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Urban residents' access to water, sanitation, electricity and transport, and the acceptability of services

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Main Report

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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 is working in four countries: Cameroon, Ghana, Rwanda and Tanzania.

This report is the second 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 for the four countries and country reports (Medland et al. 2014a and Ngouanet et al. 2014).

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. Based on the Deliverable, a conference paper was presented at the 37th WEDC International Conference (Medland et al. 2014b) where the comparison between different services stimulated interest and discussion.

This second WP4 Deliverable presents the results of fieldwork carried out in urban areas of Cameroon, Ghana and Tanzania. It presents urban residents' perspectives on the accessibility and acceptability of services in four sectors: water, sanitation, electricity and transport. Unfortunately there was a delay in conducting fieldwork in Rwanda, but it is hoped that data from Rwanda may be added at a later date.

A third WP4 Deliverable is available on Mobile-based services and rural-urban linkages (Fisher et al, 2015).

After this introduction, the second section of this report summarises data from the first deliverable on access to the services in the four case study countries. Section 3 presents the methodology for the fieldwork, which was conducted jointly with Work Package 3 – City Dynamics. Sections 4, 5 and 6 present Results from the fieldwork, Discussion and Conclusions. Appendices for the three countries present detailed results from the fieldwork in the form of a table for each settlement.

2. Access to Water, Sanitation, Electricity and Transport in Cameroon, Ghana, Rwanda and Tanzania

The review of secondary data in the first Deliverable (Medland 2014a) identified key points as follows:

Water

- In Rwanda and Tanzania, access to improved water is twice as high in urban areas as it is in rural ones
- In Cameroon and Ghana, access to improved water is over four times as high in urban areas
- Coverage of improved water in the poorest urban households has increased over time, despite an overall decrease in the percentage of households with access to improved water in urban areas
- Poorest households are still the least likely to have access to improved water supply services

Sanitation

- Use of shared latrines is higher in urban areas and levels of sharing have increased between surveys
- Access to improved latrines has decreased in urban areas of Cameroon and Rwanda but has increased in urban areas of Ghana and Tanzania
- Decreases in coverage have primarily affected wealthier households
- Continuing heavy reliance on the use of unimproved latrines for the urban poor

Electricity

- The percentage of urban households with access to electricity has increased
- In Rwanda and Tanzania, access to electricity nationally is much lower than in Cameroon and Ghana
- In urban areas of Rwanda and Tanzania, only the wealthiest households and those in proximity to the grid have a connection
- In Cameroon and Ghana, some of the poorest urban households have legal connections but many are illegal
- In all cases demand for electricity is outstripping existing generation capacities

Transport

Urban transport issues are similar in all four countries.

- Most urban residents rely on public transport to move around and especially to get to work - car ownership is limited almost exclusively to the wealthiest households

- The public transport sector is dominated by private operators mostly using small mini-buses. If a route is heavily congested or not in high demand the operators can switch routes with little notice, leaving some passengers unable to reach their original destination.
- The quality of roads in and around urban areas is a major factor for access to transport for the urban poor. When road quality is poor, the flow of traffic slows down which increases congestion and traffic jams and consequently makes public transport less reliable.
- As urban areas expand there is an increased use of difficult or marginal land and roads in these areas tend to be of very poor quality and susceptible to damage from rains. The use of very poor roads leads to vehicle damage, so public buses tend not to operate in these areas leaving them underserved. The cost of travelling into an urban area from a periphery is higher because the route is longer or requires the payment of multiple fares along the way.
- The use of motorbike taxis is popular in all four countries. In Douala, Cameroon motorbikes can account for 75% of the traffic on the road and lead to high levels of congestion. In the case of Ghana, motorbiketaxis are illegal but they are still found in some areas of the major cities, including Accra. Anecdotally, motorbike taxis are associated with poor driving behaviours and high levels of accidents.

Comparison of services

Medland et al (2014b) compared the coverage of households in urban areas by water sanitation, electricity and mobile phones, as shown in Table 2.1. This was based on the most recent DHS survey data for each country.

Table 2.1 A comparison of services by levels of coverage in urban households

Service ranking in urban households	Cameroon (DHS 2011)	Ghana (DHS 2008)	Rwanda (DHS 2010)	Tanzania (DHS 2010)
1st	Improved water (91.1%)	Electricity (84.8%)	Improved water (89.6%)	Improved water (80.0%)
2nd	Mobile phones (87.8%)	Mobile phones (78.5%)	Mobile phones (71.8%)	Mobile phones (77.5%)
3rd	Electricity (87.5%)	Improved water (76.8%)	Improved latrine (49.6%) *(of which non-flush = 44.1% and flush=5.1%)*	Electricity (45.4%)
4th	Improved latrine (46.4%) *(of which non-flush = 28.0 and flush= 18.4%)*	Improved latrine (15.6%) *(of which non-flush= 2.6%and flush=13.0%)*	Electricity (44.5%)	Improved latrine (21.6%) *(of which non-flush= 6.3% and flush=15.3%)*

Source: Medland et al 2014b

The main points from this comparison of service coverage can be summarised as follows:

- Most urban households (>75%) have access to improved water supplies in all four countries
- Most urban households (>75%) have access to a mobile phone in all four countries
- There are major differences between the urban coverage levels of electricity in Rwanda and Tanzania (~45%) and in Cameroon and Ghana (~85%)
- Urban households have much worse access to improved sanitation than to water supply, phones or electricity (except it is comparable to electricity access in Rwanda)

3. Methodology

Fieldwork and data collection 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. In addition, data were collected for another 2 settlements in Dar es Salaam for an MSc dissertation related to work package 4 (Hekel 2014).

A qualitative methodology was followed, using focus group discussions, semi-structured interviews and in-depth interviews. In general four focus group discussions (FGDs) were held per settlement, one each for elderly males, elderly females, young males and young females, with 6-8 participants per group. In addition individual residents were purposively selected for semi-structured / in-depth interviews to ensure a wide range of participants, with a target of 20 – 25 interviews per settlement. Gough et al (2015) provides more details of the focus groups and interviewees in each city, and the standard FGD and interview schedules.

The fieldwork findings were written up as 28 Settlement Profiles (Gough et al 2015, Appendices). For this report, the country teams also completed a standard table for each settlement, summarising the characteristics of the settlement and the findings related to access to services, quality of services and the focus groups' ranking of the services according to their priority for improvement. These tables are included as Appendices 1 to 3 of this report.

The settlement profiles and tables were then compared in terms of access, quality and acceptability of the four types of services.

Acceptability is not rigorously defined as a concept (Brunson, 1996), but it is seen to represent an important issue in the introduction of change and new practices and is increasingly used in water and sanitation research.

Kumamaru (2011) considered the acceptability of water supplies in Zambia in terms of user satisfaction, compiling user satisfaction scores for water quality, water quantity, distance, queuing time, cost, reliability, technical sustainability, water supply type, ownership status. The acceptability of different water supply options was then compared in terms of average user satisfaction scores.

Mazeau (2013) studied the acceptability of shared sanitation in urban Ghana. In a review of the literature on acceptability he quoted Brunson (1996):

Social acceptability in forest management results from a judgmental process by which individuals compare the perceived reality with its known alternatives; and decide whether the "real" condition is superior, or sufficiently similar, to the most favourable alternative condition (ibid, p9).

Mazeau used this concept of relative acceptability to analyse the acceptability of a sanitation option by comparing it to other facilities.

This report uses the respondents' ranking of priority for improvement as an indicator of relative acceptability.

4. Results

4.1 Access to Services in major cities and secondary cities

Water Supply

High / middle-income settlements such as Banengo in Bafoussam and Ununio in Dar es Salaam may have satisfactory supplies from the local water utility, but most settlements use a range of sources. For example in Ununio, Dar es Salaam, the majority of households relied on a combination of groundwater from shallow wells and buying buckets of water from neighbours with a connection to the utility (Dawasco). *"Most of the people up here prefer the Dawasco water services now. The well water is now used only for washing clothes and cleaning kitchen utensils"* (focus group participant).Elsewhere however people may prefer private or communal groundwater supplies: *"no one is in need for Dawasco water unless the underground water goes dry. And we believe the underground water is much safer than the Dawasco water. And even the ground water has a better taste than the Dawasco water such that you will not even like the bottle water from the shop."* (focus group participant in Mzinga). (Andreasen, 2015, pp 229 & 237)

In Deido in Douala, low-income households use a well and higher income households use private boreholes or bottled water to alleviate the deficit in the utility water supply. Similarly residents in Korle-Gonno, Accra and Accra New Town have in-house piped water but the supply is erratic/ intermittent so that they rely on private vendors, sachet water and rainwater. One respondent in New Town described the situation as follows:

''Yes we will harvest because the tap is not flowing. So when it rains we are happy because God has given us water. In every house you pass during rainfall you will find buckets being used to collect the water''.

Other water sources mentioned include: in-house piped water with private storage in poly tanks (North Labone, Accra); large storage containers filled by commercial tankers (Ashale Botwe, Accra); community reservoir (Kojokrom, Sekondi-Takoradi); communal boreholes drilled with the help of the municipality (Br Mwinyi, Dar es Salaam); purchase from neighbours (Madukani subward, Arusha). In general households seem to manage by using a mix of sources but in Ngouache, Bafoussam access is said to be particularly problematic because the geomorphology does not permit wells to be dug.

Tenants may face additional restrictions on access. For example in Korle-Gonno, Accra and Accra New Town landlords lock taps and tenants must pay before access, whereas in Deido and New Bell, Douala, tenants establish a sub-contract for water, with the costs fixed or shared.-

Sanitation

In Douala, Bafoussam, Dar es Salaam and Arusha, sanitation was reported to be through household level unimproved and improved latrines, with some flush toilets to septic tanks (e.g. in most households in Kamkop, Bafoussam which is a middle/high income area), though some households lack latrines (e.g. in City Beige, Douala, a low-income area) and sharing latrines was common in some settlements (e.g. . Kilakala, Dar es Salaam, low income area).

Sanitation in Accra and Sekondi-Takoradi was reported to be primarily public toilets (improved latrines and flush toilets, often privately owned) with some in-house facilities (e.g. in North Labone,

Accra) but also some defecation in buckets and polythene bags (e.g. in Kwesimintsim, Sekondi-Takoradi and Charambe, Dar es Salaam) and open defecation (e.g. in Korle Gonno, Accra). North Labone, Accra and Anaji, Sekond-Takoradi are notable as having flush toilets with a well-connected sewer system. This is primarily due to their historical status as middle class settlements.

It was reported in Kojokrom and other communities in Sekondi-Takoradi that in-house toilets were often locked and used under the landlord's supervision. One respondent stated that:

"Some of the landlords also tell you that they will make a porch and a toilet for you but they never do it unless you do it yourself and then deduct it from your rent, so a lot of them don't tell the truth, they tell you they have toilets even when they don't, because of that we have a lot of polythene bags around containing faeces."

In Madhukani Subward, Arusha, a number of tenants complained of pit latrines being full but not emptied as in the quote below. Settlements in Douala however reported that tenure made no difference to access to sanitation.

One of the Madhukani interviewees narrated his story as follows:

"We, as tenants, have already informed the landlord about this filled up pit that need to be emptied, but he said that he has no money. When it was full to the brim to the point of not being used completely, the landlord told us to use the latrine in his own house, which is located approximately 40 metres from the place we live. This is very embarrassing, especially when one has a stomach upset. We have no choice but to continue being patient because every time we remind him, he says he has no money for the purpose and that "if you can't live in his house, you are free to go somewhere else"

Electricity

Access to electricity is mixed. Some settlements report that most inhabitants have formal connections to the electricity utility (e.g. all households in Kamkop and Kouogouo village, Bafoussam) but fraudulent connections are also widely used (as the only connection or to reduce bills, e.g. in New Bell, Douala). Other settlements may be covered by the national grid, but the electricity supply is reported to be unreliable and too expensive to connect to (e.g. Maji Matitu B, Dar es Salaam).

The costs and hassle of connecting to electricity were described by a focus group participant in Ununio, Dar es Salaam: *"To access electricity is somehow difficult. You are going to the office and you will be required to fill out the forms, which is accompanied by some kind of payments. From there you are supposed to get the connection permit, which are also having some payments. And sometimes someone may be required to pay extra money so as to fasten the service connection. If you are living very far from the electricity line then you will be required to pay for the electricity poles. So sometimes the easiness to get the electricity connection depends much on the financial ability of the user, as someone can process the electricity for even three days in presence of an extra payment.*" (Andreasen, 2015, p230)

Pre-paid meters are used in all the settlements in Accra and Sekondi-Takoradi, and are reported to be expensive which is a particular issue in low income settlements. (e.g. New Takoradi).

Transport

Access to transport is generally poor, especially in the major cities. Buses and minibuses provide services along major routes, but maybe only to the edge of residential areas – for example Cite Beige and Bonendale settlements in Douala only have one main entrance. Taxis may be used within residential areas, depending on the state of the roads which may be a major constraint in unplanned areas (e.g. Charambe, Dar es Salaam). Motor bike taxis are more commonly used within residential areas, including to reach bus routes, but motor bike taxis are forbidden in some areas (e.g. the planned, middle income settlement of Deido in Douala).

4.2 Quality of Services in major cities and secondary cities

Water Supply

Water quality is generally reported to be poor. Piped water may have unreliable treatment (e.g. in New bell, Douala) or be foamy with an unpleasant odour (e.g. in Korle Gonne, Accra and Kwesimintsim, Sekondi-Takoradi). Wells are in danger of contamination from sanitation (e.g. in Tougang ville, Bafoussam and Br. Mwinyi, Dar es Salaam) and some water is brackish (e.g. Br. Mwinyi, Dar es Salaam and Madhukani sub-ward, Arusha). Borehole water is reported to be better quality (e.g. Nkolbong, Douala). In Accra New Town, a respondent described the water quality as follows:

''As you pass through the town you will notice many houses with many pipes in it. But the tap doesn't flow at all as it used to formerly... the water looks foamy like washing powder has been poured into it. Currently also when you fetch the water and put it down for a while you will notice impurities in them after three days. There are dirt and germs in them. So the water is not good''.

Residents reported shortages and frequent interruptions to utility water supplies (e.g. in Nkolbong, Douala). Wells may not meet demand and people complain of queuing in Br. Mwinyi, Dar es Salaam.

Deido, Douala and North Labone, Ghana are notable as the only settlements reporting good quality water supply.

Sanitation

Many problems were reported with the quality of sanitation: dumping of excreta by people who don't have toilets (New Bell, Douala), excreta discharged into waterways (City Beige, Douala), emptying of pit latrines (e.g. Korle-Gonno, Accra) exacerbated by access problems (Charambe, Dar es Salaam), unkempt and smelly public toilets (settlements in Accra and Sekondi-Takoradi), long queues and night closures at public toilets leading to open defecation (settlements in Accra and Sekondi-Takoradi). This is particularly challenging for mothers and or those charged with childcare and household reproduction.

''Please the toilet issue is very bad now. Formerly when we go as kids to the toilet, they don't charge you. When you go there with your paper, you have no problem unless you are so disrespectful. But now, even kids are charged the same price as adults. The water problem has also made the toilet expensive. Also, the number of toilets here are not enough for us all''.

Other environmental sanitation issues included roadside dumping of public wastes, pollution from factories, distance from houses to garbage bins.

Deido, Douala (middle-income), North Labone, Accra (middle/high income) and Unonio, Dar es Salaam (high income) are notable as the only settlements reporting satisfactory quality of sanitation.

Electricity

Power cuts and low voltage are widely reported, though improvements were reported in Br Mwinyi and Charambe, Dar es Salaam. Some of the problems are attributed to fraudulent connections using poor quality materials (e.g. in Bonendale, Douala) and causing overload of transformers. The unpredictable power cuts and low voltage were reported to cause family disputes and damage to appliances.

Some degree of load-shedding (power cuts) seems to be accepted, especially where this is scheduled. Deido, Douala (middle-income) and Gbawe, Accra (low/middle/high income) reported an adequate electricity service.

Transport

The quality of urban transport is generally poor, with congestion problems reported on major routes, old vehicles, limited numbers of minibuses and poor quality roads (especially in the wet season). Problems are not confined to low-income unplanned areas - long waiting times and unpredictable journey times were reported in the mixed, semi-planned areas of Ashale Botwe, Accra and Kojokrom, Sekondi-Takoradi. Inadequate road maintenance was reported from several settlements in Douala, Bafoussam, though communities may carry out maintenance themselves (e.g. in Bonendale, Douala).

4.3 Acceptability of services in major cities and secondary cities

Relative acceptability of services was assessed by asking the Focus groups and interviewees to rank them in terms of priority for improvement. The results for each settlement are shown in the Appendices, and summarised in Table 4.1.

Table 4.1 Ranking of priority of services for improvement in all settlements

Country	City	Number of settlements	Water supply	Sanitation	Electricity	Urban transport	Other priorities
Cameroon	Douala	5	4	1=	3	1=	Security, games centre, health centre, schools
	Bafoussam	5	2	3	4	1	Health centre, security, public lighting
Ghana	Accra	5	2	1	3	4	Mobile phone signal
	Sekondi-Takoradi	5	1	2	4	3	Mobile phone signal
Tanzania	Dar es Salaam	7	2	3	4	1	Health, education, phone network
	Arusha	3	2	3=	3=	1	Education, health facilities, stormwater drainage, solid waste management
Overall		30	2	3	4	1	

Table 4.1 shows that overall, urban transport was the highest priority service for improvement; in most settlements respondents highlighted the need for road improvements. Water supply was the 2nd priority overall, with a need for improvements in both water quality and quantity. Sanitation was the 3rd priority overall, though the highest priority in Accra and joint highest in Douala. Electricity was the lowest priority overall, and ranked 3rd or 4th in all six cities. Respondents also mentioned health, education and several other services as priorities for improvement, as listed in the table.

Table 4.1 also shows that the priority services for improvement were similar in both the major cities and the secondary cities.

However these overall rankings simplify the priorities found at settlement level. Table 4.2 shows that each of the four services were ranked as 1st or 2nd priority for improvement in several settlements - water supply in 16 settlements, transport 15, sanitation 13 and electricity in six settlements.

Table 4.2 Number of settlements where each service was ranked 1st or 2nd priority for improvement

Country	City	Number of settlements	Water supply	Sanitation	Electricity	Urban transport	Other priorities
Cameroon	Douala	5	2	2	3	3	
	Bafoussam	5	4	1	1	3	security
Ghana	Accra	5	3	5	1	0	
	Sekondi-Takoradi	5	4	3	1	2	
Tanzania	Dar es Salaam	7	3	2	0	4	Health, education
	Arusha	3	0	0	0	3	Education, health facilities, stormwater drainage, solid waste management
Overall		30	16	11	6	15	

The priorities for improvement in settlements which are described as low-income or low/middle-income are similar to those described as mixed or middle/high income. Table 4.3 shows priorities for 18 settlements classified as low or low/middle income and overall, they reported transport as the first priority and water supply as the second priority. The same results were found from the other 12 settlements which were classified as mixed or high income.

Table 4.3 Ranking of priority of services for improvement in low-income and low/middle-income settlements

Country	City	Number of settlements	Water supply	Sanitation	Electricity	Urban transport	Other priorities
Cameroon	Douala	3	4	2	3	1	Security, games centre, health centre, schools
	Bafoussam	3	1=	4	3	1=	Health centre, security, public lighting
Ghana	Accra	2	1=	1=	3	4	Mobile phone signal
	Sekondi-Takoradi	4	1	2	4	3	Mobile phone signal
Tanzania	Dar es Salaam	4	2	3	4	1	Health, education, phone network
	Arusha	2	2	3=	3=	1	Education, health facilities, stormwater drainage, solid waste management
Overall (low, or low/middle income)		18	2	3	4	1	

Similar analyses were done by comparing rapidly growing settlements with more stable settlements, and newly developed settlements with older settlements and the ranking of priorities was found to be consistent across these groups. It seems that local factors have a greater influence on priorities for improvement of services than general characteristics like income or growth rate of a settlement.

Examples from settlements in Dar es Salaam show that there are complex linkages between the availability of services and mobility (see Box).

Box: Are people moving to/from the neighbourhood because the services are good/poor?

In Br. Mwinyi, Dar es Salaam, provision of services was not part of the settlement considerations for the first of the newcomers, simply because they bought land that was largely un-serviced. Many of the first newcomers lived in the area for many years without services. As services developed along the way it has made the area more attractive and fuelled population growth. More newcomers have been attracted to settle in the area. The development of services has also facilitated the emergence of a vibrant rental market and contributed to making the area an attractive area for tenants, in combination with the relative proximity to the city centre.

It was a similar story in Ununio, Dar es Salaam where the development of services fuelled population growth, attracting more high-income newcomers, often very affluent people who can afford to have a preference for serviced land. The residents, who bought land within the last 5-7 years, specifically stated that the provision of services like water and electricity was an important part of their settlement considerations. Improvement of services, particularly public transport, has also attracted some low-income newcomers, primarily tenants.

In contrast, in Mjimwema, Dar es Salaam, services and infrastructure appear to have been quite developed when the newcomers arrived in larger numbers. Mjimwema Road and Kongowe Road were tarmacked, public transport was available and the electricity network was present when the area started developing into an urban residential area. Therefore it is likely that provision of services has played an important role in attracting residents to Mjimwema.

(Andreasen, 2015, pp 230, 258)

5. Discussion

Table 5.1 compares the survey data on service coverage (from Table 2.1) with residents' priorities for improvement (from Table 4.1).

Table 5.1 Residents' priority of services for improvement compared to coverage

Country	City	Number of settlements	Water supply	Sanitation	Electricity	Urban transport	Other priorities
Cameroon	Urban coverage (DHS)		91.1%	46.4%	87.5%		
	Douala – residents' priorities	5	4	1=	3	1=	Security, games centre, health centre, schools
	Bafoussam – residents' priorities	5	2	3	4	1	Health centre, security, public lighting
Ghana	Urban coverage (DHS)		76.8%	15.6%	84.8%		
	Accra – residents' priorities	5	2	1	3	4	Mobile phone signal
	Sekondi-Takoradi – residents' priorities	5	1	2	4	3	Mobile phone signal
Tanzania	Urban coverage (DHS)		80.0%	21.6%	45.4%		
	Dar es Salaam – residents' priorities	7	2	3	4	1	Health, education, phone network
	Arusha – residents' priorities	3	2	3=	3=	1	Education, health facilities, stormwater drainage, solid waste management
Overall	residents' priorities	30	2	3	4	1	

This comparison shows that although national surveys record a much higher coverage of improved water supply than improved sanitation in all three countries, residents in four of the six cities gave higher priority to improving water supply than sanitation. Sanitation however was a higher priority for improvement than electricity, which is consistent with the coverage data.

The results suggest that "coverage" by improved water supply does not imply an acceptable level of service. In some cases this may be because of limitations in the infrastructure (leakage, poor water pressure, etc) but internal dynamics within the a settlement may also restrict water supplies, e.g. landlords locking taps and charging extra for them to be used, and also broader urban dynamics e.g. centralised rationing.

One influence on respondents' preferences may have been that sanitation was a household responsibility in these settlements whereas water supply was mostly accessed at a community level. Then it may not be surprising if respondents thought it more of a priority that the government improve the water supply (or the road) than that residents should improve their household sanitation.

- Urban transport in Ghana is an issue of financial cost and travel time cost (traffic) but most people can access public transport. For those living in the peri-urban areas mobility is more tricky as transport links are often tied to the quality of the roads, which in some peri-urban areas e.g. Botwe are terrible.
- In Accra and Sekondi-Takoradi mothers in low-income areas are struggling to cover the cost of using privately-owned public toilets, hence it is a priority in both cities.
- In Accra and Sekondi-Takoradi the most pressing issue concerning electricity is the introduction of 'prepaid meters' to replace paying monthly bills; this is an increasing practice for supply of electricity to low-income households across Africa (and elsewhere, e.g. in UK) – see Babista (2013) for a study of how prepayment meters are used in Maputo.

6. Conclusions

Residents across 30 settlements with a range of characteristics in six cities reported difficulties accessing water supply, sanitation, electricity and transport services and various problems with the quality of all four services. The settlement profiles and summary tables show the multitude of challenges faced by residents in meeting their needs for water, sanitation, electricity and transport – and the challenges faced by government and service providers in meeting these needs.

Overall, residents' highest priority for improvement was urban transport and it was the 1st or 2nd priority in 15 of the 30 settlements. In particular they highlighted the need for road improvements to enable public transport routes to be extended into settlements and to reduce congestion.

Water supply was residents' 2nd priority for improvement overall, and it was the 1st or 2nd priority in 16 of the 30 settlements. Most settlements currently use a range of sources and report that the quality of water is poor from many of them. There are also access problems with frequent interruptions to utility water supplies and queues at wells.

Sanitation was the 3rd priority for improvement overall, and 1st or 2nd priority in 11 of the 30 settlements. There was a range of facilities and practices reported, from flush toilets connected to sewers to use of plastic bags or open defecation, but most people used household level improved or unimproved latrines, shared latrines, or public toilets. Problems were reported with privately-owned public toilets (cost, toilets locked at night, cleanliness) and with pollution from disposal of exceta in the local environment.

The lower priority for improving sanitation than water supply contrasts with the existing urban coverage levels in the three countries of 15-46% for improved sanitation compared to 77-91% for improved water supply. The results suggest that "coverage" by improved water supply does not imply an acceptable level of service.

Electricity was the lowest priority overall, though it was still 1st or 2nd priority in 6 of the 30 settlements. Access is an issue in some settlements, especially those at a distance from the national grid. Power cuts and low voltage are widely reported, though scheduled power cuts seemed to be regarded as acceptable.

There were differences in the accessibility and quality of services in different types of settlement but the priority services for improvement were similar in both the major cities and the secondary cities, in both lower-income and higher-income settlements, and in both stable and rapidly growing settlements.

The provision of services may make an area more attractive for both affluent people and tenants, fuelling population growth, as shown by examples from Dar es Salaam. It was found however that landlords may restrict tenants' access to water and sanitation, for example in Accra, Sekondi-Takoradi, Douala and Arusha.

As residents considered that sanitation and electricity were lower priority for improvement, it appears that residents found the existing sanitation and electricity services to be more acceptable than transport and water supply services. This may be a matter of how services relate to residents' livelihoods and to their expectations. Long, costly and unpredictable travel times and unreliable water supplies may cause greater daily inconvenience than power cuts or poor access to latrines,

which residents are accustomed to. Similarly people may find poor quality sanitation or low voltage electricity supply more acceptable than badly smelling water. Electricity may be seen as a higher order service which can wait.

There is also the issue of external support. Individuals can manage (and improve) their own sanitation without external support, but transport and water supply are communal services for which they have no option but to rely on external support.

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