Capacity Building Support to Ghana Water Company Limited (GWCL) – The Business Case for Setting up of LICSU

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Structure of presentation

1. Demand trends, coverage gaps in LIUCs
2. Business Potential of the LIUCs - Size and scope
3. The price LIUCs now pay for water
4. Willingness & ability to pay for improved services tailored to their needs
5. Health cost of water from unsafe sources
6. Simple cost-benefit analysis/social impact
7. Why a win-win LICSU - safe, affordable water to poor urban folks

The Approach

- Summary of a market appreciation study in 6 LIUCs in AMA, October 2013 - Nima, Mamobi, Accra New Town, Pig Farm, Kotobabi and Teshie.
- 296 interviewed - 195 (65.9%) females and 101 (34.1%) males; 4 in-charges of Health Centres

- Satisfaction levels on nine key indicators - how, regularity, views on safety and health costs, price, among others.
- Literature review from sources like World Bank, GWCL, WSUP, WHO-UNICEF, previous studies - locally/internationally

The Approach – cont.

Demand Trends & Coverage Gaps in Key Urban Poor Communities

- The 2013 WHO-UNICEF JMP Ghana report - coverage for improved drinking water for urban populations increased from 83% in 1990 to 92% in 2011.
- **Access to piped water** – considered to be top of improved sources – is declining, from 41% in 1990 to 32% in 2011.
- Coverage gap - 68% of urban dwellers in Ghana have no access to piped water.

- **Estimated coverage Update 2013 – Urban Water – Estimated Proportion of Population using Improved Drinking Water Sources**

Year	Total Improved - %	Piped onto Premises - %	Other Improved - %	Other Unimproved - %	Surface Water - %
1990	83	41	42	8	9
1995	86	39	47	8	6
2000	88	37	51	8	4
2005	90	35	55	8	2
2010	92	32	60	8	0
2011	92	32	60	8	0

Demand & Coverage Gaps in Key Urban Poor Communities – cont.

Demand & Coverage Gaps in Key Urban Poor Communities – cont.

- Over time increased access but no increase in the No. of people with **improved water** facilities.
- Reason - population growth, urbanization and expansion of urban communities & GWCL unable to meet demand esp. LICs.
- What is improved water?

The Ghana Urban Water Coverage Situation - cont.

- **Improved and Unimproved Water Supply Sources - The WHO-UNICEF JMP defines improved and unimproved water supply sources as shown in table Below:**

Improved Water Supply Source	Unimproved Water Supply Source
Piped water on premises – piped household water connection located inside the user's dwelling, plot or yard	*Unimproved drinking water* – unprotected dug well, unprotected spring, cart with small tank/drum, surface water, bottled water
Other improved drinking water sources – public taps or standpipes, tube wells or boreholes, protected dug wells, protected springs, rainwater collection	*Surface drinking water sources* – river, dam, lake, pond, stream, canal, irrigation channels

- The 2010 pop/housing census – shows 24.6m mark; pop. living in urban areas is 50.9 percent.
- Accra Metro Assembly (AMA) – 46.1% - (by ext. GAMA spreads across 11 MMAs, home to over 3.6m people, with at least 1.3 million informal workers. (World Bank GAMA PAD 2013); pop. Of Kumasi Metropolitan Assembly (KMA) – 2.03m (42.6%).

High Need Areas – Business Potentials of LIUCs

Market Potential of LIUCs – cont.

- Combined pop. of GAMA & KMA is 5.6m
- The poor constitute majority of the urban population. E.g. estimated 2.8 million people live in the LIUCs of GAMA - 63% of total urban population
- Other 27% considered non-poor, live in lower density, planned, and better WASH service areas of the city (Cowater et al 2013, p. iv)

Market Potential of LIUCs – cont.

- Note, pop. growth and human settlements of Accra are spreading beyond AMA to the peripheries of Madina, Legon, Weija, Adenta, Ashalley Botwe, Dome, etc which have gradually merged into the GAMA.
- Likewise Kumasi spreading into Aboabo, etc
- These combined - huge market potential.

- High pop. & housing densities – in our study 62% have 9 or more HH size – average for AMA-3.5; KMA-3.8

-High F. to M. ratio & informal sector operators – 78% self-employed

-Unplanned lay-outs,
- One-roomed / rented compound housing

Socio-economic character of LIUCs & Access Disparities

-Unreliable water – very high prices, lower quality – sachet water; lower volume consumed.. ; unhygienic practices

-Some HH connections to GWCL piped water, but access infrequent

Socio-economic character of LIUCs & Access Disparities – cont.

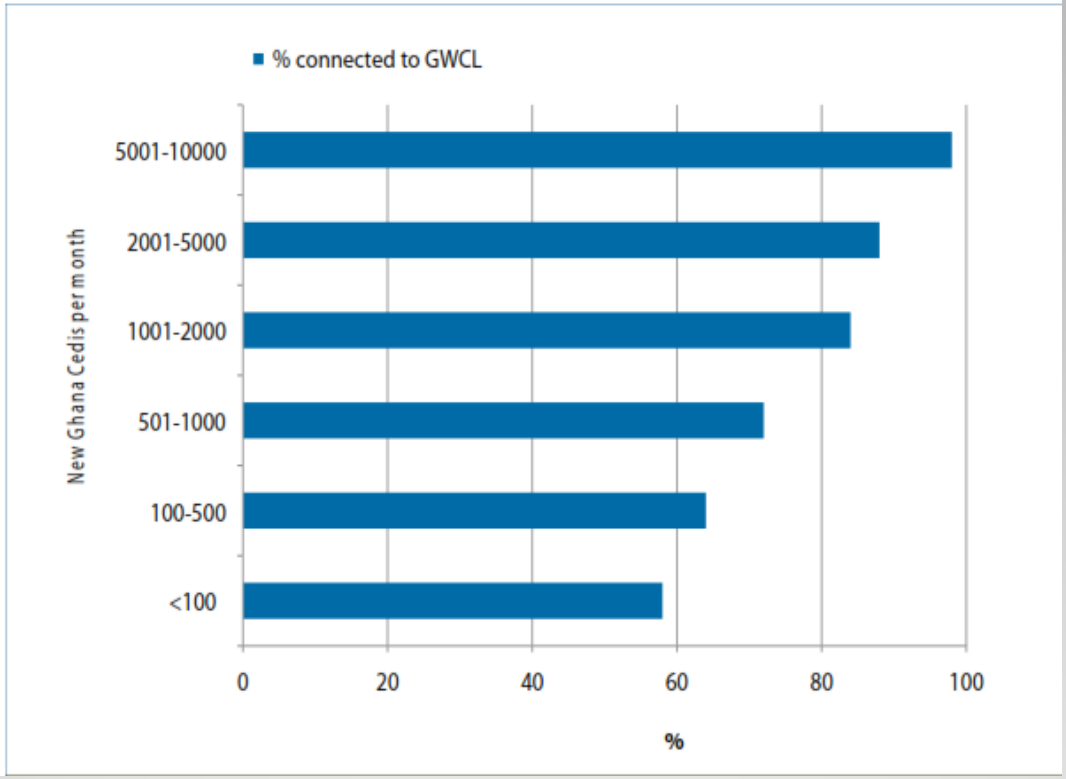
-Low-income pop. consume 0.025-0.035 m3/day; mid-income - 0.060-0.075 m3/day; up-income over 120 m3/day

- Even though they consume less, they pay more – 10 – 20 times

-Higher income category, easier connected to GWCL source

Socio-economic character of LIUCs & Access Disparities – cont.

- **GWCL connection by household income category – source: World Bank, 2010 (in Cowater et al, 2013)**
  - 57% hhs w monthly incomes less GH¢100.00 ; over 83% with incomes GH¢1,001-2,000 connected

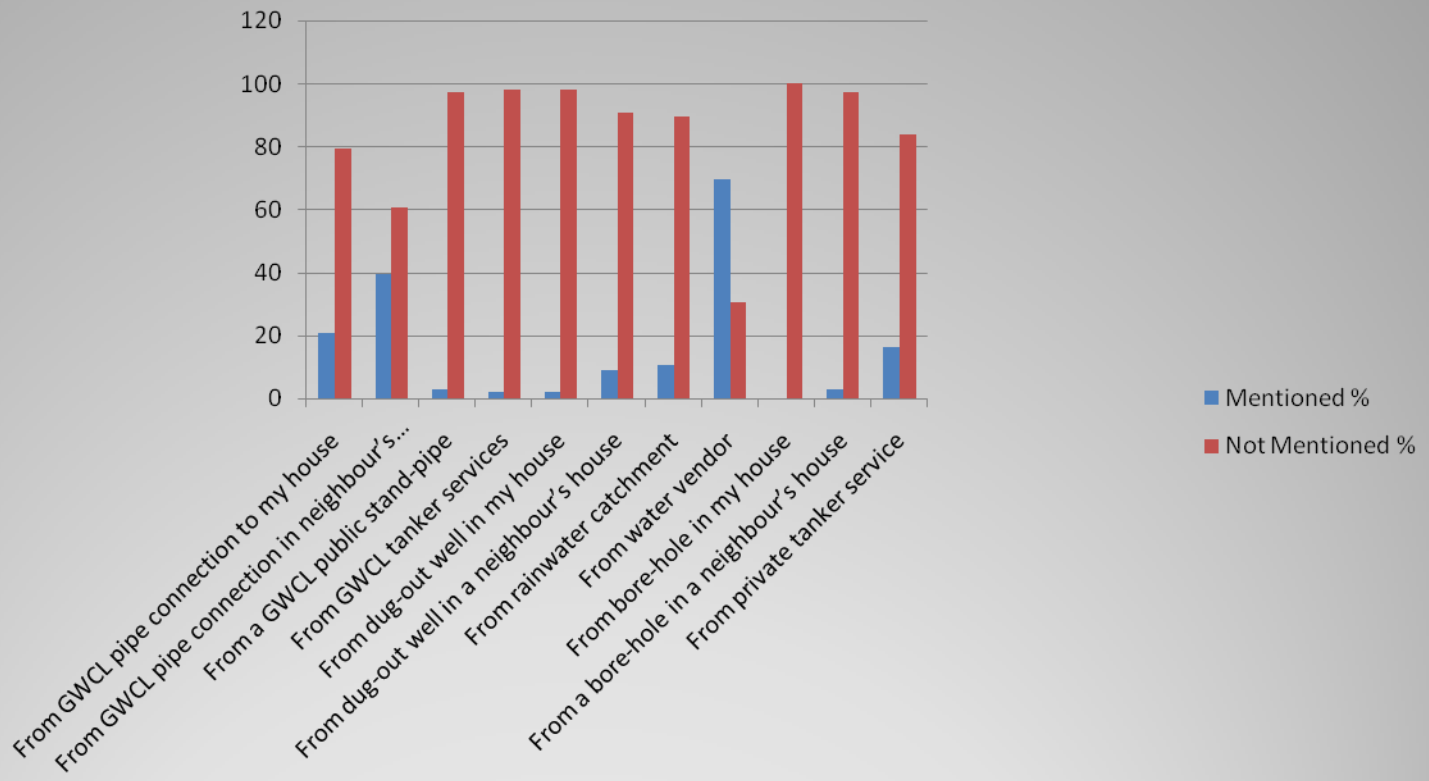


Socio-economic character of LIUCs & Access Disparities – cont.

How Consumers in LIUCs get their Water

- From secondary suppliers – water entrepreneurs, domestic vendors, cart operators and water tankers.
- Based on multiple responses our study –

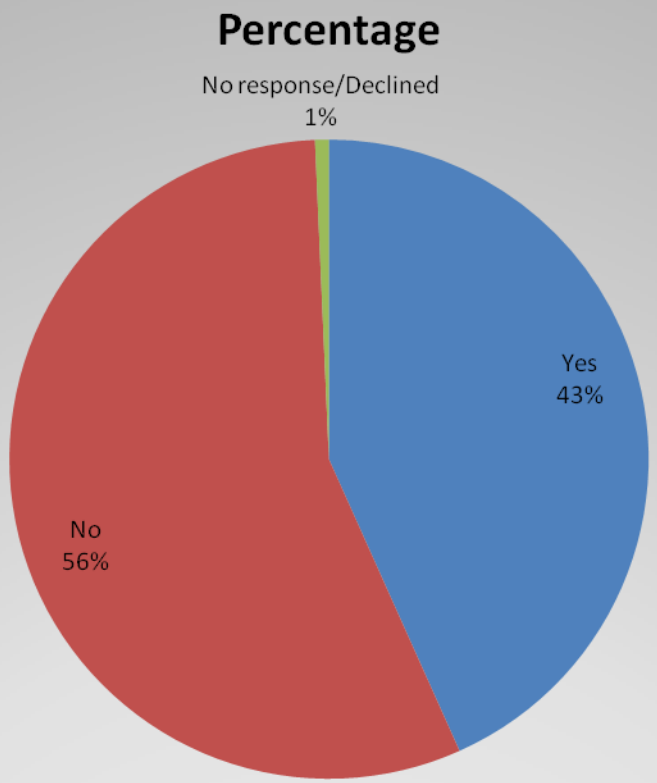
- GWCL connections in homes 21%;
- GWCL in neighbor's house – 40%;
- Greater % thru 2ndary suppliers like water vendors – 69.9%; Private tanker services – 16.2%; other multiple sources



How Consumers in LIUCs get their Water – cont.

Access and Safety of Water for LIUCs

- What is considered “safe” – our study revealed 43.3% respondents said they are assured of safe drinking water.
- 56% are not assured of “safe” water for drinking and cooking.

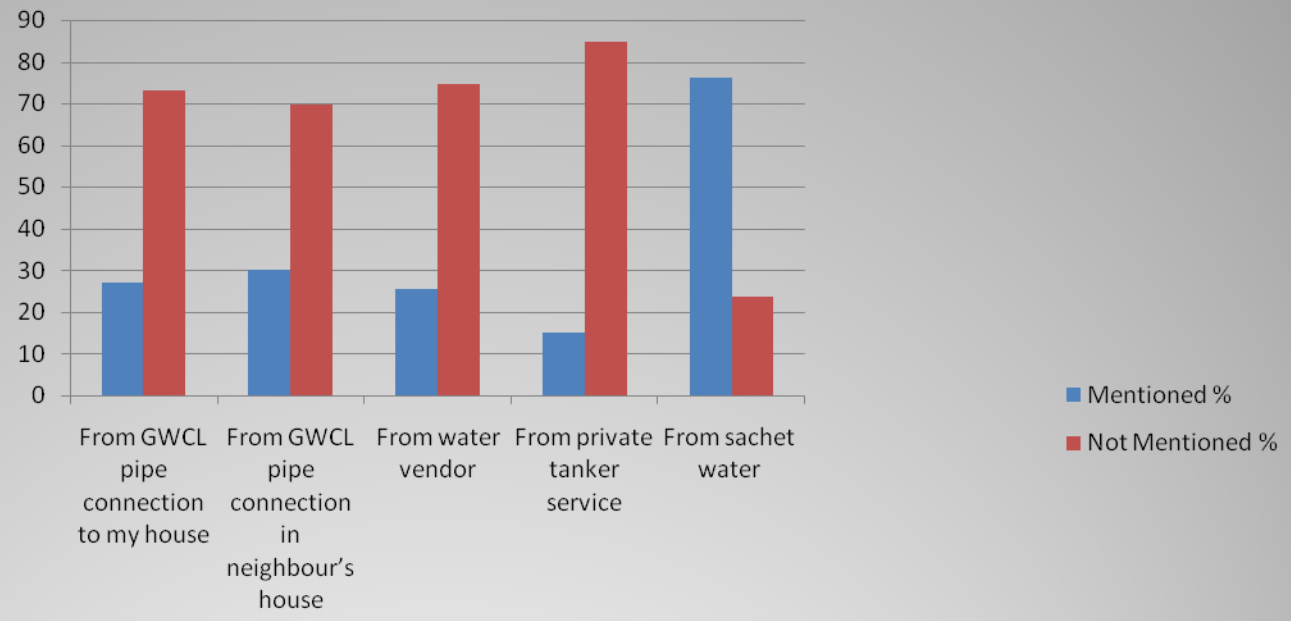


Access and Safety of Water for LIUCs – cont.

Access and Safety of Water for LIUCs – cont.

- "Safe water" based on multiple responses:
  1. 76.2% mentioned sachet water
  2. GWCL pipe connection to own home - 27%;
  3. GWCL pipe connection in neighbour's house 30.2%;
  4. Water vendors 25.4%;
  5. Tanker service 15.1%.

  This is similar to other sources wh. showed 50% of hhs sampled in Accra's slum neighborhoods use sachet water as primary drinking water (Stoler et al, 2011 in Cowater et al 2013)



Access and Safety of Water for LIUCs – cont.

Access and Safety of Water for LIUCs – cont.

- It is worth noting that in the absence of a safer guarantee source like GWCL, sachet water is deemed "safe" even though the WHO-UNICEF JMP Report 2013 did not consider even bottled water as an **improved source**.
- A study by Addo et al - 20% of sachet water samples had fecal contamination

- Also Kwakye-Nuako et al. - on 27 samples found 78% contained one or more protozoan pathogens.

- Chemical tests - 68% of them had higher levels of lead contamination than WHO standards (Ackah et al 2011 in Cowater et al 2013).

Access and Safety of Water for LIUCs – cont.

- This & other studies - most common water sanitation-related diseases of children and adults from selected health centres in these communities are diarrheal diseases, worm infections, malaria, and skin diseases.

Access and Safety of Water for LIUCs – cont.

- Possible health costs - adverse health status and lower productivity as a result of the days lost in recuperating.

- Estimated that at least between 3 to 14 days are lost when a patient suffering from any of the above-mentioned illnesses and who is on medication would be expected to fully recover.

Access and Safety of Water for LIUCs – cont.

Access and Safety of Water for LIUCs – cont.

- Av. cost of medication for the above-stated illnesses, depends on severity - basic cost for patient on the National Health Insurance Scheme (NHIS) - GH¢10 to GH¢80.
- Where no NHIS cover - between GH¢100 to GH¢150.
- HH size in 62% of study pop. above 9 - financial cost could be huge if quantified in terms of the number of household members who should fall ill in a year should there be a cholera outbreak.

Access and Safety of Water for LIUCs – cont.

- 81% of pop. in LIUCs are in low-paying self-employment
- Already paying 10-20x for poor quality water
- For few in fixed jobs, national daily minimum wage - GH¢5.24p per day; so 7-14 days in lost incomes for the poor can be very detrimental to the wellbeing of the family and dependents.
- This situation could impede access to quality health care services.

Price of Water in LIUCs

Ff. result in high water prices in LIUCs

- Lack of access to GWCL connection
- Irregular water supply
- Lack of regulation of the secondary suppliers
- Also location of a house/community
- Period and severity of water e.g. dry season, leakages, pipe breaks, etc.

Refer to Consortium, 2007; Nyarko et al, 2011 in Cowater et al 2013; C2C Ventures/Y-SEF 2013 for WSUP

Price of Water in LIUCs – cont.

- **Summary of water consumption and prices;**
- Source: Nyarko et al (2011) in Cowater et al 2013
- *The tariff of 0.54 US $/m^3 applies for the first 20m^3
- **Tanker price ranges from GHC 5-7 per m^3 depending on the volume of water to water sold in bulk

Water supply options	consumption per person per day (l/c/d)	monthly household consumption (m^3/hh/month)	Average tariff/cost (US $/m^3)	monthly expenditure in US $/hh
GWCL single meter	194	24	0.54*	12.96
GWCL meter sharing	87	7	0.64	4.5
Neighbour	32	3	5.32	16.0
Standpipe	28	3	5.99	18.0
Self Supply	115	15	4.11	
Water Tanker	52	6	15.67**	94.0
Sachet	**0.7**	**0.2**	**66.82**	**13.4**

Price of Water in LIUCs – cont.

- The study showed price of water in LIUCs has been increasing yearly more so with the 1st October 2013 water tariff increase.
- Following are price ranges for typical water containers used in LIUCs in October 2013:

Size of Water Container/Receptacle	Price range - GH¢
Size 34 Bucket	0.05p to 0.40p
Small Yellow Gallon	0.10 to 0.40p
Medium Yellow Gallon	0.10 to 0.80p
Large Yellow Gallon	0.20 to 1.00p

Price of Water in LIUCs – cont.

- Prices vary depending on location – October 2013. The price of large yellow gallon at:

- Teshie ranges from GH¢0.50p to GH¢1.00;
- Pig Farm - from GH¢0.30 to GH¢0.80;
- Nima - GH¢0.20p to GH¢0.30p;
- New Town - GH¢0.20 to GH¢0.45p;
- Maamobi - GH¢0.20 to GH¢0.40p;
- Kotobabi - GH¢0.25 to GH¢1.0p.

After 2013 tariff increases prices have shot up.

- **GWCL / PURC Tariffs 2014: Source GWCL / PURC**

GWCL –GUWL – PURC Tariffs 2014	Current prices@ 1/01/14 in GHC/p/ m3
Metered Domestic 0-20 m3 / month	138.4077
Metered Domestic 21 and above m3 / month	207.4816
Commercial/Industrial (includes tankers)	294.9320
Public Institutions/Govt. Departments	266.1661
Unmetered Premises - Flat rate per house per month cost	900.8512
Premises without connection (Public stand pipes)	136.8330
Special Commercial (bottling water (not CC))	838.6927
GWCL Connection Charges (minimum)	485.00

Price of Water in LIUCs – cont.

Price of Water in LIUCs – cont.

- **Typical Water Prices Paid by Consumers in GAMA: Source: C2C Ventures/Y-SEF 2014 Field Research**

TYPICAL PRICES PAID BY CONSUMERS IN GAMA	As at 25th February 2014 GHC/p
From GWCL tanker to individuals (price from GWCL) – 2000 gallons	GHC140.00
Information from Kotobabi Abavana Junction, Accra	
From sachet water vehicle distributors/trucks to households and vendors - 30 sachets of 0.5L	GHC2.00
Sachet water from retail store to HHs - 30 sachets of 0.5L	GHC2.50
Sachet From street vendor to cars and pedestrians - per 0.5L sachet	GHC0.10
Bottled voltic bottled water 1.5 litres (12 bottles) from retail store	GHC14.50-15.00
Bottled voltic bottled water 1.5 litres (1 bottle) from retail store	GHC1.80-2.00
Bottled voltic bottled water 750ml (12 bottles) from retail store	GHC14.00
Bottled voltic bottled water 750 ml (1 bottle) from retail store	GHC1.00-1.20

Price of Water in LIUCs – cont.

- The above pictures reveal the ff:

1. The poor hhs who get water from secondary sources pay higher prices for water per liter than rich people

2. It must be said that the consumers of LIUCs are resilient and as always try to "manage".

3. If they are paying so much, is it not possible that when connected to GWCL and orientated they would be good customers for GWCL?

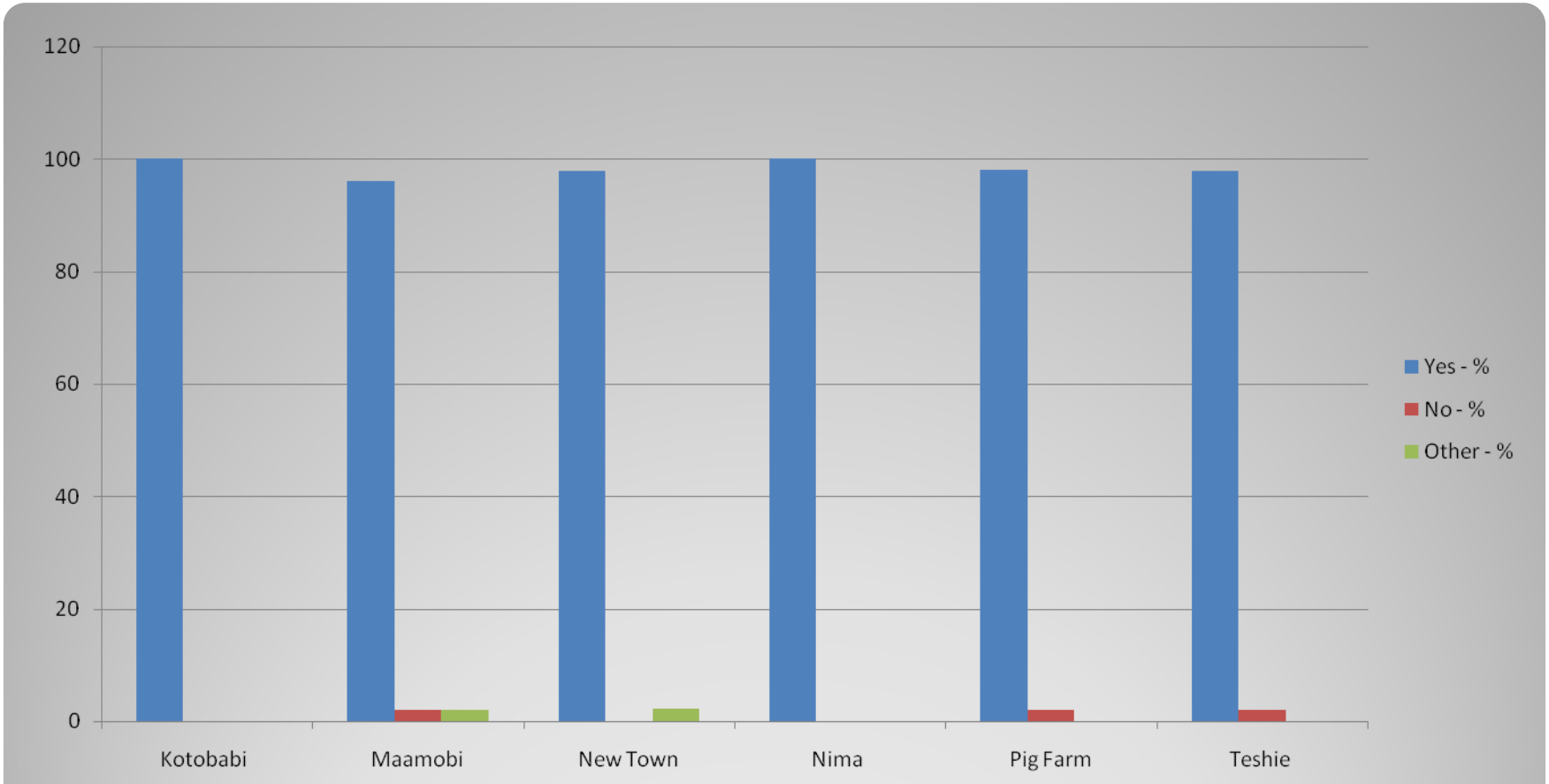
Willingness to Pay for Water in LIUCs

- While 65.3% consider the prices at which they buy water "expensive", another 30% in the typical Ghanaian fashion said it is "manageable".
- 96.6% - would be **willing** to pay for improved preferred services - **even through price increases**.

Willingness to Pay for Water in LIUCs – cont.

- Willingness to pay for preferred service – All communities

Response	Percentage %
Yes	96.6
No	0.7
Missing system	2.7
Total	100

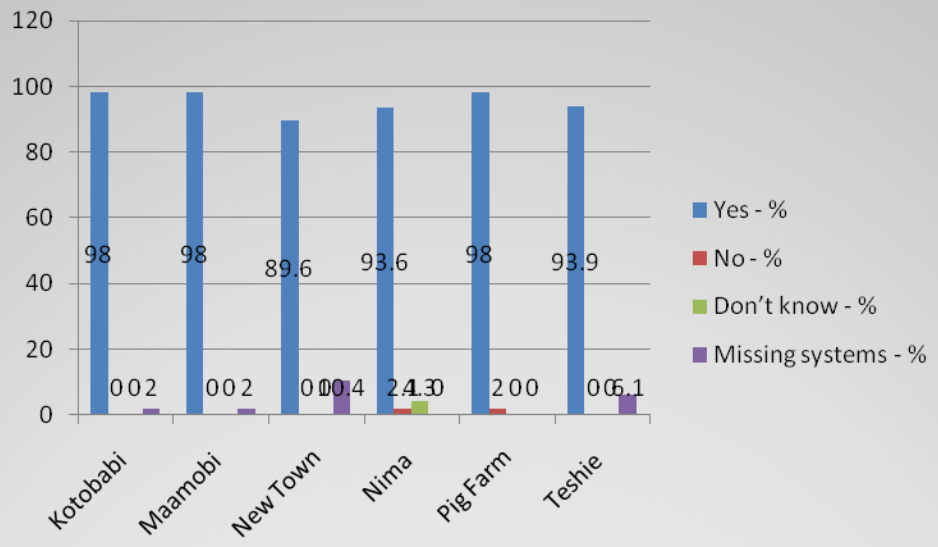


Willingness to pay for improved services thru price increases

- Our study in 6 LIUCs showed that 94% of respondents said they would be **able** to pay for improved services.

Ability to Pay for Improved Services

- **Will you be <u>able</u> to pay for your preferred service?**



Ability to Pay for Improved Services – cont.

Economic Activities of LIUCs & Ability to Pay for Water Services

- Can willingness to pay be translated into ability to pay? Economic activities of consumers in the LIUCs & their history in paying higher for poor quality water.

- The socio-economic status – No. of persons in a household engaged in work that earns income - economically active; No. of persons in the hhold who have a job with a fixed salary and type of economic activity engaged

Economic Activities of LIUCs and their Ability to Pay for Water Services

1. Many urban poor not dependent on hand-outs or begging but are productive - 77.7% in all communities are self-employed

2. 12.8% are public servants

3. 59% have at least two people in the household that do some work that earn an income;

4. At least 1 hhold member rep. 37% of respondents earn a fixed income.

- LIUCs appreciate convenience & health benefits of GWCL source- 87% ready to pay for a preferred service option like pipe connection to own house.
- They are paying so much for water already – some from unimproved sources - it is very possible they would pay realistic price for improved source.

Economic Activities of LIUCs and their Ability to Pay for Water Services

Gender dimensions of the study

- Women and children mostly responsible for fetching water in LIUCs and are adversely affected due to irregular supply of water.
- 76.5% of respondents said that the water supply and delivery issues in their area is a “severe problem” which “affects schooling of children as they spend more time looking for water”.
- Other “severe problems” associated with water supply and delivery mentioned included:

- -Long queue in fetching water resulting in quarrels – 69.3%
- -Risks in drinking and cooking with possibly untreated water – 64.8%
- -Increases domestic and other work of women as they spend lots of time looking for water – 51.8%
- -Traveling long distances in search of water – 63.9%
- -High health costs due to water-related diseases – 51.4%

Gender dimensions of the study – cont.

Potential Pilot Sites

- Three pilot sites could be selected to test implementation of LICSU, learn lessons and based on that replicate best practices through gradual and eventual large-scale roll-out.
- PURC and GWCL begun some pilot pro-poor water supply projects from 2007/2008 in some underserved LIUCs in Accra, Cape Coast and Bole among others

Potential Pilot Sites

- One district each from:
- Accra East – Dansoman District
- Accra West – Accra North – Nima & Kanda
- Kumasi - ……..district

- Selection tied into donors' / development partners' operational areas - likely that they would come on board and thereby benefit from funding.

Potential Funders

1. World Bank funding a GAMA project with US$150m grant to improve access to water and sanitation services to LIUCs.
2. GWCL to begin discussing with them for buy-in into the LICSU
3. GWCL pro-poor urban water project under its PMU
4. PURC /GWCL pro-poor projects
5. WSUP partners GWCL to look for funds

What the Funds could Effectively Support – Financial Requirements

- GWCL should begin discussing with GOG, donors / development partners for required support for the following potential costs for a one year pilot:
- Personnel salaries and allowances
- Equipment
- Training and capacity building
- Administrative costs
- Possible appraisals costs to be conducted on the pilot districts

Working with LIUCs to Limit Illegal Activities, Improve Water Governance and Profits for GWCL

- Learning from other utilities' experiences in working with user groups will be helpful to GWCL; these ppl live all their lives in the c'nities, may have relevant information to assist GWCL address challenges.

- Lessons from Nima Neighborhood Watchdog Committee assisting the Loss Control Team of GWCL/GUWL AVRL to carry out operations - illegal disconnections, by-passes, seize inline pumps to facilitate water flow - in the Nima, Mamobi, Accra New Town triangle is one example.

- Users in LIUCs could assist inter alia in the following:

- Provide information on customer base
- Facilitating arrangements for poorer customers to get over the constraints of high connection fees;
- Facilitate community complaints bureau with a hot-line
- Institute rewards system linked to reporting illegal activities

- **Scenario 1 A:**

1. **GWCL 2012 Key Income Figures Seen Against Potentials in the LIUCs**

GWCL Situation in 2012	***Numbers***
Customers - '000	481
Treated water produced - M m^3	255
Water sold and billed - M m^3	130.4
Average water tariff - GHC/m^3	1.38
Average quantity of water consumed/person - m^3	271
Non-Revenue Water (NRW) - %	48.9
Total Water Revenue - M GHC	***179.952***

Imperative of GWCL to serve the LIUCs thru Operational, Financial Re-engineering

Scenario 1B: GWCL 2013 Budget Figures Seen Against Potentials in the LIUCs

2. GWCL 2013 Budget Information	***Numbers***
Bill from Domestic metered – M	116.35
Bill from Domestic Unmetered - M	0
Bill from Public Standpipes metered - M	4.77
Bill from Public Standpipes Unmetered - M	0
Revenue generated from metered facilities	***121.12***

Imperative of GWCL to serve the LIUCs thru Operational, Financial Re-engineering – cont.

- **Scenario 2: Assumption 1: Population in the LIUCs and Potential - Based on GWCL 2012 Figures**

Potential LIUCs Situation	Numbers	Remarks
1. Combined population of GAMA and KMA	5,666,019	
2. Number of households – GAMA and KMA	1,549,193	
3. % of urban dwellers with no access to improved sources	68%	
4. Estimated % of residents of the LIUCs as proportion of total urban population	63% = 2,427,323	
5. Approhimate LIUC households	63% of 1,549,193 = 975,992	
6. GAMA PAD estimated LIUC residents to benefit from GAMA project	175,000 - used as base	
7. Assume rough mid-way population of LIUCs to whom additional water is supplied	500,000	
8. Estimated Non-Revenue Water (NRW) for 2012	48.90%	NRW declined in 2013 to 47.2%

Imperative of GWCL to serve the LIUCs thru Operational, Financial Re-engineering- cont.

- **Assumption 2: Potential Revenue to be Generated at 2012 TariffS in the LIUCs as Additional Water comes to them**

Potential Situation	Potential Numbers
Minimum LIUCs Residents (GAMA PAD estimates)	175,000
Additional population - mid-way conservative estimate based on estimated pop. in the LIUCs as % of total urban pop.	500,000
Assume additional 50% water produced and sold to LIUCs - M m^3	65
Average quantity consumed per person - m^3 - held constant	271
Average water tariff - GHC/m^3	1.38
Potental sub-total water revenue from the LIUCs - M GHC	***89.976***
Potential Situation	**Potential Numbers**

Serving LIUCs thru Operational, Financial Re-engineering- cont.

- **Assumption 3: GWCL LICSU working with Community Members in Mapping, Installing Meters and Collecting Tariffs in LIUCs - based on 30% collection rates of metered domestic & public pipe rates**

Bill from Domestic Unmetered - M - based on 30% collection of metered domestic rates	34.9
Bill from Public Standpipes Unmetered - M - based on 30% collection of metered public pipe rates	1.43
Sub-total - additional revenues from unmetered sources	***36.33***
Potential Total Revenues - Assumptions 1 and 2	**126.306**

Serving LIUCs thru Operational, Financial Re-engineering- cont.

- **Assumption 4: 2013/2014 Tariff Increases and Potentials in the LIUCs - even if tariff increase were 50% - normal and unmetered pipes**

Additional population - mid-way conservative estimate based on estimated pop. in the LIUCs as % of total urban pop.	500,000
Assume additional 50% water produced and sold to LIUCs - M m^3	65
Average quantity consumed per person - m^3 - held constant	271
Average water tariff - GHC/m^3 - based on 50% increase on 2012 tariff	2.07
Potential sub-total water revenue from the LIUCs - M GHC	***135***
Additional Revenues from Domestic & Public Pipes Unmetered - 50%	18
Sub-total Revenue from unmetered sources	54
Potential Total Water Revenue from the LIUCs - M GHC	***189***

Serving LIUCs thru Operational, Financial Re-engineering- cont.

Social impact of Safe Water to LIUCs

- Access to safe water for all is one key MDG. Improved coverage results in the ff:

  1. Improved health due to reduction in water-sanitation diseases which afflict children, women and adults in the LIUCs
  2. Increased productivity as a result reduction in No. of days lost due to ill-health

Social impact of Safe Water to LIUCs

- Additional day's income is saved on the additional days of good health used for working - (National min. wage of GHC5.24xmin.5 days) – benefits to family and nation
-

- Access to **piped water** – considered to be top of improved sources – is actually declining, from 41% in 1990 to 32% in 2011 (JMP, 2013) - 68% of urban dwellers have no access to improved sources;

- Residents of the LIUCs are estimated at 63% of the total urban population;

Conclusion and Recommendations

- Combined pop. of GAMA and KMA is 5.6 m this may constitute a huge untapped business opportunity considering the fact that only a few households in these cities have in-yard connections and or pay their bills to GWCL.
- Members of richer households consume more water than people in poorer households but the rich pay far less for the water consumed.

Conclusion and Recommendations – cont.

- The poor pay more for water, receive lower service;
- Connecting them to GWCL source makes economic and social sense because their ability to pay for water has been documented in various studies which shows that residents in LIUCs pay between 10 to 20 times the price paid by the rich for water;

Conclusion and Recommendations – cont.

- 76.2% in 6 LIUCs drink sachet water.
- Sachet water – popularly termed "pure water" is highly consumed in the urban poor areas.
- Unfortunately this type of water as well as bottled water is not considered improved or safe. Health implications of drinking sachet water for instance has been considered a potential for epidemic;

Conclusion and Recommendations – cont.

- Even though sachet water is expensive like other secondary sources from which the LIUCs get water from, yet the poor spend lots of their income on them / are willing and able to pay for it;

Conclusion and Recommendations –cont.

- Water sold by GWCL to companies is cheaper compared to the price at which the LIUCs get their water; some sachet water companies depend on GWCL household connections for production and pay peanut to GWCL in spite of the thousands of cedis profit they make from GWCL connections;

Conclusion and Recommendations – cont.

- It is significant to note that not even the best branded bottled water can compare in terms of safety or quality with piped water. GWCL is the only monopoly utility in Ghana with this clout to produce and serve all urban Ghanaians irrespective of their social and economic status with piped water.

Conclusion and Recommendations – cont.

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Conclusion and Recommendations – cont.

- The poor could be collectively the biggest GWCL customer base as they are able and willing to pay for services tailored to their needs, preferences and options;

- If LIUCs are paying so much already, it is possible that when connected and orientated they would be better customers for GWCL.

Conclusions and recommendations – cont.

- This study among others show that, the poor can be real untapped market for GWCL if the utility can position itself to understand their needs, design structures and systems that would engage with them to ensure that the ultimate goal will be a win-win situation.

Conclusions and recommendations – cont.

THANK YOU SO MUCH!!!

QUESTIONS???

END OF PRESENTATION