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## Indicators for Benchmarking Water Supply to the Urban Poor in Ghana

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**Abstract:** *Benchmarking urban poor access to water supply service is being promoted as an effective tool to improve the performance of water utilities in serving the poor. This study has developed and tested pro-poor indicators for measuring progress of water supply to the urban poor in Ghana. The study was conducted in the two largest cities, Kumasi and Accra. The study used indicators covering three perspectives: pro-poor policy, pro-poor tools, and service provision and quality to track water service delivery to the urban poor. The study has demonstrated that it is possible to use benchmarking to track urban water service delivery to the urban poor. The testing of the benchmarking indicators shows that there have been targeted investments for the urban poor and promulgation of pro-poor policy statements in Ghana but the Urban Water Utility and Public Utility Regulatory Commission have no existing measures for tracking any progress towards urban poor access to water and improving service provision. The study recommends the need to institutionalise pro-poor benchmarking as a tool to improve water service delivery to the urban poor in Ghana.*

**Keywords:** *access, benchmarking, indicators, pro-poor, water utility.*

## 1. Introduction:

The urban water coverage by the Ghana Water Company Limited (GWCL) was 59 % in 2009 (MWRWH, 2011). However, WHO/UNICEF JMP (2012) records 91% coverage in 2010. Even with these contradictory statistics it is not known what represent the poor. The Ghana national water policy identifies pro-poor urban water supply as a major challenge particularly in ensuring equity in access and meeting basic needs at affordable cost (GOG, 2007). Thus conscious efforts and directed resources are required to ensure access and improve water service to the poor. It is a common knowledge that the worst affected in terms of water service provision in the developing world like Ghana is the poor. What then can be done? There is the need to track progress made (if any) in serving the poor.

Benchmarking is strategic tool that is used to improve performance and stay ahead of competitors. It started in the manufacturing industry by addressing shareholder interests and focused on four benchmarking perspectives: finance, customer, internal business, and innovation and learning. Benchmarking has evolved to reflect broader stakeholder interest including social and environmental perspectives, and use of related indicators (Hubbard, 2006). Benchmarking is now a worldwide approach for performance assessment and improvement in water utilities. The International Water Association (IWA) beyond its over 100 Performance Indicators (PIs) stresses the need for integrated performance assessment covering main perspectives like finance, customer care, processes and learning, and growth, similar to the Balanced Score Card (Blokland, 2011). Sanchez (2010) argues that it is important to establish and institutionalise perspectives and indicators before water utility benchmarking can track progress in providing improved water services to the poor. He further identifies key indicators covering key perspectives including policies, tools, service provision, collaboration etc.

Benchmarking urban poor water service is emerging as a low-cost and effective tool to improve the performance of urban water utilities. Undoubtedly, water utility benchmarking initiatives have been carried out globally but with little focus on the urban poor. Yet there is no monitoring system in place to track the progress of serving the urban poor in places like Ghana. This study therefore develops and tests pro-poor indicators for measuring progress of urban water supply to the poor based on two cases, Kumasi and Accra.

### ***1.1. Brief Description Of The Urban Water Sector In Ghana:***

The Ghana Water Company Limited (GWCL) is the formal utility established by the government of Ghana with the responsibility to supply water to all urban inhabitants. The GWCL estimates give urban water coverage of 59% in 2009 (MWRWH, 2011). In recent past (a year or less ago) the urban water systems were operated by a public utility company, Ghana Urban Water Company Limited (GUWL). This operational arrangement became possible after the exit of Aqua Vitens Rand following non-renewal of management contract as the operator on behalf of GWCL. GUWL functioned as an interim operator but now dissolved and operational management is back to GWCL, which always has the legal mandate to provide, distribute and serve water for domestic, public and industrial purposes in urban centres normally with more than 50,000 people. GWCL, which is regulated by the Public Utility Regulatory Commission (PURC), operates a total of 86 systems nationwide.

## **2. Methodology:**

### ***2.1. Development And Testing Of Pro-Poor Indicators:***

The work of Sanchez (2010) was the starting point for developing the pro-poor indicators for urban water supply in Ghana. Potential indicators were proposed and then subjected to reviews and validations by stakeholders through workshops in the urban water sector. The main stakeholders that participated are the city authorities in Accra, Ghana Water Company Limited, Ghana Urban Water Limited and the Public Utilities Regulatory Commission.

The proposed indicators were tested in two cities, Accra and Kumasi. The testing of indicators involved data collection using key informant interviews involving water district managers in the two cities and community focus group discussions. The results of the testing were also subjected to stakeholder validation.

The testing started with a mapping exercise because GWCL did not have a map showing poor and non-poor areas. There are various definitions for the urban poor in Ghana. The Ghana Statistical Service (GSS) defines urban poor as any adult that receives less than US\$376 per year (GSS, 2000). This means the GSS definition is based on the widely known poverty line (US\$1 per day) normally used by the World Bank (Mowafi, 2004). Municipal Assemblies (MAs) also define poverty using living standards (poverty line implied) and amenities as a

segment of the population that verifiably lacks amenities and usually excluded from development intervention especially women (poor single mothers) and vulnerable groups (such as people living with HIV AIDS, illiterate populace, street children etc) (AMA, 2011). Based on their definition the cities are categorized into four residential classes from one to four, with the 3<sup>rd</sup> and 4<sup>th</sup> being the poor areas.

The Public Utility Regulatory Commission (PURC) defines urban poor in terms of water service delivery as “people without access to the utility supply; who depend on secondary and tertiary suppliers; and who purchase water by the bucket” (PURC, 2005). This definition may also capture middle-income households who buy water by bucket, and therefore the income and living standard status of the households could be incorporated in the definition.

The combination of PURC and the MAs definitions gives a definition that makes defining and identifying of the urban poor definite in terms of overlapping access to water services and income status. Therefore, the new working definition used in this study for urban poor is “people who reside in low income indigenous settlements and, without direct access to the urban water utility piped borne water supply; who depend on secondary and tertiary suppliers; and who purchase water by the bucket”. This new definition follows the deprivation dimensions of poverty measurement implied by Simon (1999) and Mowafi (2004). The urban poor areas or communities that satisfy the working definition were mapped.

### **3. Results And Discussion:**

#### ***3.1. Pro-Poor Indicators:***

Table I presents the three areas of pro-poor indicators developed and tested in the study. In testing the set of pro-poor indicators, each indicator was subjected to the following criteria that form the basic framework: availability of data in records and or reports, and ability to segregate specific data from existing records. Satisfying these conditions makes the indicators useful for identification and or determination of indicator values of measurement specifically on the poor.

Perspectives	Pro-poor Indicators
Pro-poor policy and capacity	Regulatory agency pro-poor policies with specific implemented interventions
	Utility company pro-poor policy with specific implemented interventions
Pro-poor Tools/ instruments	Mapping the poor
	Affordability: Number of connections and standpipes enjoying lifeline tariffs
	Flexible payment of new connection fee
	Pro poor Targeted investment in service lines
	Targeted investment in other pro-poor water service options
Service provision and quality	Number of new applicants
	Direct private connection to the utility water supply
	Availability and number of GWCL standpipes
	Per capita consumption of at least 20 liters per person/day
	Hours of water supply
	Number of customer complaints addressed by Utility
	Water quality in service lines/areas

*Table 1: Pro-poor indicators*

### **3.2. Pro-Poor Policy And Capacity Indicators:**

The indicators considered are: existence of publicly known social policy statements from the regulatory agency and the urban water utility, as well as the number of stated pro-poor policy targets implemented and outcomes achieved over the years. The rationale for policy indicators is to be able to track the preparedness of the regulator and the utility provider to serve the poor with evidence from key implemented initiatives from their pro-poor policies, which are key evidence of commitment to serve the poor. According to McIntosh (2003) everything begins with policy and that policies must be transparent and kept in the public eye. The key policy objective in responding to urban water issues affecting the poor is to ensure improved and sustainable access for basic needs (PURC, 2005). The Public Utility Regulation Commission (PURC) has social policy that stipulates that:

PURC will instruct urban water utilities to include pro-poor criteria when undertaking investments in water supply projects

- i. PURC will lead the formation of a working group of stakeholders to address provision of service to the urban poor. The group's tasks will include the targeting of any social funding or other relief schemes for the poor.

- ii. PURC will undertake pilot studies to test interventions in delivering water to low-income communities to provide lessons that will inform its regulatory policies, the supply and payment options available to the utility and the criteria for determining investments targeted to the urban poor.

The assessment of awareness of the PURC social policy among the urban poor shows no awareness. Unfortunately seven years after the development of the social policy it is still extremely difficult to measure progress of service delivery to the urban poor because most of the policy statements have not been operationalized and implemented. PURC has piloted some interventions but are yet to share the lessons and scale up. The pro-poor criteria for investment in urban water supply are not in place.

The water utility (GWCL) has no pro-poor policy except the use of a pro-poor coordinator with limited recognition. This position of the utility was more visible at the stakeholders' workshop where utility's officials questioned the necessity to have such a policy. Thus, unlike the regulator, the utility does not have any pro-poor policy to demonstrate the commitment to really serve the poor. It is therefore clear why policy statements or documents do not also exist at the various districts of the utility where the indicators were tested. However, a general consensus was reached at the stakeholders' workshop that everything begins with policy and therefore utility's commitment should be shown and also assessed by having a pro-poor policy. It was agreed that the utility should show commitment to the ideals of the PURC social policy as well. The utility's staff and the general public need to know the stance and ideals of the water utility in serving the poor to ensure accountability.

#### **4. Tool Indicators:**

##### ***4.1. Urban Poor Mapping Indicator:***

A tool indicator for identifying and mapping the poor provides the starting point for assessing progress of pro-poor water supply. Turkstra and Raithelhuber (2004) and Stewart and Kuffer (2007) suggest that the urban poor can be located and mapped knowing where they dwell. ADB (2010) explicitly considers geographical identification as one of the five broad methods commonly applied in identifying the poor including self-identification, household socioeconomic demographics, and neighbourhood socioeconomic demographics. GWCL does not have a map showing poor and non-poor areas. As a result the study mapped the two

cities into poor and non-poor areas. The maps for the urban poor communities in Kumasi and Accra Metropolitan Areas based on the study's working definition with actual data or information from the field are shown in Figures 1 and 2 below.

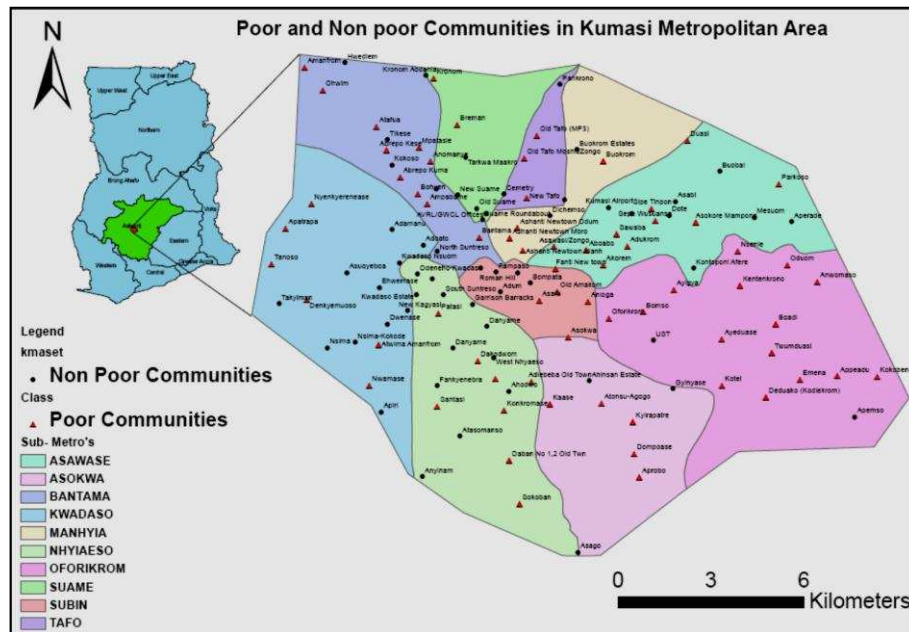


Figure 1: Poor Communities in Kumasi Metropolitan Area

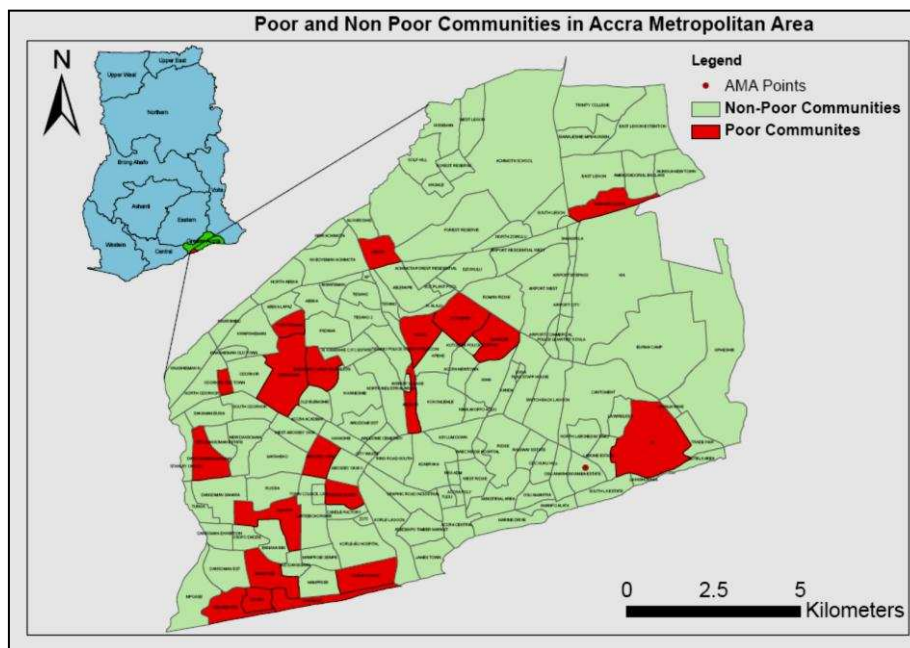
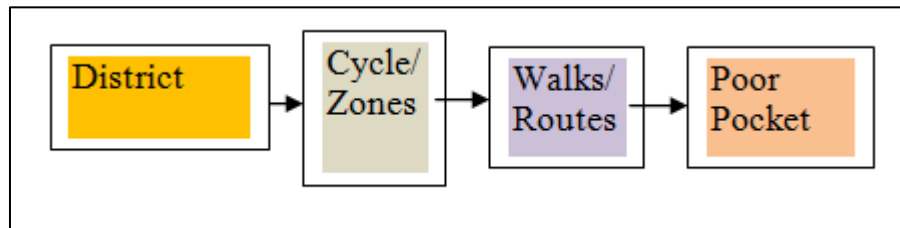


Figure 2: Poor communities in Accra Metropolitan Area

GWCL as the utility has no definition for urban poor so the poor areas are not captured in their database and there are no maps to show poor communities. Water consumption is

accounted for per district, and therefore identification of the poor pockets within districts will make it possible to quantify water services (including consumption, connections, reliability, customer complaints, water quality etc). The poor pockets can be identified by making use of the existing boundaries of GWCL classifications by District, Zone/Cycle, and Route/Walk. A walk is an area with named streets within a zone. A poor pocket within a known walk offers the opportunity to be able to map and plan poor pockets in the cities. GWCL has maps showing all customers for each district, but there are no boundaries for the zones and walks. There are no layers of customers for zones and walks, and also the data exist as aggregates at the district levels. It is possible to map the poor within each routes and separate GIS layer created in a database in a format as shown in Figure 3 using existing GWCL boundaries. This will allow for the identified poor pockets within a district to be assigned to a Unit (called Pro-Poor Unit) under the utility for specific pro-poor interventions and or support.



*Figure 3: Locating urban poor pockets within water districts*

#### **4.2. Service Affordability Indicators:**

The indicators tested are “affordability – percentage of the urban poor enjoying lifeline tariffs payment” and “flexible payment for new service connection and bills”. Key pro-poor financial instruments that ease the burden of paying connection fees enumerated include (from McIntosh, 2003): spreading out payments over several months (up to 5 years), welfare connections, microloans, pooled investments, municipal tax compensation, and labour participation. For the poor, the cost of connecting to the piped network is unaffordable as capital sums are very high (Franceys, 2005). Pro-poor pricing is meant to ensure that the poor have access to utility services at an affordable price most of which involve a tariff basis or a subsidy (ADB, 2010).

The results revealed that the flexible payment for new service connection and bills does not exist with the utility for any group of customers. The lifeline tariff is universal enjoyed by any customers served. During the workshop the stakeholders strongly agreed that the indicators should target assessment of tariffs affordability mechanisms that the urban poor



enjoy. The number of connections and standpipes enjoying lifeline tariffs, as well as flexible payment of new connection fee is an important indicator that measures affordability. The data on types of flexible payments made available by the utility, number of customers or connections enjoying these arrangements and the total number of connections in the poor area do not exist in accessible and useful forms. For best the utility should begin capturing disaggregated data in that will allow reporting on the poor especially in areas where ability to pay is a total challenge.

#### ***4.3. Pro-Poor Investment Indicators:***

The common impression is that investments in service provision normally exclude the poor or do not necessarily target the poor users. The investment indicators are usually pro-poor targeted investments in service lines (pipeline extensions) and targeted investments in other pro-poor water service options like provision of reservoirs or storage tanks, booster stations, tanker water supplies arrangements, water kiosks, delegated management models etc. Discussions with key stakeholders showed that indicators that assess pro-poor targeted investments in areas like expansion; extensions and other service improvements are valid and applicable. These indicators satisfy the PURC stance on pro-poor investments and the rationale is to assess demonstrable commitment. There is evidence of pro-poor pipe extension by PURC in Accra but there is no strategic plan to serve the poor and to track access to water. The total of investments in pipeline extensions within the last five years targeting the poor was measured in terms of per capita investment. The poor have had 8% investments unlike the non-poor who have had 92% (i.e. GH¢ 0.8 and GH¢ 4.5 per capita/yr respectively). Head works expansion indicator was not useful because the headwork is serving the entire region or utility coverage areas. It is therefore considered that a better and applicable indicator to measure pro-poor investments is the one associated with pipeline extensions, also in line with stakeholders' consensus. Moreover, there was no data on "committed funds for other pro-poor service options".

Public Utility Regulatory Commission social policy (PURC, 2005) emphasizes that there should be targeted investments in water supply to serve the poor. ADB (2010) supports sufficient investments in network expansion in pro-poor services that benefit communities on a long-term basis. The best practice is at least comparable investments in pipeline extensions to both poor and non-poor areas.

## 5. Service Provision Indicators:

### 5.1. Service Coverage Indicators:

The service coverage here is measured in terms of access to direct water supply connection and utility's alternative service option since the utility normally adopts other service options applicable under a particular circumstance. The coverage of utility's alternative service option other than direct service from main supply system could not be considered useful. This is largely because the utility does not have any such regularized systems as an alternative service options and the data available for coverage statistics are all based on aggregate or lumped figures and estimates which cannot be relied upon for coverage calculations. The indicators of coverage for direct water supply connection and per capita water quantity supplied to consumers are considered useful but difficult to determine. The existing practices of aggregate record keeping and reporting make these indicators difficult to determine, but disaggregation will make it useful for tracking access to water in poor areas.

The per capita water consumption coverage (based on estimated water consumption) shows a low figure for Accra Central (36 litres per capita/day) as compared to the GWCL norm (60 and 90 l/c/d for low and middle income) (GWCL, 2006). Accra East however, gives a relatively higher figure where the poor are receiving 86 l/c/d per capita consumption, which is within the norm. This indicator might be useful but could be under and or over represented if it is not estimated well. The focus group discussion with the inhabitants in Accra East district revealed that the inhabitants were generally getting one bucket per person per day (18 l/c/d). There is therefore the need for the utility to start proper documentation for a meaningful and useful database system that can be used for reporting to check coverage within utility service areas.

The urban water utility (GWCL) norm for low-income groups (urban poor) is 60 liters per person per day. There was limited data on total consumption and number of users in the poor areas. The utility could start capturing actual data required for the calculation of this indicator. The accuracy of populations served need improvement and will not be available unless the utilities make an effort to capture the relevant data. Coverage is a key indicator affected by whether the data on population and household size is up to date and accurate. The estimate of the population served by public water points and/or the number of households per connection may affect the confidence placed in the water coverage measure.

### *5.2. Service Quality Indicators:*

Coverage measurements are not sufficient without quality services in terms of reliable water supply, standard water quality and addressing of customers complaints and sentiments. The service quality is measured using three indicators in terms of continuity or reliability of water supply; water quality, and customer care (addressing complaints).

Generally, customers in Accra are receiving services less than 24 hours in the two districts. While it is relatively better for Accra Central (20 hours in day), it is worse for Accra East district, which receives less than 2 hours per day. In Kumasi, two of the poor communities visited receive between 6 to 12 hours of water supply within 4 and 6 days a week. McIntosh (2003) suggests that the best measure of good water supply service in a city is 24-hour piped supply to the home because 24-hour piped supply is linked to water quality and quantity, as well as to price, reliability, and convenience. The average number of hours per day of uninterrupted utility water supply to consumers in a week is a measure of pro-poor quality service provision, and it ensures access to utility services of a quality that meet the appropriate price and access requirements.

The indicators for measuring water quality and customer complaints could not be linked to the poor and non-poor groups since the existing data is not disaggregated. In principle, this is not happening because there is not a unit specifically to serve the interest of the poor within the utility. The data available in GWCL are not specific to poor groups but general representation of the entire district. On customer care, the percentage of complaints addressed was 91% and 49% for Accra Central and Accra East respectively. While the performance is better for Central, it is below average for Accra East when using the water service benchmark of 80% as used by the Government of India (GOI, 2010). In principle, the indicator “reliable water supply” is generally applicable and useful since data is readily available and disaggregated into user groups.

The service quality indicators provide a means of capturing information on quality of service. Complaints, while relatively easy to track, give only a glimpse of actual company performance - consumers may have become accustomed to poor service and not complain anymore. In other instances it may be difficult for customers to report complaints. Capturing at least some customer-derived data, however, is considered to be an important starting point. Thus, a set of quality of service indicators is developed, and as expected data will be collected by utility managers on specific poor communities.

The indicator, average number of customer complaints redressed (within 24 hours) expressed as a percentage of the total number of complaints in a month looks at both disaggregated and aggregate complaints from the customers on the general water service registered with the utility. Thus, the number of complaints (types/kinds) redressed as compared to the total number of complaints (types/kinds) reported or registered with the utility provides a useful indication on whether the concerns of customers in the poor areas are of interest and are given prompt response. This indicator is also crucial as it satisfies one of the five key areas of PURC policy objectives to protect consumers, which is Duty of Care (customer concerns) (PURC, 2005). In fact, in the case of India this indicator is described as the efficiency in addressing customer complaints and the benchmark value is 80% (GOI, 2010). It could be very useful in the interest of poor consumers to set this indicator in Ghana context for best practices around 85%.

## **6. Conclusions:**

This study has developed pro-poor urban water indicators, which have been applied to track the delivery of services to the urban poor in Kumasi and Accra. The study has mapped water service areas into poor and non-poor areas that will allow for the measurement of pro-poor indicators covering three perspectives: pro-poor policies, pro-poor tools (mapping the poor, affordability, investments) and service provision (service coverage and quality) provided the context and modalities for pro-poor benchmarking as fulfilled. The results show that the use of pro-poor indicators for benchmarking urban poor water supply is possible and useful for the effective delivery of services to the urban poor.

The measurement of these indicators depends on whether existing reports available contains the data needed. Due to the unavailability of these required data some indicators could not be measured, these were: indicators for measuring water quality, customer complaints, and water coverage, which could not be linked to the poor and non-poor users. The availability of data in a segregated form for the poor communities is useful for the determination of the values for the indicators. The study provides pro-poor water service indicators for bench marking. The three key recommendations are: (1) to locate the urban poor, the water utility agency needs to locate the urban poor pockets based on the working definition provided by the study and give unique codes for the zones/walks (2) the poor pockets within the district can then be assigned to a Pro-Poor Unit under each district for pro-poor support, and (3) to operationalize

urban poor benchmarking, data for determining the indicators should be segregated to get information on the poor pockets.

The assessment revealed that the existing social policy for water supply has not been embedded in the utility policy and its operationalisation and/ or implementation is still a challenge. The immediate challenge is that urban water utility has no pro-poor policy and or unit to address water supply services concerns of the urban poor. It is recommended that the stakeholders begin working now in the interest of the poor.

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