What are the mechanisms and how effectively do they work?) How could the relationship between users and the service provider be improved?	WEO/SUBWARD (mtaa leader) Councilor	Residents reports to mtaa leader, thereafter mtaa leader reports to ward, ward council is responsible to inform Temeke municipal council for repair The mechanism works although the there is a tendency of delay example in 2014 at Daraja la reli one person lost life due to flood that blocked the bridge, there were no communication between Kilakala and other area. **Improvement required** Municipal council should have special department for Solving emergency issues on time and the budget should be increased,
How have problems with access roads been resolved (e.g. problems during the wet season)? Please give examples what are the main difficulties faced in resolving these problems?	WEO/SUBWARD (mtaa leader) Councilor	After the municipal council receive the information, they start working on the problem example daraja la reli bridge is now on good condition .however Not all of the problem has been resolved due to Shortage of fund.
Identify actions to improve access roads carried out by responsible bodies such as the local government. Describe the process and any difficulties that had to be overcome.	WEO/SUBWARD (mtaa leader) Councilor	-to improve the road surface from earth road to gravel -construction of drainage channels **Process** The ward council is writing the proposal for the road improvement **Difficulties** Shortage fund

Do residents take any action to maintain or improve the access roads? Describe these and identify whether residents undertake work themselves or contract a third part. Is there potential (willingness, financial, skills, tools or materials) for residents to become more involved?	WEO/SUBWARD (mtaa leader) Councilor	Yes, (willingness and financially) Currently Kilakala residents are contributing money to by machine to suck water during rainy season at kwa Mpomboge valley to avoid water lodging
Is there evidence of access roads being misused? What are the different forms of misuse of facilities?	WEO/SUBWARD (mtaa leader) Councilor	Yes Small business, unplanned packing
Are there any clearly defined user groups, for example, for taking care of section of a road? Describe the groups and any regulation of their activities.	WEO/SUBWARD (mtaa leader) Councilor	**No**
Is there any regulation of access roads in this area/settlement? If so how does this work?	WEO/SUBWARD (mtaa leader) Councilor	Yes there are regulations like No one is allowed to discharge waste water to the road It is not allowed to dump solid waste on the road. The regulation works as to some extent the amount of wastes in the street are reduced due fine that is set.
Is there any monitoring of the access road (e.g. quality, usage?) and if so what is the monitoring system put in place?	WEO/SUBWARD (mtaa leader) Councilor	Councilor Engineer visits often
Are there any particular aspects of official policy/local regulation for access roads which are difficult to implement? If so, what aspects?	WEO/SUBWARD (mtaa leader) Councilor	Yes, It is sometimes difficult for residents to pay fine when is required after going against the regulations and bylaws example discharging waste water to the road.
What do you think should be do e to improve access roads in the settlement? What steps are needed to do this and what has stopped it being done already?	WEO/SUBWARD (mtaa leader) Councilor	-To improve the road surface from earth road to gravel road -Construction of drainage channels to avoid floods in lowland areas **-steps** Writing proposal to municipal council **Hindrance** Shortage of fund

A4. Sanitation at Ununio high-income settlement and Kilakala low-income settlement, Dar es Salaam

Activity	Respondent	Findings
Who provides latrine services for respondents to use in this settlement?	WEO/SUBWARD (mtaa leader) Councilor	**Ununio** House owner
		Kilakala House owner
Who is responsible for solving day to day operation and maintenance problems with latrines in this settlement?	WEO/SUBWARD (mtaa leader) Councilor	**Ununio** House owner
		Kilakala House owner
How should people from the settlement contact the responsible people about any problems (Who do they contact? What are the mechanisms and how effectively do they work?) How could the relationship between users and the responsible people be improved?	DAWASCO-Sewerage Engineer	**Ununio** House owner contact private service provider
	WEO/SUBWARD (mtaa leader) Councilor	**Kilakala** The residents contact the private service providers**.**
How have problems with latrine been resolved (e.g. broken doors, full pits, lack of water)? Please give examples what are the main difficulties faced in resolving these problems?	DAWASCO-Sewerage Engineer	**Ununio** The house owner resolve the problem by contacting the private service provider example house owner is responsible for finding means for empting the full pits
	WEO/SUBWARD (mtaa leader) Councilor	**Kilakala** House owner resolve problem by contacting the service providers.

Identify actions to improve latrine carried out by responsible bodies such as local government. Describe the process and any difficulties that had to be overcome.	DAWASCO - Sewerage Engineer	**Ununio** The house owners should make sure that house sewerage system is complete, through having septic tank and soak pit. Most of house owners use only septic tank which is not right. **Challenge** Rise of informal settlement **Process** Increase the awareness to the community on proper latrine
	WEO/SUBWARD (mtaa leader) Councilor	**Kilakala** Each house owner should make sure the latrines are in good condition, -the health officer is responsible for inspection for ensuring general cleanliness, currently they have plan of organizing community in doing general cleanliness in each month.
Do residents take any action to maintain or improve latrine or to care for facilities? Describe these and identify whether residents undertake work themselves or contract a third part. Is there potential (willingness, financial, skills, tools or materials) for residents to become more involved?	WEO/SUBWARD (mtaa leader) Councilor	**Ununio** Yes, it is on individual basis house owner contract the private service provider, the house owner incurs costs for better latrine
		Kilakala Yes, the residents maintain their and improve latrine some by using local methods example when pit

		is full excavate another pit, and others contract the private service provider .
Is there evidence of latrine being misused? What are the different forms of misuse of facilities?	WEO/SUBWARD (mtaa leader) Councilor	**Ununio** No
		Kilakala No
Are there any clearly defined user groups, for example, for particular latrine blocks? Describe the groups and any regulation of their activities.	WEO/SUBWARD (mtaa leader) Councilor	**Ununio** Yes, there is a toilet block at a Market Owner- traders Traders also are involved in maintaining the latrine and general cleanliness.
		Kilakala No
Is there any regulation of latrines or other form of sanitation in this area/settlement? If so how does this work?	WEO/SUBWARD (mtaa leader) Councilor	**Ununio** Yes, -Every house should have a and maintained cleanliness of the latrine Health officer visits each house for inspection after every three month
		Kilakala Yes, -Good toilet to each house -Ensuring cleanness which currently in done each month -fine is charged when house owners delay in maintain

		the latrine or discharge wastes to road
Is there any monitoring of latrine (e.g. quality, usage?) and if so what is the monitoring system put in place?	Sewerage Engineer	Yes there is monitoring where by all private service provide must discharge the wastes to the waste stabilization ponds for treatment before discharged to central sewer. The private service providers must be registered by DAWASCO to and contribute between 5000-to 10000/=per day depending on the volume of the tank.
Are there other sanitation providers in the settlement (e.g. Public toilets)? How are they regulated?	WEO/SUBWARD (mtaa leader) Councilor	**Ununio** Yes, there is a public toilet at the Market It is used and maintained by the traders
		Kilakala No
Are there any particular aspects of official policy/local regulation for latrine/sanitation which are difficult to implement? If so, what aspects?	WEO/SUBWARD (mtaa leader) Councilor	**Ununio** No
		Kilakala Yes, payment of fine is hard when verified the house owner discharge waste water to the road. Fine depend on the destruction the minimum amount is 50,000
What do you think should be done to improve sanitation in the settlement? What steps are needed to do this and what	WEO/SUBWARD (mtaa leader) Councilor	**Ununio** -There should be stable sewer system (house owner

has stopped it being done already?		should construct both septic tank and soak pit) **Challenge** Rise of Informal settlement which have the tendency of using the septic tank only **Process** Increase awareness to on proper latrine
		Kilakala -Empting the pits on time -stop discharging during rainy season **Steps** -regular inspection currently it is done by the health officer after and have plan to be done in each month and educating on proper ways of using latrines

A5. Mobile phones – schedule for key informant interviews

Activity Checklist	Findings
Who provides mobile phone network services for residents to use in this settlement?	
Who is responsible for solving day to day operation and maintenance problems with existing network services?	
How should people from the settlement contact the responsible people about any problems? (Who do they contact? What are the mechanisms and how effectively do they work?) How could the relationship between users and the responsible people be improved?	
How have problems with the provision of network services been resolved? Please give examples. What are the main difficulties faced in resolving these problems?	
Identify actions to improve network service provision carried out by the responsible network providers. Describe the process and any difficulties that had to be overcome	
Is there evidence of network services being misused? What are the different forms of misuse of facilities?	
Are there any clearly defined user groups, for example, for sharing certain network bundles. Describe the groups and any regulation of their activities.	
What is the potential for promoting increased involvement and feedback through users becoming more proactive?	
How could the relationship between users and the responsible people be improved?	
Is there any regulation of the service in this area and if so , how does this work??	
Is there any monitoring of the service (e.g. quality, usage?) and if so what is the monitoring system put in place?	
Are there any particular aspects of official policy/ local regulation for this service which are difficult to implement? If so, what aspects?	
What do you think should be done to improve network services in the settlement? What steps are needed to do this and what has stopped it being done already?	

Appendix 2: Activity-Responsibility Matrices for Governance of Services in Cameroon

1. Water Supply

2. Electricity

3. Sanitation

4. Access Roads

5. Mobile Phones

Activity-Responsibility Matrix for Water Supply in Cameroon

	Delegations of Government Ministries				City Council		Utilities			Other
Responsibility	**Urbanisation and Housing**	**Water Resource and Energy**	**Environment, Nature protection and sustainable developement**	**Public work**	**Urban Commuity**	**Local council**	**CAMWATER**	**CDE**	**ENEO**	**Residents and their associations**
Activity										
Land Use Planning	R		C	I	R	R	C	C	C	
Urban Development Planning	R		C	I	R	R	C	C	C	
Piped Water Suppy										
planning new infrastructure incl extensions	C	I		I	R	I	R			I
financing new infrastructure incl extensions	C	I			R	I	R			I
implementing new infrastructure incl extensions	C	I			I		R			
planning maintenance and repairs					I		I	R		
financing maintenance and repairs					I		I	R		
implementing maintenance and repairs					I		I	R		
management and operation of water supply delivery to residents		I			I			R		
collection of tariff fees from residents		I						R		
regulating/checking standard of service		R					R	R		
Other Public/Private Water Sources										
planning, financing and implementing development of other sources	I	I			R	R				I
planning, financing and implementing maintenance and repairs	I	I			R	R				I
management and operation of water supply delivery to residents	I	I			R	R				I
collection of tariff fees from residents		I			R	R				R
regulating/checking standard of service		R			R	R				I

	R	Responsible		C	Consulted			I	Involved	

Ministry of Water Resources and Energy (MINEE)

The MINEE Water Section is responsible for:

a) Resource Mobilization Water including:

- the design, formulation and implementation of national policies and strategies for drinking water supply;
- the development and monitoring of water resource mobilization programs, in conjunction with relevant agencies and organizations;
- the promotion of investments for the development of water infrastructure in conjunction with the Ministry of Economy and Planning and administrations concerned;
- monitoring of public service delegation contracts in the field of water supply, in conjunction with relevant agencies and organizations;
- the development and implementation of national emergency response plans in the field of water supply and sewerage;
- the definition and monitoring of actions to take in order to take into account the management of environmental implications in all major projects in the field of water, in conjunction with the Ministry for the Environment and the administrations concerned.

b) Water Resources Management and specifically:

- the design, formulation and implementation of water resources management policies and strategies and management of shared transboundary basins, in conjunction with relevant agencies and organizations;
- Administrative monitoring of water resources;
- the design and implementation of water use policies in all development activities in conjunction with the administrations and agencies;
- tracking control of the water sector;
- monitoring of the National Water Committee activities;
- contribution to the improvement of hydrological and hydrogeological knowledge;
- monitoring the quality of water resources;
- protection of water resources;

Ministry of Housing and Urban Development (MINDHU)

MINHDU is in charge of formulating, implementing and evaluating the government policy in the area of urban development and housing. To this end, and according to the decret N°2005/190 du 03 June 2005 related to the organisation of MINHDU, he shall be responsible for

a) In the area of urban development;

- Planning and monitoring the development of towns;
- Designing and implementing town development and restructuring strategies;
- Drawing up and implementing integrated social development strategies indifferent urban area
- Drafting and implementing urban infrastructure management strategies;
- liaising with international organizations involved in the development of the big towns

b) In the area of housing

- Implementing the low – cost housing policy
- Drawing up and implementing a housing improvement plan in both rural and urban areas;
- Defining and monitoring (controlling) of housing standards enforcement.

He shall work in close collaboration with regional and local authorities. He shall exercise a supervisory authority over the Cameroon real state corporation (SIC) as well as projects and bodies involved in town planning and housing.

CUD/CUB

Local councils

CAMWATER

Since 2005, the new institutional framework for the provision of drinking water in urban and suburban sector is now governed by a public-private partnership , madeup of two entities: the CAMWATER and the CDE.

CAMWATER is responsible for the rehabilitation and the creation of infrastructures which allow the population drinking water , Camwater manages each year to increase the capacity of several thousand cubic meters.

Resource mobilization, planning, fundraising, negotiation, research, project management; Monitoring quality, operation of public service distribution of drinking water by the CDE; Infrastructure management, construction and maintenance of production facilities , storage and transport of drinking water; Awareness and information of users on sanitation, the economy and the water utility in urban and suburban areas

Camerounaise des Eaux (CDE)

Created during the reform of the drinking water and urban waterworks sector undertaken by the Government of Cameroon in 2005, the firm Camerounaise des Eaux was incorporated in December 2007 under Cameroonian law, with mission to provide drinking water services in urban and suburban centres. CDE started its activities on the 2nd of May 2008 for a period of ten years, with mission to provide drinking water services to some 110 urban and suburban centres covered by the lease.

CDE operates within the framework of a public-private partnership

The missions of CDE focus on:

- implementing the action plan which aims at the sustainable development of the drinking water sector
- improving drinking water quality and the quality of services rendered our customers
- enhancing the service ratio
- maintaining the facilities in proper working condition
- improving the efficiency of facilities.

City Council:

the realization public taps network expansion work and management of water taps management contracts;

- Maintenance of water network in collaboration with the CDE

Study and extension of drilling of drinking water in areas not served by the CDE network.

Work relationships with public service concessionaires.

Local council:

Control of work and management of wells and boreholes;

conservation, protection and sustainable use of water;

servicing and maintenance of all wells and boreholes in the communal territory

taking all necessary measures to ensure hygiene and cleaning around wells and boreholes

servicing and maintenance of drinking water infrastructures in drinking water, including those built by the state;

the holding of the municipal file of power structures in drinking water

Activity-Responsibility Matrix for Electricity Supply in Cameroon

	Delegations of Government Ministries				City Council		Utilities				Other
Responsibility	**Urbanisation and Housing**	**Water Resource and Energy**	**Environment, Nature protection and sustainable developement**	**Public work**	**Urban Commuity**	**Local council**	**CAMWATER**	**CDE**	**ENEO**	**ARSEL**	**Residents and their associations**
Activity											
Land Use Planning	R		C	I	R	R	C	C	C		
Urban Development Planning	R		C	I	R	R	C	C	C		
Electricity Supply											
planning new infrastructure incl extensions		R			I	I			R	I	I
financing new infrastructure incl extensions		I			I	I			R		I
implementing new infrastructure incl extensions		I			I	I			R		
planning maintenance and repairs		I			I	I			R		I
financing maintenance and repairs					I	I			R		
implementing maintenance and repairs					I	I			R		
management and operation of electricity delivery to residents		I			I	I			R	I	
collection of tariff fees from residents									R		
regulating/checking standard of service		I							I	R	
		R	Responsible		C	Consulted			I	Involved	

Activity-Responsibility Matrix for Sanitation in Cameroon

	Delegations of Government Mi				City Council			Utilities			Other
Responsibility	**Urbanisation and Housing**	**Water Resource and Energy**	**Environment, Nature protection and sustainable developement**	**Public work**	**Urban Commuity**	**Local council**	**Mobile phone companies**	**CAMWATER**	**CDE**	**ENEO**	**Residents and their associations**
Activity											
Land Use Planning	R		C	I	R	R		C	C	C	
Urban Development Planning	R		C	I	R	R		C	C	C	
Sanitation (latrines and drainage)											
encouraging residents to construct suitable household latrines			I		R	R					I
financing and implementing household latrines			I								R
emptying household latrines, septic tanks and wastewater pits			I		R	R					R
planning, financing and constructing public latrines			I		R	R					
maintenance and repairs of public latrines					R	R					
management, operation and cleaning of public latrines					R	R					
collection of tariff fees from users (if applicable)					R	R					
regulating/checking standard of service			R		R	R					
planning, financing and implementing improvements to drainage system	I	I	I	I	R	R					
planning, financing and implementing cleaning of drainage system	I	I	I	I	R	R					
		R	Responsible		C	Consulted			I	Involved	

Activity-Responsibility Matrix for Access Roads in Cameroon

	Delegations of Government Ministries			City Council		Utilities			Other
Responsibility	**Urbanisation and Housing**	**Environment, Nature protection and sustainable developement**	**Public work**	**Urban Commuity**	**Local council**	**CAMWATER**	**CDE**	**ENEO**	**Residents and their associations**
Activity									
Land Use Planning	R	C	I	R	R	C	C	C	
Urban Development Planning	R	C	I	R	R	C	C	C	
Access Roads within urban settlements									
planning improvements incl major repairs	I		I	R	I				
financing improvements incl major repairs	I		I	R	I				
implementing improvements incl major repairs	I		I	I	R				
planning maintenance and minor repairs	I		I	I	R				I
financing maintenance and minor repairs	I		I	I	R				I
implementing maintenance and minor repairs	I		I	R	R				I
anning, financing and implementing improvements to road drainage system	I		I	R	R				I
planning, financing and implementing cleaning of road drainage system	I			R	R				I
collection of tariff fees from residents (if applicable)	I								
regulating/checking standard of access roads	I		R	I					

R Responsible C Consulted I Involved

Activity-Responsibility Matrix for Mobile Phone Services in Cameroon

	Delegations of Government Ministries				City Council			Utilities				Other
Responsibility	**Urbanisation and Housing**	**Post and Telecommunication**	**Environment, Nature protection and sustainable developement**	**Public work**	**Urban Commuity**	**Local council**	**ART**	**Mobile phone companies**	**CAMWATER**	**CDE**	**ENEO**	**Residents and their associations**
Activity												
Land Use Planning	R		C	I	R	R			C	C	C	
Urban Development Planning	R		C	I	R	R			C	C	C	
Mobile Phone Services												
planning, financing and implementing infrastructure incl masts		C					R	R				
management and delivery of services to residents		I						R				
collection of tariff fees from users		I						R				I
regulating/checking standard of service		I					R					

R Responsible C Consulted I Involved