

GHANA WATER COMPANY LTD



PROPOSALS FOR REVIEW OF AGGREGATE REVENUE REQUIREMENT AND TARIFF

DECEMBER 2018

TABLE OF CONTENTS

TABLE OF CONTENTS.....	ii
LIST OF TABLES.....	iv
1 Introduction	1
1.1 Brief Background.....	1
1.2 Rationale/Objectives Underpinning Tariff Submission	1
1.3 Highlights of Major Issues Which Describe Structure of Tariff Submission)	6
2 Initiatives Undertaken.....	7
2.1 Projects Undertaken	7
2.2 Compliance with Directives of the Commission	17
3 Key Policy Issues for Tariff Consideration	17
4 Proposed Service Delivery and Efficiency Improvements During Tariff Period.....	18
4.1 Service Delivery and Efficiency Targets	18
4.2 Technical / Operating Performance Indicators/Indices	23
4.3 Financial Performance Indicators/Indices	25
4.4 Commercial Performance Indicators/Indices	28
5 Key Challenges Likely to Impact Service Delivery	31
5.1 Electricity Supply.....	31
5.2 Energy Consumption-Production Plants Electricity Usage	31
5.3 Availability of Chemicals and Laboratory Reagents.....	31
5.4 Breakdown of Production Facility.....	31
5.5 Expansion of Production Capacity	31
5.6 Production Losses	32
5.7 Metering and Accounting	32
5.8 Billing and Collection.....	32
5.9 Organizational Reform and Restructuring	32
5.10 Commercial Customer Complaints and Dispute Resolution.....	33
5.11 Resolution of Court Cases	33
5.12 Government and Public Sector Debts.....	34
5.13 Surcharge and Subsidies	34
5.14 Government Grants	34
5.15 Access to Finance and Repayment of Financing Costs	34

GHANA WATER COMPANY LIMITED
PROPOSALS FOR REVIEW OF AGGREGATE REVENUE REQUIREMENT AND TARIFF

5.16	Tariff Structure and Rates	35
5.17	Water Purchase from Independent Water Producers	35
5.18	Human Resource-Skilled Manpower	35
5.19	Production Infrastructure Constraints	35
6	Strategies to Address Key Challenges	36
7	GWCL WATER PRODUCTION SYSTEM RELATED DATA.....	37
7.1	Projected Water Production Data.....	37
7.2	Capital Expenditure.....	37
7.3	Capital Expenditure Financing Plan.....	37
8	Operation and Maintenance Costs	38
9	Administration and General Costs	38
10	Human Resource Costs- Employee Costs.....	38
11	Public Education.....	39
12	Financing and Interest Costs	39
13	Return on Equity	39
14	Depreciation.....	39
15	Projected Water Production Revenue Requirement	Error! Bookmark not defined.
16	Proposed Tariff and Rates Structure.....	40

LIST OF TABLES

Table-1	GWCL Water Production Systems Data 2017-2021.....	37
Table-2	Summary of Water Production Related Capital Investment Plan (Million GHS) 2017-2021	37
Table-3	Summary of Water Production Related Capital Expenditure Financing Plan (Million GHS) 2017-2021.....	37
Table-4	Water Production Related Operation and Maintenance Costs (Million GHS) 2017-2021	38
Table-5	Water Production Related Administration and General Costs (Million GHS) 2017-2021	38
Table-6	Water Production Related Human Resource Costs (Million GHS) 2017-2021.....	38
Table-7	Summary of Public Education Costs (Million GHS) 2017-2021	39
Table-8	Water Production Related Financing and Interest Costs (Million GHS) 2017-2021	39
Table-9	Water Production Related Equity Financing Costs (%) 2017-2021	39
Table-10	Depreciation (Million GHS) 2017-2021	39
Table-11	Summary of Water Production Revenue Requirement (Million GHS) 2017-2021... Error!	

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1 Introduction

1.1 Brief Background

Water is essential for all living creatures. Without adequate and continuous source of water, life would not exist. Mankind does not only need water for the essential functions of life but also to maintain and accelerate industrialization.

Safe and readily available water is important for public health, whether it is used for drinking, domestic use, food production or recreational purposes. Improved water supply and better management of water resources can boost countries' economic growth and can contribute greatly to poverty reduction.

Sustainable Development Goal target 6.1 calls for universal and equitable access to safe and affordable drinking water.

A report by the World Health Organisation/UNICEF Joint Monitoring Programme shows that since 1990, 2.6 billion people have gained access to an "improved" drinking water source, one that is designed to protect against contamination. The report however shows that in 2015, 663 million people – one in 10 – still drank water from unprotected sources, with almost half of such people living in sub-Saharan Africa.

GWCL, which is the country's sole utility mandated to supply potable water for domestic, institutional, and commercial purposes in the urban and peri-urban communities in Ghana, has over the years faced some challenges of inadequate water supply to its customers, leading to rationing of water in some instances. With a current estimated urban population of about 13.5 million, only about 74% have access to safe and potable water. This means that about 3.5 million people living in urban Ghana still do not have access to safe water even though Ghana attained middle income status in 2006. Our inability to serve our customers with a 24-hour supply at all times has dented our image, and the perception of the public is that of a poorly performing company.

The company has embarked on an image redeeming mission, for transformation into a "world class utility company". We therefore call on our Regulator, the PURC, to provide every necessary support to enable us turn things around.

1.2 Rationale/Objectives Underpinning Tariff Submission

Like any utility, GWCL is expected among others to:

1. Provide services that are safe, desirable, and affordable to consumers; and
2. Ensure an institutional and commercial system capable of recovering costs.

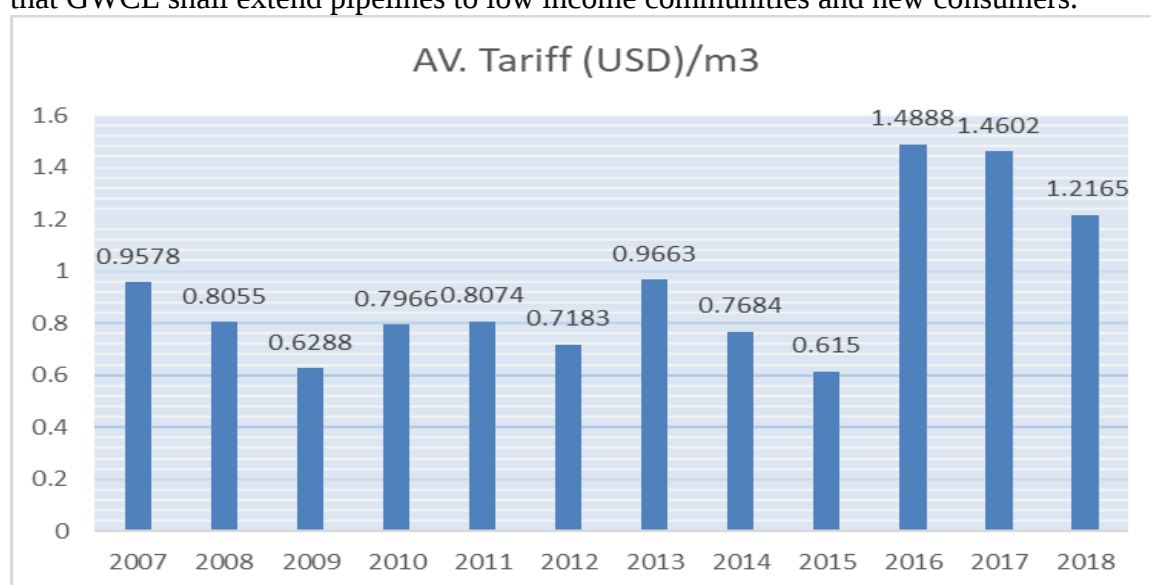
GWCL must at least recover its costs if we are to sustain our operations. Over the years, however, the approved tariffs have not been full cost reflective. This has led to the inability of GWCL to raise enough revenue to finance the much needed capital investment projects, with a consequent unsatisfactory level of service.

Some major issues which have prevailed since the last tariff adjustment, and which have necessitated this review are now discussed.

Inadequacy of tariff to carry out urgent repairs of assets and minor extensions

Unlike the previous years where the Automatic Tariff Adjustment Formula (ATAF) has been applied every quarter, PURC has not applied it for some time now. In real terms the average tariff per cubic meter in 2015 was USD 1.49, but has reduced to USD 1.21 as a result of the cedi depreciation over the period as shown in the figure below. This has affected our ability to carry out repairs and replacement of aged and obsolete equipment and pipelines, and other critical assets as would be expected and has given rise to high levels of NRW. As part of this proposal GWCL has included measures to reduce NRW for the consideration of PURC.

The PURC should also play a significant role in making water services available to low income dwellers in the country through the review and approval of a “GWCL Low Income Distribution Extension Fund”. The terms which should cover this arrangement would be that GWCL shall extend pipelines to low income communities and new consumers.



The current domestic tariff (0-5m³) of GHC 2.98 per m³ is still lower than what the poor in the rural areas pay, which is about GHC 10 per m³ on the average. In peri-urban areas in the cities, the poor are reported to pay as much as five times the lifeline tariff. The inadequacy of the tariff is reflected in low Operating Cost Coverage Ratio and a low Assets Turnover ratio as well as mounting indebtedness as described below:

Low Operating Cost Coverage Ratio (OCCR)

The assessment of the ability of a utility to recover operating costs from customers' bills (using the Operating Cost Coverage Ratio, OCCR) is a major aspect of utility performance assessment, and a key performance indicator. The internationally accepted norm is that operating cost coverage ratios should be in the range of 130% to 160%, with an allowance for asset rehabilitation and replacement, as well as debt payment. This excludes capital investment in expansion, additional water production etc.

The responsibility for capital investment in some countries is the responsibility of government. However, in some cases, in particular in francophone Western and Central Africa in which national utilities have lease or concession agreements with central government, responsibility for capital investment rests at least in part with the operator. In

these circumstances the operators are responsible for significant rehabilitation and the OCCRs are therefore much higher (in the 200% to 230% range).

The Operating Cost Coverage Ratio for GWCL for 2017 was 111% (which was even suppressed due to our difficulty in raising sufficient cash to fund all the needed maintenance activities). This is much less than the internationally accepted norm of 130% to 160%, hence the need for an adjustment to enable GWCL recover its cost and carry out urgent asset rehabilitation.

GWCL's Indebtedness:

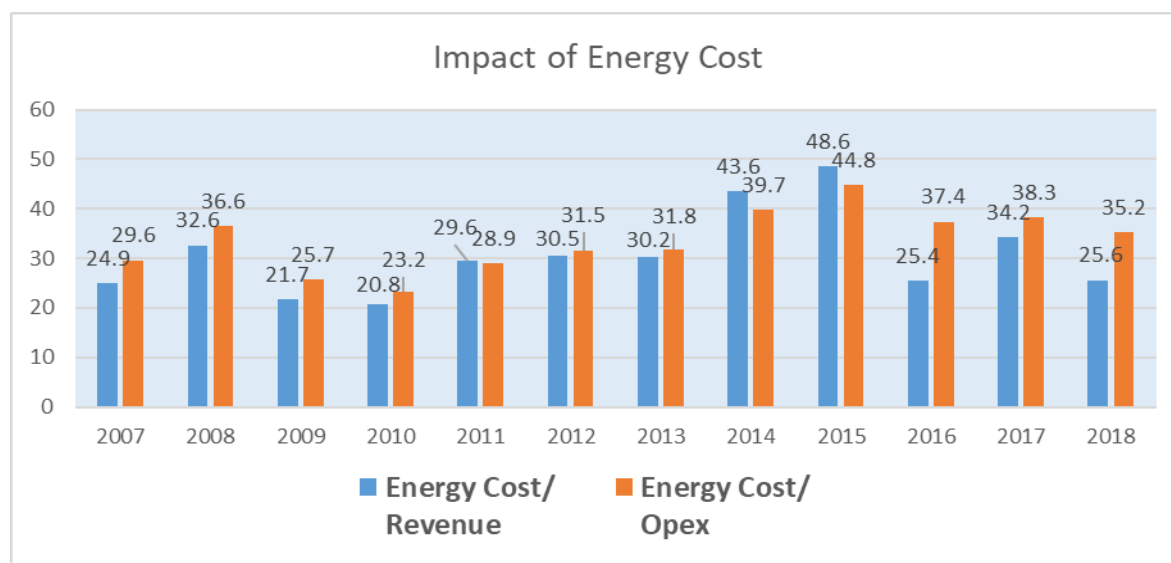
GWCL is currently indebted to the energy providers to the tune of GHS 671.8 million (at the end of June 2018) which is about 69.2% of GWCL's annual water revenue of GHS 970.6 million. This came as a result of GWCL's inability to pay for the average monthly bills of GHS32.8 million from energy suppliers due to abolition of the Cross Debt Clearing House (CDCH) system. The MDAs currently pay a paltry amount of 12% of their bills which was hitherto used to settle Energy bills at CDCH. At the moment, GWCL is able to pay ECG an average of GHS6 million monthly (out of an average monthly bill of GHC 22 million), which constitutes about 11% of our total monthly collections.

GWCL's average monthly collection ratio (non-MDAs) stands at about 90% and that of MDAs and other Central and Local government collection stand at 12%. This implies that government of Ghana owes GWCL an average of about GHS 11 million a month. The total government's indebtedness to GWCL is GHS 465 million as at December 2017.

Also the average operating cost of the Teshie-Nungua desalination plant ie capacity charge, variable charge and energy cost is GHC9.4 million a month which constitutes 17.1% of our revenue collection. As in the case of the payment of the on-lent loans and grants, for reasons of affordability and social good for all, Government could consider buying out the equity and paying for the cost of the facility as recommended by the Transactional Adviser

High energy costs

Energy is one of the major cost components for water utilities worldwide. Since 2011, the energy costs incurred by GWCL have been steadily rising as shown in the graph below. Currently it is about 35.2% of our operating expenditure.



GHANA WATER COMPANY LIMITED
PROPOSALS FOR REVIEW OF AGGREGATE REVENUE REQUIREMENT AND TARIFF

With the coming of the (new) additional IPPs, indications are that energy tariffs are not going to reduce. This will put a lot of pressure on GWCL operations, if the approved tariff is not adequate to recover the energy costs.

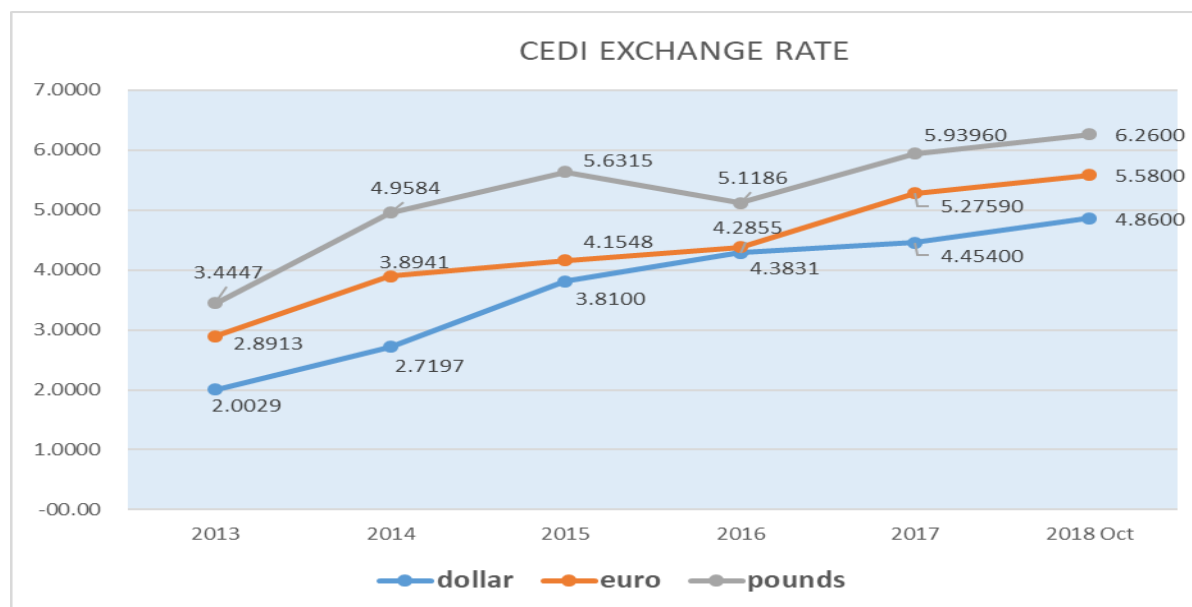
Re-valuation of Assets

Prior to 2018, GWCL's assets base was very low because the assets had not been revalued since 1999. In 2018, GWCL carried out a re-valuation of its assets. The revalued assets (up from about GHC 2.2 billion to GHC 17.2 billion) which now reflect true replacement/fair value will enhance the value of the company as well as serving as potential collateral to raise credits for the expansion of the company in the areas of building new water supply systems and extending the distribution network to the underserved populace.

This will afford the opportunity to get a fair return on the assets when establishing the tariff, since the return will be calculated on the fair value of the asset. When the tariff is adequately adjusted to reflect recovery of GWCL's full costs, GWCL will be able to borrow from financial institutions to embark on viable projects.

Exchange rate fluctuation/ Depreciation of the cedi

Since the last major tariff adjustment in December 2015, the Cedi exchange rate of all the major trading currencies with Ghana have consistently depreciated. For instance, the dollar cedi exchange rate has increased from 3.81 to 4.86 (cedis to the dollar) in October 2018 according to the Bank of Ghana and GCB Bank inter-bank foreign exchange rate. The trend is depicted in the graph below.



Source: GCB Bank

On-lending of Grants and Loans by MOF (Debt Overhang)

Ministry of Finance has currently adopted a policy on Grants and Loans contracted for or guaranteed for Projects to SOEs of which GWCL and Water Sector projects are of no exception. By this policy, MOFEP signs loan agreements with GWCL at an interest rate of LIBOR plus 4% interest rate over a period not exceeding 15 years. Part of the requirement is that GWCL will have to open escrow accounts into which an agreed percentage of

GHANA WATER COMPANY LIMITED
PROPOSALS FOR REVIEW OF AGGREGATE REVENUE REQUIREMENT AND TARIFF

GWCL's revenues equivalent to the loan amount have to be lodged. Seven (7) such on-lending project agreements have been signed with MOFEP totaling USD 1,037,117,727.30 or GHC 4,667,029,772.85) at the rate of 4.50 at the beginning of 2018 and now gradually increasing to GHC 5,030,020,977.41 at the rate of 4.85 in October 2018

Currently we are saddled with a monthly loan repayment of US\$ 7.91 million (GHC 38.36 million) which is 69% of average monthly revenue collection of GHC55.5 million. These amounts were not granted in the current tariff.

In light of this, GWCL has no option but to recover such Loans and Grants through the tariff for onward payment to MOF.

On the other hand, for reasons of affordability and social good for all, the loan repayment cost could be converted into government equity instead of being a component of the tariff build-up, as was the case in previous years (2001-2008).

Below is a table detailing the on-lend loans;

LOAN NAME	PURPOSE OF LOAN	DATE OF LOAN	TENURE OF LOAN	LOAN AMOUNT	BIANNUAL REPAYMENT	INT RATE
AKIM ODA	WATER SUPPLY PROJECT	25-08-15	15 YEARS	165,615,426.00	7,912,714.32	5%
WA	WATER SUPPLY PROJECT	25-08-15	15 YEARS	55,500,000.00	1,996,829.97	1%
GAMA WSP	WATER SUPPLY PROJECT	14-07-14	20 YEARS	50,800,000.00	1,968,404.15	2%
CAPE COAST WSP	WATER SUPPLY PROJECT	19-09-14	15 YEARS	7,288,704.30	242,956.81	0%
CHINA GHEZUBA	WATER SUPPLY PROJECT	25-08-15	15 YEARS	276,250,000.00	10,704,166.28	2%
VARIOUS WATER PROJECTS	WATER SUPPLY PROJECT	02-11-15	15 YEARS	150,806,797.00	5,843,478.84	2%
URBAN WATER PROJECT	WATER SUPPLY PROJECT	25-09-14	20 YEARS	96,350,000.00	8,761,193.04	16.50%
3Ks	WATER SUPPLY PROJECT	28-08-15	15 YEARS	234,506,800.00	10,015,644.30	3.36%
				1,037,117,727.30	47,445,387.71	

CAPITAL STRUCTURE			
	2017	2018	2019
EQUITY			
Stated Capital	1,250,000	1,250,000	1,250,000
Government Deposit for Shares	193,226,221	193,226,221	193,226,221
Capital Surplus	10,181,578,710	9,406,577,302	8,690,567,451
Income Surplus	- 51,138,975	- 94,838,330	- 136,398,978
TOTAL EQUITY	10,324,915,956	9,506,215,193	8,748,644,694
TOTAL LOANS	2,849,622,302	3,037,043,261	3,249,265,090
	13,174,538,258	12,543,258,454	11,997,909,784
Proportion of Capital Structure			
Loan Capital	22%	24%	27%
Equity/Share Capital	78%	76%	73%

Land and Crop Compensation

In carrying out capacity expansion and pipe-laying projects, GWCL is usually confronted with the issue of compensation to landowners who are adversely affected by these projects. Though it is envisaged that such compensations should be paid by the Government of Ghana, we have come to realise that such payments are never made, which lead to litigation with the land owners, resulting in delays in project execution. For example,

certain contracts under the GAMA project were unduly delayed as a result of government's failure to pay the appropriate compensation to the affected landlords.

GWCL had to make the payments from its revenues generated from the tariff in order to complete the projects although the approved tariff does not cover compensation for land and crops. To mitigate the effect of such payments on GWCLs finances, we have included the cost of crop and land compensation in this tariff build-up.

1.3 Highlights of Major Issues Which Describe Structure of Tariff Submission)

Domestic consumption accounted for 58% of total volume of water sold. Commercial, Industrial and MDA consumptions accounted for 17% and 4.3%, and 16.5% respectively. In terms of customer strength, domestic customers make up about 85% of the total number of customers, but contributed a mere 46% of our total billing.

Developing countries have often used the price of a first block as a social tariff or lifeline, so that the poor can have access to at least a minimum quantity of safe water at a subsidized price. Most of the policy debates over the impact of tariffs on equity revolve around this issue and whether it is actually benefitting the poor.

Prior to the tariff adjustment granted in December 2015, all domestic customers enjoyed the lifeline tariff, thus defeating the rationale behind setting up a lifeline tariff. However in the current tariff, this situation has been corrected and the lifeline tariff reduced from 0-20m³ to 0-5m³. Having operated this scheme for the past two years, we wish to propose that the current situation is maintained.

Water sold to ocean going vessels (by Ghana Ports and Harbor Authority)

Ghana Ports and Harbor Authority is charged with the responsibility of planning, building, managing, maintaining and operating the two main ports of Ghana- Tema and Takoradi. Within such limits as may be fixed by the Minister, GHAPHA prescribed rates, charges and dues for services provided by the authority under (PNDCL 160) of 1986 section 75. As part of its conservancy service, GHAPHA supplies potable water provided by GWCL to ships that dock at Tema and Takoradi ports and then bills its customers in US Dollars.

In the current tariff approved by PURC, water sold by GHAPHA to ocean going vessels was introduced and set at a tariff of GHC 114.0022 per cubic meter. However, upon a petition from GHAPHA to PURC, the rate has been reduced to GHC 20.0000.

Sachet Water Producers

Sachet water has risen from obscurity to become one of the most important drinking water sources. There is sufficient evidence in our books that about 85% of these Sachet water producers directly access water from GWCL. Sachet water producers simply bag GWCL's Potable water for sale at a price higher than our tariff level. Most of these Sachet water customers are based in Tema, closer to the Kpong Treatment Plant where supply is reliable. Others can also be found in the Accra East region.

To avoid paying the tariff for bottled water, these producers claim to have shifted from bottling to sachet water production. Following a proposal by GWCL in 2015, the tariff was set at GHC 11.2102 per cubic meter. However, upon a petition from the customers,

the rate has been reduced to GHC 10.0702. Total consumption for Sachet water producers was 1,744,510 m³ for the year 2017.

2 Initiatives Undertaken

The company has put in place a number of interventions in recent times with the sole aim of improving efficiency and service delivery and justifying every pesewa paid by customers in terms of water tariffs.

2.1 Projects Undertaken

In an effort to ensure adequate and up-to date water systems to meet the demand for water supply in the urban /peri-urban areas of the country, GWCL has undertaken a number of projects including capacity expansion, service delivery improvement projects and system loss reduction projects. A detailed list of all completed projects, on-going projects and projects currently at various stages of negotiations for financing by Development Partners have been outlined below.

The completed projects are valued at €178.58 Million plus US\$821.93 Million plus GHS 20.85 Million while that of the ongoing projects are valued at €2.19 Million US\$213.04 Million plus GHS 16.21 Million. However, water infrastructural growth rate has not kept pace with economic and population growth, thereby making it impossible to satisfactorily serve customer needs adequately.

Projects which are at various stages of negotiation for financing from development partners have also been defined below.

Completed Projects

Several water supply projects were completed from 2011 to June, 2015 in the Greater Accra, Eastern, Central, Brong Ahafo and Ashanti Regions of Ghana.

Details of individual projects and their respective impact on GWCL's systems and level of service rendered to customers are provided herein.

Koforidua Water Supply Project (Phases I, II & III)

The Koforidua Water Supply Project was undertaken in three phases at a total cost of 51.25 million Euros.

The scope of works included construction of 4.2 million gallons /day (19,200m³/d) water treatment plant, laying and reinforcement of transmission lines as well as improvement and extension of the distribution network for Koforidua and neighbouring villages and New Tafo Water Supply Improvement works. The project has made potable water available to towns such as Okrase, Otoko, Ada, Effiduase, Jumapo, Asokore, Suhyien and all villages along the transmission line from Oterkpolu to Koforidua.

The project was completed in July 2011.

ATMA Rurals Water Supply (North & South of Kpong)

Regarding the North of Kpong works component, the scope of works comprised; construction of 14,000m³/d water treatment plant, supply and laying of transmission pipeline, supply and laying of distribution pipelines.

For the South of Kpong works component, the scope of works comprised; construction of 28,000m³/d water treatment plant, supply and laying of transmission pipeline (59km and 7km of 600mm and 400mm respectively), distribution improvement works (51km of 100mm) and construction of 4No. reservoirs for the south of Kpong component.

The cost of the North and South of Kpong components were US\$19,698,000.00 and €41,029,000.00 respectively. The project commenced in October, 2009 and was completed in October, 2014. Beneficiary areas include those in and around Kpone, Prampram, Old Ningo, New Ningo and Dahwenya. Other settlements to benefit under the project include Michel Camp, Afiencya, Doyum, Kodiabe, Agomeda, Medie, Ayornya, Ayikuma, Menyum, Dodowa, Balawshi, Oyibi, Amrahia, Amanfro, Oshiyie, Frafraha, Abokobi and Pantang.

Also, towns in the Eastern Region including those areas lying along the road from Akrade, Senchi, New Senchi through Atimpoku, Juapong, Frankadua, Apeguso to Aboasa and then from Agomanya, Odumasi, through Somanya to Sra, Ogome, Akorley, Asesieso to Akwamufie, Apirede, Adukrom, Awukugua, Dawu, Akropong, Mamfe, Amanokrom, Mampong, Tutu, Obosomase, Ahwerease, Aburi, Gyankama, Kitase, Berekuso, Peduase and Ayi Mensa are benefiting from the project.

Kwanyaku to Kasoa Interconnection Water Supply Project

The project involved the transmission of water from Kwanyaku Treatment Plant to a reservoir in Kasoa.

The benefit of this project has been the weaning off of Kasoa area from Weiija Headworks thereby freeing about 7 million gallons of water daily into the Accra distribution network to improve supply to the seriously distressed eastern parts of the Metropolis namely East Legon, Madina and Adenta. The project was undertaken at a cost of 12.23 million Euros.

Mampong Water Supply Project

The scope of works comprised; rehabilitation of existing water treatment plant (2,500m³/d) and construction of a new water treatment plant (10,500m³/d).

The project which has improved water supply to areas such as Darmang, Daaho, Basafour, Besease, Kyeremfaso, Krobo, Mpenya, Dadease, Bonkron, Nsuta and Beposo is estimated at US\$23,112,000.00.

Kpong Water Supply Expansion Project

The scope of works comprised; construction of a new 186,000m³/day water treatment plant, supply and laying of new transmission mains from Kpong through Dodowa to Accra and distribution improvement works.

The project which has improved water supply to areas such as Adenta, Madina, Kwabenya, Ashongman, North, East, and West Legon, Ashaley Botwe, Haatso, Boi, Asofaa, Dome, and surrounding areas was implemented at US\$273,000,000.00.

Kpong Intake Rehabilitation and Expansion Project

The scope of works comprised; rehabilitation of the existing Kpong intake station and installation of 15,000m³/d water packaged plant.

The project which has optimized the abstraction of water at the intake station for treatment by the various water treatment plants at Kpong was estimated at €16,570,000.00.

Teshie-Nungua Desalination Plant Project

The scope of works comprised mainly of installation of 60,000m³/d Sea Water Reverse Osmosis (SWRO) plant.

The project which was implemented on a Build, Own, Operate and Transfer arrangement (PPP) commenced in November, 2012 and achieved Commercial Operation Date in February, 2015 at an estimated cost of US\$115,000,000.00.

Under the arrangement, the private developer, Messrs Befesa Desalination Developments Ghana Limited, is expected to sell bulk water to GWCL at a contracted tariff of US\$1.37/m³ for a concessionary period of 25 years. It cost GWCL an additional US\$ 0.2/m³ for the distribution to consumers.

Areas that are benefiting from the project include Teshie, Nungua, Burma Camp, GREDA Estates, Spintex, Baatsona, Sakumono, parts of La-Dadekotopon Lashibi, and surrounding communities. Also, the project has weaned off the above-mentioned areas from Kpong Headworks thereby freeing more than 6 million gallons of water daily into the Accra and Tema distribution network to improve supply to the seriously distressed parts of the Metropolises.

Essakyir Water Supply Project

The scope of works for phase 1 comprised construction of new water treatment plant of capacity 3.2 million gallons per day, supply and laying of 38km transmission mains and distribution network improvement works (15km). The second phase of the project involved distribution pipeline improvement works. The entire cost of the project was €23,490,000.00.

Communities that are benefiting under the project include Ekumfi Otum, Mumford, Dago, Mbroboto, Ekuampoano, Muna, Aboano, Sefara, Esuehyia, Akra, Asaafa, Etwaa, Nakwa, Asokwa, Abeka and Ekumfi Swedru.

Peri –Urban Water Supply Project at Berehum

The scope of works comprised drilling and mechanization of boreholes (506,000 gallons per day), supply and laying of 8.52km transmission and 19.62km distribution pipeline and construction of 41 No. stand pipes. The cost of the project was €1,410,000.00

Kumasi Water Supply Project (Additional Works)

The total estimated cost for the Kumasi Water Supply Project was Euro 13,000,000.00 including Engineering Supervision.

The scope of works of the project included construction of a new 27,000m³ (6million gallons) a day water treatment plant at Barekese, transmission / distribution pipeline improvement works and reforestation.

Five Towns Water Supply Project (Osenase, Apedwa, Anyinam, Kibi and Kwabeng)

The scope of works comprised; installation of water packaged plants at each site (totaling 1.54 million gallons per day) and transmission / distribution pipeline improvement works. The cost of the project was €7,900,000.00.

Wa Water Supply Project

The project entails the construction of a 3.3 million gallons daily treatment plant and transmission and distribution network improvement works.

Communities to benefit under the project include Wa Metropolitan Area, University for Development Studies Campus, Jamgoasi, Kong, Guo, Pase, Dorimon, Boro, Siriyiri, Bamaho, Boli, Buro, Chaira, Kolongo and Kperisi.

The project which commenced in February, 2013 was completed in June 2017. The estimated cost of the project is US\$55.50 million.

Kwahu Ridge, Konongo and Kumawu (3Ks) Water Supply Project

The scope of works comprises; rehabilitation of the Kotoso water treatment plant (WTP) to its installed capacity, and expansion of the Konongo WTP, construction of a new WTP at Kumawu and transmission / distribution pipeline improvement works.

The project commenced in June, 2010 and achieved completion by September, 2016. The cost of the project is US\$252 million.

Nsawam Water Supply Rehabilitation and Expansion Project - Phase I

The project involves the construction of a new 1.7 million per day treatment plant and distribution improvement works.

The project which commenced in 2012 achieved completion in 2015. The cost of the project is estimated at €11.7 million.

Cape-Coast Water Supply Project

The project involves the construction of approximately 19.5km of 500mm Ductile Iron pipeline, construction of approximately 23.5km transmission extensions of 200/315/500mm diameter HDPE pipelines, construction of reservoirs and booster stations. The project is expected to improve the reliability of the reticulation system of Cape Coast.

The project is estimated at 20 million Euros.

Civil and Electro Mechanical Works for the Rehabilitation and Expansion of Breaman Asikuma, Dunkwa - Offin Water, Tamale, Wa, Navrongo, Bawku, Berekum, Kpando, Peki, Aboso, Bogoso, Elubo, Axim, Agona and New Edubiase Prestea and Suhum Supply Systems

The project involves the Construction of a Water treatment plant with transmission, distribution pipelines and mechanization of Boreholes in the selected townships.

The project which was completed between 2014 and 2016 at the various sites is estimated at US\$83.62 Million plus 8.65 Million Ghana Cedis.

Subsequent Year Investment Programme (SYIP) in the Eastern Region

The project involves electromechanical and pipeline works. The project which was completed in 2016 is estimated at 2.29 Million Ghana Cedis.

Pipeline Replacement and Reservoir Maintenance Works

To reduce system losses, GWCL embarked on a number of pipeline replacement / improvement works, storage tanks maintenance works and water treatment plants repair works in several locations nationwide. The cost of the works was GHS9, 910,000.00.

On-going Projects

In our bid to expand our existing systems to meet the water demand of customers and also to reduce system losses and bring it to the minimum allowable loss of 30%, GWCL is embarking on a number of projects with design year of 2025.

Some of the projects are also introducing smart meters to replace the existing metering devices at the various MDAs and high consumptive users' premises which have numerous challenges including accessibility to meters for reading by GWCL and the difficulty to receive payments for water used by the MDAs and other high consumptive users.

Akim Oda, Akwatia and Winneba Water Supply Project

Under the project, a new water treatment plant of capacity 33,000m³/day has been constructed at Akim Oda to serve both Akim Oda and Akwatia. The beneficiary communities under the Akim Oda component include Akim Manso, Atiankama Nkwanta, Aboaboa and Batabi while settlements to benefit from the Akwatia water scheme are Bawdua, Topreman, Bamenase, Ghana Consolidated Diamond Camp, Asubone Camp No 4, Anhwiaso and Moframfadwen.

As part of the project, the existing Winneba Water Treatment Plant will also be rehabilitated to restore it to its original capacity of 3 million gallons a day. The project will serve Winneba Township and surrounding communities including Mpota, Gyahadze, Okyereko, Nsuekyir, Esubonpanyin, Pomadze, Ansaful, Bewadze, Gomoa Mampong, Dagu, Mankoadze, Mprumem, Nkroful, Onyadze, Otsew, Simbrofo, Ankamu and Apam.

The estimated cost of the project is \$164.94 million. The project is substantially completed with minor works to be carried out to allow for commissioning of the project.

Sogakope-Lome Water Supply Project

This is a trans-boundary water project being implemented with the Republic of Togo. The African Development Bank (AfDB) is financing the updating of the feasibility study and Environmental Impact Assessment reports.

The preparatory phase of the project estimated at €2,195,000.00 will enable Togo anchor its water supply from the Volta River at Sogakope, for delivery to Lome. All the towns and villages along the pipe route in Ghana will be supplied with potable water to be produced under the project.

The beneficiary communities include Agordome, Sogakope, Abor, Agbozume, Akatsi, Denu and Aflao in Ghana and Lome and Segbe in Togo.

Greater Accra Metropolitan Area (GAMA) Sanitation and Water Project

The Greater Accra Metropolitan Area (GAMA) Sanitation and Water (GAMA) Project is being undertaken through the Ministry of Local Government and Rural Development (responsible for sanitation activities) and Ghana Water Company Limited (responsible for water supply activities). The aim of the project is to increase access to improved sanitation and water supply in the GAMA, with emphasis on low income communities.

As part of the project, the existing water supply master plan for GAMA will be updated to guide future operations and infrastructure developments. Also, the water distribution network in the GAMA will improved and expanded in order to provide piped water to people living some selected low income communities in particular and GAMA in general.

Telemetry and SCADA systems will be installed to remotely manage the water supply network and also to reduce system losses.

The water supply activities which are directly under the mandate of GWCL is estimated at 48.1 million United States Dollars and expected to be completed by December, 2019.

Pipeline Replacement, Reservoir Maintenance and Water Treatment Plant Repair Works

To further reduce system losses and also sustain production at our water treatment plants, GWCL embarked on a number of pipeline replacement / improvement works, storage tanks maintenance and water treatment plants repair works in several locations nationwide. The cost of the works is GHS18.5 million Ghana Cedis.

The works are at various stages of completion.

Planned Projects

There are a number of projects at various pre-construction stages and they include the following;

Kpong Water Supply Rehabilitation and Expansion Project – Phase II

It will involve the development of 186,000m³/d water treatment plant at Kpong to serve Accra and Tema metropolises. Works Contract has been signed with Messrs China Gezhouba Group of Companies. Funding is currently being sourced for the project.

Asutsuare (DBFOT) Water Supply Project

It will involve the development of 360,000m³/d water treatment plant on PPP basis by a private developer, Messrs Denwater of Belgium. The project is far advanced in negotiations and a viability gap fund has been transmitted to Government for their review and support.

Damongo Water Supply Project

It will involve the construction of 4,500m³/day water treatment plant and pipeline improvement works in Damongo. Works contract has been signed with Messrs Sunir of Iran and Messrs UEM of USA. A number of other investors have also expressed interest in the project.

Sunyani Water Supply Project

It will involve the construction of 105,400m³/day water treatment plant and pipeline improvement works in Sunyani. Works contract has been signed Messrs China Water and Electric (CWE) Corporation of China. Funding is currently being sourced for the project.

Techiman Water Supply Rehabilitation and Expansion Project

It will involve the rehabilitation of the existing water treatment plant and construction of a new 10,500m³/day water treatment plant in Techiman. A number of firms have expressed interest in the project.

Sekondi – Takoradi Water Supply Rehabilitation and Expansion Project

It will involve the construction of 100,000m³/day water treatment plant and pipeline improvement works in Sekondi-Takoradi. Works contract has been signed Messrs SINOMACH of China. Funding is currently being sourced for the project.

Cape Coast Water Supply - VRA Thermal Plant Additional Works Project

It involves the supply and installation of 16km pipeline from Sekyere Heman in the Central Region to Aboadze Thermal Plant in the Western Region. Works commenced but

has stalled as a result of funding constraint. Financing is still being sought to continue the outstanding works.

Addendum to Kumasi Additional Works Water Supply Project

It will involve pipeline improvement works to improve the primary reticulation system in Kumasi. Works contract has been signed. Funding is currently being sourced for the project.

Essiama Enclave Water Supply Project

It will involve the construction of 50,000m³/day water treatment plant and pipeline improvement works in Essiama and its environs. Works contract has been signed Messrs CMCEC of China. Funding is currently being sourced for the project.

Nationwide Water Network Management Enhancement Project

It will involve the Supply of GIS/NRW/HYD Hardware and Software equipment leading to the establishment of GIS offices in 9 Regions of GWCL. The project will also Supply and install Leak Repair Material and water meters. Funding is being sourced from Unicredit of Austria.

Other Initiatives

New District Offices/Customer Service Centre

In order to bring services closer to customers and improve efficiency in service delivery, steps have been taken to split hitherto big districts into smaller and manageable units with full complement of staff and office and operational support equipment. The table below refers.

Region	No. of Districts (Previous)	No. of Districts (Now)
Accra East	6	10
Accra West	6	10
Tema	6	11
Central	6	10
Ashanti North	6	9
Northern	4	6

Management has opened more revenue collection points and electronic collection media for ease of payment of bills by customers. Apart from the company's own collection points manned by GWCL staff, management is also engaging more third party collectors to collect payments on its behalf.

E-Billing

The old billing software that had so many human interventions has been replaced by new electronic billing software where customers receive their bills via e-mails and SMSs. Late

and non-submission of bills will be gradually eliminated. The electronic billing has introduced:

- Software as a service
- Cloud based billing system (SMS and Emails)
- Meter reading and monitoring applications
- Call Centre Management
- Customer /User application
- Point of Sale Application
- The customer billing is linked to customer location

E-Payment

One major challenge with the existing payment procedure was that bill payments take at least 28 days to reflect on customers' bills. Where payments are made in other regions or districts, it takes a long time to be reflected in customer accounts. With the rolling out of the electronic payment system, a (VPN) Virtual Private Network has been created through which all payments made outside GWCL can be collected and monitored. Payments could be made through

- Authorized Private Collections
- Partnered banks (GCB; ECOBANK; SG-GH BANK; PRUDENTIAL; ACCESS)
- Mobile Money (MTN; VODAFONE; TIGO/AIRTEL;
- Others like –Slydepay; E-tranzact; Expresspay
- Visa Cards; Chinaunion Pay and Verve.
- Point of Sale devices(POS)

The transition to e-billing hinges strongly on the use of mobile applications. The mode of reading meters, payments and monitoring are all done through mobile applications. The under listed android based applications have been developed and are being improved to suit the changing needs of the company:

MOBILE APPs

- Customer Registration App(e-register)
- Meter Reading App(e-reader)
- Management App(e-manager)

- Disconnection/Reconnection App(e-disc)
- Customer App

WEB BASED APPs

- Web Portal
- New Service Connection App

Minor Mains Extensions

To be able to extend services to unserved areas, the company is undertaking rigorous mains extension projects country wide.

Repair, Replace and Rehabilitate Infrastructure

GWCL is also investing heavily in repair of our aged electro-mechanical equipment to enhance the reliability of water supply delivery.

Low Income Consumer Services

To enable it deliver on its mandate of serving all urban consumers, there is the need for GWCL to formulate and implement strategies specifically aimed at extending services to low income citizens. These consumers, most of who are without direct access to the utility, end up paying several times more than what it would cost them to receive water from GWCL. They therefore constitute a huge market, hence the need for the company to re-position itself to serve them. To be able to formulate the appropriate strategies, there is the need to understand the needs of these consumers, by ensuring that the particular needs of the lower-income segment of water consumers are considered in policy-making, investment planning and on-going operations. By so doing, GWCL will also meet other economic, health and social considerations by government and sector stakeholders

To strengthen Ghana Water Company's Limited's ability to deliver water supply services to low income customers, the LICSU has been established to ensure a more reliable, more affordable and safer water services to poor consumers. Specifically, the LICSU is tasked with defining and implementing policy and oversight in relation to water supply to low income urban consumers.

GWCL through LICSU is working with partners like Vitens Evides International (VEI), Water and Sanitation for Urban Poor (WSUP), the Football for Water (F4W) Programme, local NGOs, the World Bank, etc. to deliver sustainable Water Sanitation and Hygiene (WASH) services to Low Income communities and schools. Progress made in recent years includes the following:

Water supply has been extended to the peri-urban poor at Acherensua in the Brong-Ahafo Region. The project serves more than 9,000 low income consumers through the construction of a 50m³ high level storage tank, the extension of 2km 100mm distribution network and the construction of 10 standpipes. A community training and sensitisation in water management, sanitation and hygiene issues also formed a major component of the project. GWCL is also investing in minor repairs at the treatment plant, extension/replacement of the distribution network by 2km and investments in additional 10 standpipes to increase access to safe water for additional 3,000 people. In addition, the water quality and drinking water access will improve.



The high level tank in Acherensua



A vendor standing beside a standpipe

GWCL working with WSUP also delivered a water supply project to the urban poor at Fiapre Zongo community in Sunyani, Brong-Ahafo region. This project has improved upon water supply to more than 9,000 low income consumers through the following activities: The Drilling and mechanisation of 2No. boreholes; the construction of 5No. water kiosks with metered standpipes for monitoring water sales. Similarly, a community training in water management, sanitation and Hygiene was done.

- Setting-up WASH (Water Sanitation and Hygiene education) infrastructure and football pitches for some selected schools. The project has improved on WASH to more than 2,800 pupils and teachers in the Sakasaka cluster of schools in the Northern Region, 4,021 in Elmina in the Central Region, and more than 5,200 in the Gbawe cluster of schools in the Greater Accra Region.
- extension of water supply to Adukrom and Akorem in the Ashanti region, and laying of 12.8km distribution network and construction of 250m³ high level concrete water tank, and construction of 640 no. metered house connections and 39 no metered standpipes which will be operated by private vendors.



Two of the toilet facilities constructed at the Gbawe cluster of schools in Ga South in the Greater Accra Region



Wash hand basins inside the toilets



A toilet seat



A pupil washing his hands at the
Sakasaka Cluster of Schools in Tamale

The goal of the Low Income Customer Support component of the GAMA Sanitation & Water Project is to develop scalable innovative service delivery mechanisms and models that will promote equitable and affordable access to water supply for the selected low income communities in the GAMA area. Under the GAMA Sanitation and Water Project, GWCL is implementing the following:

Reducing the cost of new service connections for customers and expediting new connections by setting-up temporal offices to carry out the connections of prospective applicants/beneficiaries.

Collaborating with participating Metropolitan, Municipal Assemblies (MMAs) and the Local Government Project Coordinating Unit's (LGPCU) to strengthen partnerships and mainstream lessons into water services delivery at local level;

2.2 Compliance with Directives of the Commission

GWCL has made itself available to PURC for discussion on pertinent issues related to the provision of water supply services. We have also complied with directives issued by PURC and enjoyed a very cordial relationship.

In 2015, GWCL launched its Consumer Charter as required by PURC. The purpose of the charter is to provide customers with a clearer understanding of what they can expect from GWCL and what their responsibilities towards the provision of the water services are.

PURC also approved non-tariff charges for GWCL in 2015.

We look forward to further strengthening this collaboration and partnership that exist between GWCL and PURC.

3 Key Policy Issues for Tariff Consideration

On-lending of Grants and Loans by MoF:

As has been noted, Government now requires GWCL to meet the exchange rate depreciations, various loans and their accompanying interests repayments through tariffing which was previously not the case. PURC should therefore note and ensure that such costs are covered.

Another paradigm shift in the economic policies of the Government is that it is no longer going to borrow monies on behalf of GWCL. It expects GWCL to either borrow its own funds directly, or explore Public Private Partnership (PPP) option. As a result of the change in Government's policy on external borrowing, PPP is currently being promoted for the development of infrastructure including water supply systems. There is therefore the need for adequate funds to meet such required investments.

Abolition of CDCH

Since the beginning of 2014, MoF abolished the Cross Debt Clearing House (CDCH), and directed MDAs to make budgetary provision for payment of utility bills. Since this directive was given, payments by the MDAs have been very poor.

Pro-Poor Considerations

Pro-poor pricing should be designed to ensure that the poor have access to utility services at an affordable price. A pro-poor tariff which would require households to meet certain criteria to be eligible could be considered. This tariff system is necessitated by the large number of low-income dwellers who share connections as a result of the nature of housing (compound housing).

A Social Connection fund dedicated to subsidizing low income service, usually for the extension of pipelines and new service connections to the utility's mains could be considered

4 Proposed Service Delivery and Efficiency Improvements During Tariff Period

In pursuit of our mission to supply adequate safe and reliable potable water to the urban population of Ghana, GWCL has set the following broad objectives:

- To ensure the Adequacy, Reliability and Quality of our main product of drinking water
- To ensure the Financial Sustainability of the company
- To improve on Customer Service and Branding
- To improve on HR Capacity

4.1 Service Delivery and Efficiency Targets

Performance indicator	2018	2019	2020	2021	2022	2023
NRW %	52.82	45.97	45	45	45	45
Resolution of complaints-commercial (hrs)	1	1	1	1	1	1
Resolution of complaints- Technical(hrs)	24	24	24	24	24	24
Resolution of complaints- Water quality(hrs)	24	24	24	24	24	24

The above table provides Service Delivery and Efficiency Targets which are now briefly discussed.

Non-Revenue Water Reduction

The global volume of non-revenue water is staggering, especially in developing countries. According to a World Bank study (2006), nearly 45 million cubic meters of water is lost daily from leakage in developing countries (which is estimated to be enough to adequately serve nearly 200 million people). Close to 30 million cubic meters of water is also delivered every day to customers but not paid for, because of metering inaccuracies, theft, and corrupt practices. These losses cost water utilities approximately USD \$6 billion every year (World Bank, 2006). In Africa, NRW figures ranging from 5% (Saldanha Bay, South Africa) to 70% (LWSC, Liberia) have been reported (WSP (2009)).

GWCL had over the years recorded significantly high non-revenue water averaging about 50%. In an attempt to improve upon its efficiency, a five-year Management Contract was signed between the GWCL and Messrs Vitens Water Company of the Netherlands and Rand Water Services of South Africa in October 2006 leading to the establishment of a special purpose company: Aqua Vitens Rand Ltd (AVRL). One of the key results expected under the Management Contract was the reduction of non-revenue water. The contract required that the Operator (AVRL) reduced the levels of non-revenue water by 5% annually to about 25% by the end on the contract. However, by the close of contract in 2011, NRW was still at an average of 50%.

In order to reduce NRW, significant efforts, both in terms of technical assistance and funding, needed to be mobilized by utilities, governments and investors to reduce the losses. GWCL has lost appreciable quantity of water over the years due to old and weak transmission and distribution pipe lines. We have made various attempts to curb water losses yet our efforts yield only marginal result because huge investment is required to replace and rehabilitate the pipelines and procure meters to replace the obsolete ones.

With diminishing water resources, increasing costs of producing water, high rates of infrastructure deterioration, inadequate investment budgets, and increasing pressures from urbanization, the NRW problem is likely to be compounded in the future. GWCL has no option but to use water resources more efficiently by reducing water losses in the distribution systems and ensuring sustainable service delivery and financial viability.

In 2016, GWCL formally established NRW sections at the Head Office, Regional and District levels. However, these sections have not been manned with dedicated staff. Manning will be done in the coming months. The responsibilities of the Sections include:

- Coordinating all NRW reduction activities in GWCL
- Systematically develop NRW reduction strategies and Performance Improvement Plans for the various regions
- Undertake active leakage control
- Implement pressure management
- Implement the Creation and operation of District Metered Areas (DMA)
- Guide, advocate, facilitate, harmonise NRW reduction initiatives throughout GWCL,

The three ATMA Regions and the two Ashanti regions contribute 80% of the reported water loss of the company. More resources will therefore be allocated to these regions to manage NRW. GWCL will continue with the following initiatives in the period:

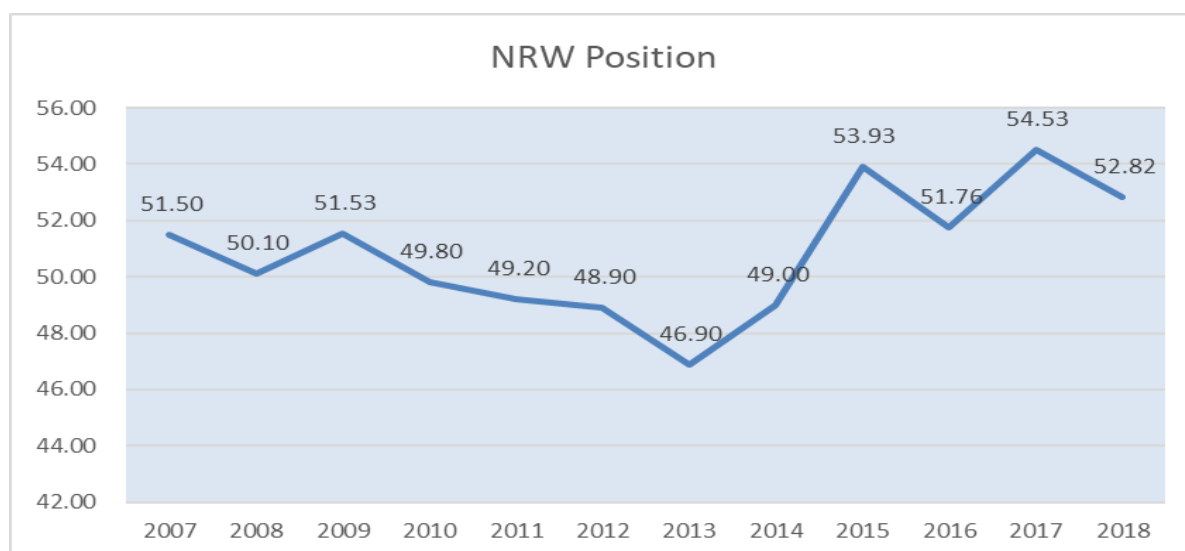
- Deploy dedicated staff to man the NRW Unit in the ATMA and Ashanti Regions and Districts
- Operationalise the network model for GAMA
- Meter ATMA Regions
- Meter ATMA Districts
- Implement telemetry in ATMA
- Implement Active leakage programme in ATMA
- Institute annual production meter calibration in ATMA and Ashanti Regions
- Create 10 DMAs in Accra East Region
- Create 10 DMAs in Tema Region
- Institute field testing of customer meters in ATMA Regions
- Upgrade the two meter shops in Accra and Kumasi
- Procure and install 100,000 smart meters in ATMA
- Meter Ashanti Regional boundaries
- Meter Ashanti District boundaries

For the other regions, the following initiatives will be undertaken:

- Revive 10 DMAs in Eastern Region
- Revive 15 DMAs in Central Region
- Revive 10 DMAs in Northern Region

Other general initiatives which will be undertaken include:

- Replace 50,000 meters annually
- Develop and implement android leakage reporting System
- Finalize and institutionalize metering policy
- Document internal controls regarding Water loss
- Periodic Customer Surveys



The company's performance in reducing NRW over the years is shown in the chart above. In subsequent years we have targeted to reduce Water Losses to the PURC threshold of 45%.

It can be seen that NRW was progressively reduced between 2009 and 2013. The three capacity expansion projects which were completed in the latter part of 2014 in ATMA largely accounted for the higher NRW in 2014 and 2015. As noted above, GWCL has taken the necessary steps to stem the tide.

Complaints Resolution

Most complaints categories include billing related issues, Technical related issues, Quality of product, Meter related issues, Illegality and Customer Care. The table below shows details of complaints.

GHANA WATER COMPANY LIMITED
PROPOSALS FOR REVIEW OF AGGREGATE REVENUE REQUIREMENT AND TARIFF

BILLING		2015	2016	2017	2018
Frequency of billing	#/year	12	12	12	12
Frequency of meter reading	#/year	12	12	12	12
Payment period after bill delivered	days	14days	14days	14days	14days
NUMBER OF COMPLAINTS	#	16,040.00	18,430.00	50,749.00	97,888.00
Billing	#	2354	2897	12005	25867
Un-reflected payments	#	3446	3927	13430	24324
Quality of water	#	271	124	224	120
Wrong disconnection	#	1220	1235	1540	10450
Metering reading errors	#	1769	1890	6980	12540
others	#	6980	8357	16570	24587

The Communication Department will be resourced to effectively drive user friendly communication models to educate the public and project the GWCL brand. This is very crucial in getting a positive corporate image. With this view, GWCL will work to win the understanding and sympathy of the company's publics. The main focus areas are customer relations, stakeholder and corporate identity, and community and employee relations.

The public will continuously be educated on their roles and responsibilities as per the customer charter.

GWCL will draw up sensitization programmes to inform the public of the new projects and the benefits that they will gain from them.

4.2 Technical / Operating Performance Indicators/Indices

Performance indicator	2018	2019	2020	2021	2022	2023
Capacity utilization (%)	66.9	66.5	66.6	66.7	66.7	68.2
Water produced/GWCL (Mm3)	316.1	316.7	319.2	319.3	319.4	342.8
Water produced Desal (Mm3)	9.5	9.5	9.5	9.5	9.5	9.5
Water quality,% compliance	95	95	95	95	95	95

Raw water

The key challenges to water resources management are several, and include rainfall variability (Climate change, drought, flood), illegal mining activities (precious mineral, sand winning, etc), rapid population growth, river pollution (agricultural activities close to the banks of the river course, aquaculture, and water plants, untreated waste water dumping, release of hazardous chemicals, etc), siltation.

The growing menace of small scale illegal mining activities (locally known as Galamsey) has had adverse effects on water production at a number of our stations including Kibi, Osino, Anyinam, Bunso, Daboase, Obuasi, and Sekyere Hemang. In 2016, Nsawam, Konongo and Winneba had their sources drying up. Inchaban also experiences periodic drying up of the sources.

The Company will continue with the following strategies as part of the activities to overcome the challenges in order to achieve the stated goals.

- 1) Strengthening of the Water Resources Department to achieve its mandate – secretarial and supporting staff
- 2) Using existing planning documents to assess raw water adequacy and other measures to meet year 2030 demands.
- 3) Mapping out potential sources of pollution and sedimentation for the larger systems
- 4) Assessing the dredging requirements of selected intakes and providing technical assistance for the regions to carry out works

- 5) Advising on efficient use of the water resources during the year in drought- or flood-prone systems period in conjunction with other departments
- 6) Working with stakeholders (including health officials, traditional rulers, EPA and other departments and Ministries) in meaningful raw water protection and preservation, GWCL will develop a model of continuous education on the ill effects of river pollution (through illegal alluvial mining and deforestation) to the local populace.
- 7) Cooperating with international water partners from Burkina Faso, Cote D'Ivoire, and Togo in management of riparian water resources
- 8) Capacity building through training to help the department use modern strategies to countenance pollution of rivers and other sources of raw water.

Treated water quality

In order to improve the capacity of the company to meet increasing water quality challenges and to boost consumer confidence, the Accra Central Laboratory will be upgraded and equipped to a state-of-the-art status. It will also serve as a reference laboratory to the other regional laboratories. The other regional laboratories will also be equipped with modern equipment and new technologies to effectively monitor and manage water quality and water treatment challenges. The systems laboratories will also be similarly upgraded. This action will be preceded by auditing the laboratories to determine the adequacy and suitability of existing infrastructure, equipment, personnel, and other logistics in the regions for decision making. In particular, vehicles will be provided to improve the frequency of treated water sampling in the distribution network.

The Company will pursue the Certification and Accreditation of GWCL's Laboratories. Laboratory accreditation provides a benchmark for performance, a range of marketing advantages, and gives national and international recognition of technical competence. It also increases confidence in data that is used to establish baselines for key analyses and decisions. Furthermore, it reduces uncertainties associated with decisions that affect the protection of human health and the environment, and increases public confidence, because accreditation is a recognizable mark of approval.

Water Safety Plans will be developed and implemented for all water treatment plants nationwide. This will offer GWCL the opportunity for risk identification, assessment of control measures and the improvement plans necessary to ensure water safety from catchment to the consumer's tap by all stakeholders.

Recruitment of water treatment staff will be reviewed to meet our operational and administrative goals at all times. The current mode of recruiting the WASSCE holders will be reconsidered. Personnel with basic qualification and background in laboratory skills (Science Laboratory Technician, Part I) will be recruited to enhance performance.

Standard Operating Procedures (SOPs) for key components of water treatment plants will be developed and implemented. Development and implementation of SOPs will go a long

way to enhance general plant performance, for example, reduction in the frequency of filter rehabilitation and maintenance. SOPs will also be developed for all equipment, and other Laboratory Protocols

Studies to identify emerging trends and techniques for developing cost effective methods in water quality assurance will be conducted. Waste water from all water treatment systems need to be treated before discharging to ensure environmental compliance and prevent recontamination of our source waters. To this end, all WTPs will be upgraded to include well-functioning sludge beds

Efficient water treatment chemical dosing facilities will be procured and installed to replace obsolete and inefficient chemical dosers.

Key suppliers of chemicals will be encouraged to keep strategic reserves locally to be able to promptly respond to increased demand or avoid shortage of the chemical. This will guarantee un-interrupted supply to meet water production.

Reserve Accounts for key Operational Procurements such as water treatment chemicals, Electro-Mechanical Parts, Pipes and Fittings; and Customs Clearance and Haulage will also be created to ensure availability of these critical inputs. However, this will be evaluated and driven by budgetary allocation together with our operational and administrative critical needs

Treatment plant operations

Customers want water as and when they need it. In order to ensure that water production is stable throughout the period, GWCL will carry out periodic technical audits of the production and distribution systems to identify snag items for prompt remedial action. By repairing broken equipment and making stand-by equipment and critical spare parts available at the production stations, the capacity utilisation can be maintained or improved.

All productions stations will prepare annual maintenance programmes, and will be monitored by H/O for strict compliance. The maintenance program must ensure that downtime attributable to electromechanical breakdowns are kept at a cumulative maximum of 24 hours in a month.

Security at our production stations will be assured by collaborating with the National Security Agencies.

4.3 Financial Performance Indicators/Indices

Performance indicator	2018	2019	2020	2021	2022	2023
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GHANA WATER COMPANY LIMITED
PROPOSALS FOR REVIEW OF AGGREGATE REVENUE REQUIREMENT AND TARIFF

Operating Cost /per authorized consumption (GHC/m3)	13.43	14.50	14.44	14.66	14.86	15.14
Chemical cost/m3 (GHC/m3)	0.1621	0.1365	0.1559	0.1746	0.1954	0.2094
Electricity/m3 (GHC/m3)	0.7488	0.7749	0.8853	0.9912	1.1097	1.3661
Labour productivity(GHC/fte)	274,161	271,205	273,333	275,538		
Operating ratio (%)	89.5	88.2	100.0	116.81		

Operation Cost

The Operating cost of the company is increasing with time. This is due to reasons elaborated earlier, which include GoGs new policy on Grants and Loans contracted for or guaranteed for Projects; the relatively high bulk supply tariff which has to be paid to Messrs Befesa; the rising cost of energy; and the rapidly depreciating value of the cedi.

The Company will however continue in its efforts at cost optimization. Some of these initiatives include the following:

Optimizing chemical usage

Reducing the chemical costs will be made possible by continuing the replacement of faulty and broken dosing equipment at the production stations. Chemical dosing will be done at all stations to ensure that dosing is more efficient. This will reduce the chemical usage.

Secondly the WQA Department will undertake studies to identify emerging trends in water treatments, water treatment chemicals, and techniques for developing cost effective methods in water quality assurance.

Reducing power consumption

Periodic Energy Audits will be carried out with the aim to reduce energy consumption. All faulty and energy inefficient equipment so identified will be replaced. Selection and timing of which equipment to replace will be prioritised based on cost benefit analysis.

A review of all energy consumption areas will take place focusing on where the power factor is low and thereby incurring cost. Where necessary power factor correction equipment will be procured and installed. Through the reporting system, power factor will then be monitored on a monthly basis and where necessary corrective action undertaken.

Existing procedures of the verification of electricity bills in the Regions and the reporting of all energy consumed will be strengthened. The implementation of the electronic

reporting system will be strengthened as this also checks the calculation of consumption on the bill.

A review of operating procedures, including start up procedures will be undertaken at all the major energy consumption areas.

Obtaining Value for Money in procurement

GWCL will continue with the implementation of the following strategies to ensure that the company obtains value for money in its procurement and stores functions:

- Introduction of framework contracts for common user items such as water meters and stationery, with the aim of standardizing across the company to ensure quality and to obtain quantity discounts and thereby reduce total acquisition costs.
- Acquisition of new handling equipment and vehicles for efficient operations at the Central Stores to improve turn-around times for the loading and off-loading of goods.
- We will ensure efficient customs clearance and transportation of goods at the port devoid of delay and demurrage by stimulating competition among clearing agents and haulage companies.
- Provision of security cameras (CCTV) at central stores and other key storage points to prevent theft and pilfering.
- Reduce evaluation and approval timelines for chemicals and other items from the baseline period of 45 days to 20 days by 2020.

Reducing cost of Public announcements

The use of Public Address (P.A.) systems to send information to the public will continue to be encouraged in all the regions as against making radio announcements. The use of bulk short messaging service (SMS) and social media to send information to customers would also reduce cost of sending information via the electronic media. With this, several customers can be reached directly at a very low cost. Furthermore, the company will increase the use of press releases as against announcements and this will ensure that several media houses use the information and also give an opportunity to PR managers to grant interviews and educate the public

Budgetary Control

Other cost control measures that will be implemented include the following:

- Budgetary control and monitoring & tracking
- Adherence to budgetary control and operational mandates
- Prompt releases of adequate operational mandates for smooth running of the regions & units

- Roll out and full implementation of the Enterprise Resource Planning (ERP) Programme (Ebiz Frame) throughout the country to minimise cost of information flow by eliminating inefficiencies and improving the timelines and quality of reporting such as consolidated financial data, monthly variance analysis and quarterly forecasting.
- Use of electronic means of correspondence as far as possible to minimise the cost of stationery.

Labour Productivity

At the end of September 2017, the total staff strength was Four Thousand, Three Hundred and Fifty-two (4,352). This was made up of Three Thousand, Nine Hundred (3,900) regular staff representing 89.6%. The total number of non-regular staff was Four Hundred and Fifty-two (452).

The total number of regular senior staff was Six Hundred and Eighty-five (685) representing 17.56% while regular Junior Staff stood at Three Thousand, Two Hundred and Fifteen (3,215) representing 82.4% of the total regular staff.

Management anticipates to improve upon labour productivity by 12.2% in 2018 over 2017 (GHS/fte 240,704) through innovative ways of increasing revenues and efficiency of staff).

4.4 Commercial Performance Indicators/Indices

4.5

INDICATOR	2017	2018	2019	2020	2021	2022	2023
Water Sales (m3)	140,624,635	150,808,947	171,305,381	175,538,336	175,588,172	175,653,260	188,538,989
Private Billing (GHC)	729,369,809	781,373,199	882,101,552	903,200,766	918,457,186	918,792,085	985,093,273
MDAs Billing (GHC)	157,724,413	165,551,152	182,741,310	186,223,162	186,276,031	186,345,081	200,015,150
Private Collection (GHC)	651,613,706	695,422,147	837,996,475	858,040,728	872,534,326	872,852,480	935,838,609
MDAs Collection (GHC)	17,889,329	19,866,138	173,604,244	176,912,004	176,962,230	177,027,827	190,014,393
Private Collection Ratio %	89.34	89.00	95	95	95	95	95
MDAs Collection Ratio %	11.34	12.00	95	95	95	95	95
Total Collection Ratio %	75.47	75.54	95	95	95	95	95
Customer Strength No.	629,273	655,296	684,319	712,342	740,365	768,388	796,411
Billed Customers No.	469,369	507,676	512,785	553,670	577,254	600,843	624,435

Water Sales and Billing

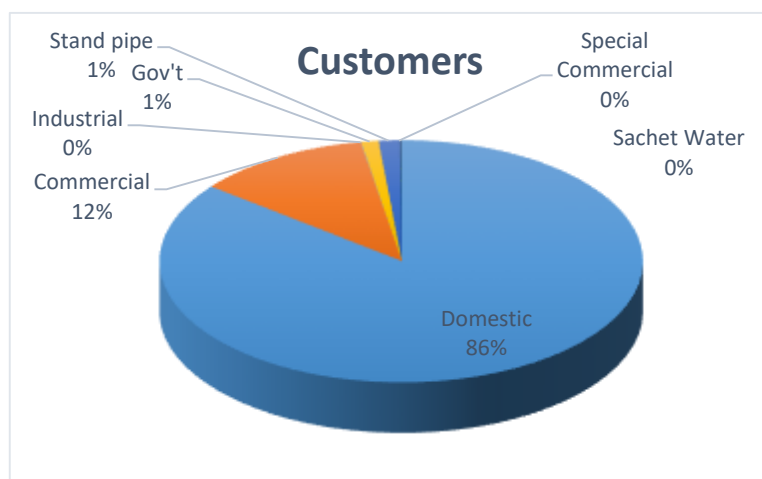
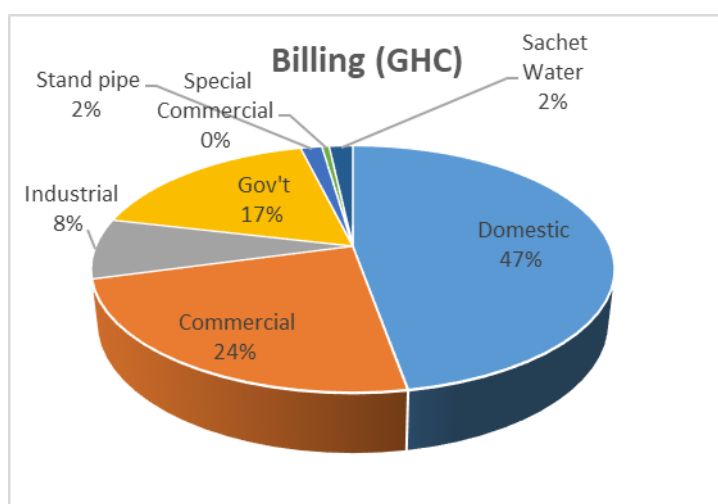
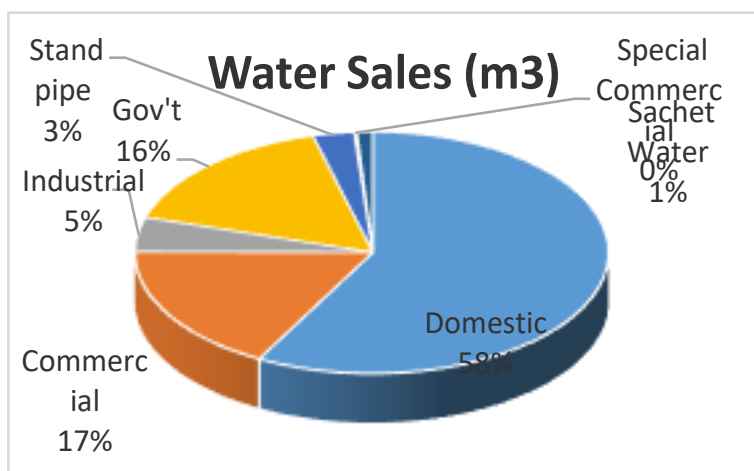
Categorization

Domestic Customers constitute 86% of total customer strength whilst in terms of sales volume it is 58%, it contributes only 47% of total billing.

Lifeline

Some domestic customers enjoy the lifeline. This constitutes about 12% of the total water consumption.

GHANA WATER COMPANY LIMITED
PROPOSALS FOR REVIEW OF AGGREGATE REVENUE REQUIREMENT AND TARIFF



Water Sales

The customer meter is an essential tool for measuring water consumption and should be as accurate as possible. It is the ‘cash register’ the company uses.

A new metering policy has been prepared and adopted. Among others the policy seeks to ensure that measured consumptions are as accurate as possible. The meter shops will also be re-equipped and modernized, and the metering ratio will not only be increased from the current 79% to 100%, but there will be a strategic shift towards smart metering technology by the end of the period.

Data integrity is crucial to planning and development. As such, customer survey (mapping) exercises, which involve providing a new geo referenced customer database, will be rolled out in all regions of the country. The survey will serve to identify all customers (billed and unbilled, in order to clean up the customer database and increase customer traceability), and to identify any illegal activities or visible leakages

The New Service Connection policy is being reviewed to make it more customer-friendly and thereby eliminate wastes and losses that the implementation of the policy brings about. It will minimize all perceived barriers and lead to connections being effected within one week after payment.

A New Customer App for new service connection has been developed and deployed. This will enable customers to apply for new service on-line.

Currently, bills are sent to customers electronically through sms and emails.

Collection

To achieve the target of a maximum accounts receivable of 25% of the annual billed amount amongst others, revenue collection efforts will be intensified. All accounts will be closely monitored to ensure that no customer owes more than three months of water consumed.

As mentioned earlier, payment applications have been deployed by GWCL and its Bankers through which customers can make payments from their laptops and mobile electronic devices. The beauty of it all is that payment of bills can be made by and for any customer in any part of the world.

Defaulting customers will be disconnected promptly to minimize the build-up of arrears. Follow up action on the disconnected customers will be undertaken to ensure that the disconnection has been effectively done, the customer has not been illegally re-connected and the arrears paid.

Legal action to recover arrears from recalcitrant customers will be undertaken as a last resort. Customers will be motivated to pay their bills through public education and instituting reward schemes for loyal customers.

5 Key Challenges Likely to Impact Service Delivery

5.1 Electricity Supply

Our operations have been hampered by power outages, and voltage fluctuations. Since the company depends on power from national grid, such interruptions should be reduced to the barest minimum. Given the nature of our operations, power interruptions means that customers at the tail end of the distribution networks and on high elevations are deprived of their supplies. In recent times however, power supply has generally been more stable.

GWCL will implement a permanent solution to deal with the problem of voltage fluctuations by installing dedicated power connection to our production stations.

5.2 Energy Consumption-Production Plants Electricity Usage

Energy is by far the highest cost element in our cost build-up, rising from about 21% in 2010 to about 32% in 2018. This puts a lot of pressure on GWCL operations, if adequate measures are not put in to cushion us.

Even though GWCL is exempt by law from payment of taxes and other levies, we have been paying VAT and NHIL on energy supplied by ECG. It is therefore necessary for GWCL to be adequately compensated in this regard.

5.3 Availability of Chemicals and Laboratory Reagents

The company imports Aluminium Sulphate, Poly-electrolytes, Hydrated Lime, liquefied Chlorine gas, Calcium Hypochlorite, Potassium Permanganate, and Activated Carbon for water treatment. In order to ensure that water quality from source to end-user meets standards specified by the GSA, the company also procures laboratory equipment and reagents.

GWCL ensures that it always has sufficient stock of chemicals for water treatment and reagents for water quality testing.

5.4 Breakdown of Production Facility

In view of the old age and obsolescence of some of our production facilities, they are prone to breakdowns, even though the company carries out routine preventive maintenance as required. Because the tariff is inadequate, the company is unable to stock adequate spare parts and other replacement parts.

When the current tariffs are adjusted as required, GWCL will carry out all the needed repair, rehabilitation, and replacement of the key production facilities to improve on plant availability and consequently the reliability of water supply to our customers.

5.5 Expansion of Production Capacity

The company operates about 90 water supply systems, most of which operate below their installed capacities due to the age of the equipment and plants. Generally, water infrastructural growth rate has not kept pace with economic and population growth, thereby making it impossible to satisfactorily serve customer needs adequately.

However as has been noted earlier, GWCL has undertaken a number of capacity expansion projects, in an effort to ensure adequate and up-to date water systems to meet the demand for water supply in the urban / peri-urban areas of the country,

5.6 Production Losses

Production losses include water used for backwashing, de-sludging, etc, at the production station. GWCL has maintained such losses within the industry standard of 5-10% over the years. The Company will carry out the needed maintenance to ensure that this high standard is maintained during the period.

5.7 Metering and Accounting

Some of the production stations have no working meters to measure the volume of water produced. At such stations, this is estimated using the rated pump deliveries. GWCL is in the process of installing (or replacing) electromagnetic production meters at all production stations so that volumes produced at all stations can be more accurately determined. When this is done, NRW can be calculated with a lower error margin.

The customer meter is the “cash register” for the company. Currently the metering ratio of the company is about 79%. Some of the meters are also aged, and are suspected to be under-registering, leading to loss of revenue. GWCL therefore intends to improve the metering ratio to 100% by 2020. Routine calibration of the customer meters will also be carried out.

The company is deploying smart metering technology where customers’ consumptions will be monitored in real time. Under the GAMA Sanitation and Water project which has been referred to earlier, a hydraulic model of the ATMA distribution network has been developed to improve on the management of the network.

5.8 Billing and Collection

Abolition of CDCH

As has been noted earlier, the abolition of the CDCH system, coupled with the refusal of the MDAs to pay their bills, has adversely affected the company. Collection ratio for MDAs is currently about 12%.

5.9 Organizational Reform and Restructuring

Internal Reforms

Management in 2015 took a giant leap to turn the fortunes of the company around in a 100-day transformation project dubbed “High Impact Performance Improvement Programme”. This culminated in the signing of a Memorandum of Understanding (MOU) between the Ministry of Water Resources Works and Housing and the Board of Directors of GWCL who in turn signed an MOU with the Managing Director. The Managing Director also signed an MOU with all the Departmental Heads and the various Regional Chief Managers. The Regional Chief Managers in turn signed MOU’s with their respective

District Managers. In summary, the 100-day transformation programme was anchored on performance improvement within the short term as a transformation plan and establishing the foundation for sustainable future service delivery. The programme was aimed at addressing critical challenges faced by GWCL and greatly improving the operations and management of the utility.

The programme, which started from April 1 and ended on June 30, 2015, has boosted staff morale, led to a remarkable improvement in revenue generation and changed the work culture of staff entirely. This is because it provided reward and penalty mechanism for performance improvement and failure respectively. Members of staff who achieved their set targets were handsomely rewarded accordingly.

Following the successful completion of the 100-Day Programme, a successor 180 day programme dubbed “SHIP 180-Sustaining High Performance” was launched on July 24, 2015 with the signing of addenda by all the parties who signed the initial MOU. Similar successor programmes have been implemented in 2016, 2017 and 2018. GWCL intends to roll out similar programmes in subsequent years. The reform programmes have reward and sanction mechanisms which go a long way to motivate all staff to give of their best to put the company on sound financial footing.

Having achieved all these, it was expected that the government would complement the efforts of GWCL management by putting in place measures that would make the MMDA’s which owe the company huge sums of monies to pay their bills. However, due to the directive by cabinet that MMDA’s should not be disconnected, management has been immobilized from collecting bills owed by these major customers. Following the earlier directive given by Ministry of Finance that MMDA’s should make budgetary provisions to pay their bills, the company was able to arrange terms of payments with them. At the moment, arrears are just piling up while we remain helpless. It is therefore expected that PURC, as the Regulator, will assist us to enable the company to become the efficient utility provider that the government and the PURC itself expect GWCL to be.

5.10 Commercial Customer Complaints and Dispute Resolution

The company operates a toll-free Call Centre which receives customer complaints 24/7. Complaints are logged and relayed to the appropriate office for necessary action. The complaints mostly relate to irregular or long periods of no water supply; leakages that have not been attended to; poor water quality (colored water); and e-billing and e-payment issues.

We take pride in the fact that customers are now confident in us and call us very often to tell us any challenges.

5.11 Resolution of Court Cases

The company still has some outstanding court cases relating to land and payment of compensations to project affected persons. Usually, parcels of land and farm lands are acquired during development of infrastructure to increase access to improved water supply. Government often delays in the provision of funds for the payment of compensations and other related activities and usually it leads to significant extension of

the time for completion of our projects, a situation that usually increase project costs and delays commissioning of the projects.

In certain instances, land owners, whose compensations are unduly delayed or under contention, have mobilized people to impede our operations.

5.12 Government and Public Sector Debts

Previously, there was a cross debt arrangement amongst public utilities where all the public utilities set-off their charges levelled by either party against the other via an in-house clearing mechanism. Government has abolished the mechanism and the implication is that individual public utilities are now directly responsible to collect monies owed them by other public organizations.

The current arrangement has impacted on our revenue collection since many public institutions like the Ministries Departments and Agencies (MDAs) are reluctant in paying their bills levelled against them in respect of water consumed. Many other institutions have mentioned that they have not made provision for payment of water bills in their prevailing budget. As a result, there has been a reduction of revenue generation from public institution. The public agencies current indebtedness stands at over GHS 465 million as at December 2017.

Government is to encourage all public sector agencies and institutions to adequately budget for utilities and also meet their payments of same. GWCL will also need the support of PURC in times when GWCL is fully applying sanctions to agencies which consciously are unwilling to meet the payment obligations in light of water consumed by them.

5.13 Surcharge and Subsidies

The Government through the Ministry of Finance is expected to support GWCL to carry out capital investments and also meet compensation and land issues. Budgets are, on a yearly basis, prepared by GWCL and sent to Government through our sector Ministry but funds are never committed to the budget to enable us carry out the all-important water supply activities.

5.14 Government Grants

GWCL relies heavily on foreign loans and grants for the development of its infrastructure but the quantum of the inflows has been inadequate, as such, we are unable to keep pace with the rate of population and economic growth.

Further, the Government of Ghana through the MoF has decided to on-lend all grants given us by donor partners, a move which puts pressure on our limited cash flow.

We expect that a full cost-reflective tariff will be approved to enable us meet the requirements of the MoF.

5.15 Access to Finance and Repayment of Financing Costs

Due to poor financial health of the company, we are unable to attract commercial funding. In addition our assets base is very low because our assets have not been revalued over eighteen (18) years. This historical value makes GWCL assets unattractive to investors because they are grossly undervalued. On the contrary GWCL infrastructure and

installations are very massive across the country. However GWCL assets has now been revalued and will be incorporated into 2017 financial statement.

Consequently, the revalued assets which now reflect true replacement/fair value will enhance the value of the company as well as use as collateral to raise credits for the expansion of the company in the area of building new water supply systems and increasing the distribution network to the underserved populace.

This will afford the Company an opportunity to obtain a reasonable return on the assets when establishing the tariff, since the return is calculated on the fair value of the asset. When the tariff is adequately adjusted to reflect recovery of GWCL's full costs, GWCL will be able to borrow from financial institutions to embark on viable projects.

5.16 Tariff Structure and Rates,

Certain deficiencies in the existing tariff structure have been noted earlier and discussed in section 1.3. These deficiencies have negatively impacted our operations over the years and require resolution by PURC. Among others, GWCL proposes the introduction of a Service charge as described earlier.

5.17 Water Purchase from Independent Water Producers

Due to the Government of Ghana (GoG) / Ministry of Finance's (MoF's) current policy on external borrowing to finance infrastructure development, the use of Public Private Partnership (PPP) arrangement is now being promoted for the development of infrastructure projects in Ghana. GWCL successfully commissioned its maiden PPP project for which the developer sells water on bulk basis to GWCL at a contracted tariff of US\$1.37/m³. However, the actual tariff now is US\$1.46/m³.

The difference between the contracted and actual bulk water tariffs is a reflection of the change in electricity price over the past three years that is from the time of execution of the WPA by the Parties to date.

The actual bulk water tariff of US\$1.46/m³ for the project is higher than the current GWCL average customer end-user tariff of US\$1.36.

5.18 Human Resource-Skilled Manpower

Due to lack of adequate funds we are unable to fully implement our training programs. To remedy the situation, the company requires full cost recovery tariff to enable it generate adequate financial resources to resolve it.

5.19 Production Infrastructure Constraints

Water Supply infrastructure is expected to be developed by government but this is not forth coming. Also the cost of maintaining the existing infrastructure is high and the current tariff is not adequate to contain it.

6 Strategies to Address Key Challenges

The strategies to address the key challenges noted above have been presented in the preceding sections. In addition the following will also be undertaken to address the challenges:

- Liaise with ECG to provide the company with dedicated lines to our stations.
- Procure equipment to stabilize supply voltage.
- Continue with the installation of capacitor banks.
- Continue with the Installation of efficient lab and dosing equipment
- Use alternative and more efficient chemicals where applicable
- Allocate sufficient fund to carry out repair, replace and rehabilitate aged equipment.
- Continue to liaise with government to make necessary funding available to carry out the needed investment.
- Liaise with security agencies to check illegal small scale mining operations.
- Hasten the payment of compensation.
- Liaise with PURC to ensure the approval of adequate tariffs.
- Provide attractive conditions of service for staff to retain staff.
- Complete the installation of production meters

7 GWCL WATER PRODUCTION SYSTEM RELATED DATA

7.1 Projected Water Production Data

These are contained in the accompanying spreadsheets.

Table-1 GWCL Water Production Systems Data 2018-2023

Parameter	Unit	2018	2019	2020	2021	2022	2023
A. Projected Raw Water Abstraction Capacity	M ³ /Day						
B. Gross Production Capacity	M ³ /Day						
B1. Conventional Systems	M ³ /Day						
B2. Unconventional Systems	M ³ /Day						
C. Authorised Water Usage @ Production Site	M ³ /Day	8.09	8.00	8.00	8.00	8.00	8.00
D. Average Net Effective Production Capacity	M ³ /Day						
D1. Conventional Systems	M ³ /Day						
D2. Unconventional	M ³ /Day						
E. Water Available for Transmission	M ³ /Day	878,002	906,120	911,944	912,222	912,222	912,222
F. Target Availability of Production Plants	%	85	85	85	85	85	85

7.2 Capital Expenditure

Please see the accompanying spreadsheets.

Table-2 Summary of Water Production Related Capital Investment Plan (Million GHS) 2017-2021

Item	2017	2018	2019	2020	2021
Capital Cost					
Initial Spares					
Additional Capitalisation					
Renovation & Modernisation (R&M)					
Rehabilitation & Resettlement (R & R)					

7.3 Capital Expenditure Financing Plan

Please see the accompanying spreadsheets.

Table-3 Summary of Water Production Related Capital Expenditure Financing Plan (Million GHS) 2017-2021

Item	2018	2019	2020	2021	2022	2023
Accumulated Depreciation						
Retained Earnings						

GHANA WATER COMPANY LIMITED
PROPOSALS FOR REVIEW OF AGGREGATE REVENUE REQUIREMENT AND TARIFF

Commercial Borrowings:						
Domestic						
Foreign						
Additional Equity Contribution By Shareholder(s)						
Grants:						
Domestic						
Foreign						
Tariff Revenue (Revenue from Projected Capacity Charge)						

8 Operation and Maintenance Costs

Please see the accompanying spreadsheets.

Table-4 Water Production Related Operation and Maintenance Costs (Million GHS) 2017-2021

Item	2017	2018	2019	2020	2021
Fixed O & M Costs	506.57	567.35	635.44	730.75	840.36
Variable O & M Cost	414.46	464.20	519.90	597.89	687.57

9 Administration and General Costs

Please see the accompanying spreadsheets.

Table-5 Water Production Related Administration and General Costs (Million GHS) 2017-2021

Item	2017	2018	2019	2020	2021
Fixed O & M Costs	349.05	357.59	475.59	537.42	661.02
Variable O & M Cost					

10 Human Resource Costs- Employee Costs

Please see the accompanying spreadsheets.

Table-6 Water Production Related Human Resource Costs (Million GHS) 2017-2021

Item	2017	2018	2019	2020	2021
Fixed O & M Costs	222.58	228.02	303.27	342.69	421.51

GHANA WATER COMPANY LIMITED
PROPOSALS FOR REVIEW OF AGGREGATE REVENUE REQUIREMENT AND TARIFF

Variable O & M Cost					
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11 Public Education

Please see the accompanying spreadsheets.

Table-7 Summary of Public Education Costs (Million GHS) 2017-2021

Item	2017	2018	2019	2020	2021
Stakeholder Communication & Sensitisation (Public Education)	1.97	2.21	2.47	2.84	3.27

12 Financing and Interest Costs

Please see the accompanying spreadsheets.

Table-8 Water Production Related Financing and Interest Costs (Million GHS) 2017-2021

Item	2017	2018	2019	2020	2021
Interest on Foreign Loans	204.94	233.76	795.31	795.31	
Interest on Domestic Loans	12.87	21.16	12.59	13.59	
Interest on Working Capital Loan					

13 Return on Equity

Please see the accompanying spreadsheets.

Table-9 Water Production Related Equity Financing Costs (%) 2017-2021

Item	2017	2018	2019	2020	2021
Rate of Return		8	8	8	8

14 Depreciation

Please see the accompanying spreadsheets.

Table-10 Depreciation (Million GHS) 2017-2021

GHANA WATER COMPANY LIMITED
PROPOSALS FOR REVIEW OF AGGREGATE REVENUE REQUIREMENT AND TARIFF

Item	2017	2018	2019	2020	2021
Depreciation of Production Assets	515.18	540.94	567.98	596.38	626.20

15 Projected Water Production, Transmission and Distribution Revenue Requirement

With the guidance of officials of PURC, we have computed our revenue requirements to support our operations for the period 2019 to 2023. These are detailed in the accompanying spreadsheets. No increase in electricity tariffs has been included in the proposal.

The increase in tariff is mainly due to exchange rate depreciation, paradigm shift in the economic policies of the Government, the need for adequate funds to offset required investments in general. In addition, we have considered a reasonable return of 8% on the regulatory assets.

Currently, Government requires GWCL to meet the exchange rate depreciations, various loans and their accompanying interests repayments through tariffing which was previously not the case.

16 Proposed Tariff and Rates Structure

Proposed Revenue Requirements

Based on the enumerated issues and discussions made, we have computed our revenue requirements to support our operations for the period 2018 to 2023 which are shown in the tables below. The method and assumptions are also discussed.

Cash Operating Expenses

THE COST BUILDUP	2018 FORECAST					
	Production	Transmission	Distribution	Commercial	General Admin	Total
	GHC	GHC	GHC	GHC	GHC	GHC
Personnel	45,136,169.16	4,360,626.06	44,385,813.92	62,262,325.96	70,893,946.50	227,038,881.60
Proposed Salary Increase						-
Long Service Award Provision						-
Personnel Cost	45,136,169.16	4,360,626.06	44,385,813.92	62,262,325.96	70,893,946.50	227,038,881.60
Chemicals	51,229,548.34	-	-	-	1,350.00	51,230,898.34
Electricity Consumption	179,970,974.03	18,438,118.38	759,484.51	195,684.15	2,070,376.46	201,434,637.53
VAT&NHIS	31,494,920.45	3,226,670.72	132,909.79	34,244.73	362,315.88	35,251,061.57
Fuel	1,849,054.00	116,285.58	3,680,235.40	1,574,637.76	4,916,931.10	12,137,143.84
Materials	391,897.74	3,646.00	21,210,113.18	148,113.74	1,300,837.80	23,054,608.46
Reagents	96,291.56	145,770.18	75,908.66	-	524,353.06	842,323.46
Hiring of Equipment	132,050.00	111,400.00	536,575.00	14,500.00	15,530.00	810,055.00
Overheads	4,768,672.50	431,888.54	4,963,991.28	51,835,777.30	51,100,266.60	113,100,596.22
Bad debts	-	-	-	-	-	-
R & M	33,045,938.22	357,802.34	12,609,110.96	8,513,901.40	9,191,287.34	63,718,040.26
	348,115,516.00	27,192,207.80	88,354,142.70	124,579,185.04	140,377,194.74	728,618,246.28
ABSORPTION						
COMMERCIAL						
Distribution - 100%			124,579,185.04			
GENERAL ADMINISTRATION						
Production - 60%	84,226,316.84					
Transmission - 10%		14,037,719.47				
Distribution - 30%			42,113,158.42			
TOTAL	432,341,832.84	41,229,927.27	255,046,486.16			728,618,246.28

GHANA WATER COMPANY LIMITED
PROPOSALS FOR REVIEW OF AGGREGATE REVENUE REQUIREMENT AND TARIFF

Projected Costs and Revenue Requirement

Item Description	GWCL PROPOSED REVENUE REQUIREMENT					
	2018 Base	2019 BUDGET	2020		2021	
	GHC'000	GHC'000	GHC'000	GHC'000	GHC'000	GHC'000
Personnel Cost	227,038,881.60	244,054,025.05	280,662,128.81	314,341,584.26	352,062,574.37	404,871,960.53
Chemicals	51,230,898.34	43,265,820.87	49,755,694.00	55,726,377.28	62,413,542.55	71,775,573.94
Electricity (Consumption)	201,434,637.53	209,094,928.71	240,459,168.02	269,314,268.18	301,631,980.37	407,580,213.47
Electricity (VAT&NHIL)	35,251,061.57	36,591,612.53	42,080,354.40	47,129,996.93	52,785,596.56	60,703,436.05
Fuel	12,137,143.84	15,918,492.32	18,306,266.17	20,503,018.11	22,963,380.28	26,407,887.33
Materials	23,054,608.46	30,450,019.89	35,017,522.87	39,219,625.62	43,925,980.69	50,514,877.80
Reagents	842,323.46	2,372,170.32	2,727,995.87	3,055,355.37	3,421,998.02	3,935,297.72
Hiring of Equipment	810,055.00	8,083,070.52	9,295,531.10	10,410,994.83	11,660,314.21	13,409,361.34
Overheads	113,100,596.22	91,025,734.31	104,679,594.45	117,241,145.79	131,310,083.28	151,006,595.78
Bad debts	-	-	-	-	-	-
R & M	63,718,040.26	176,407,540.12	202,868,671.13	227,212,911.67	254,478,461.07	292,650,230.23
Cash Operating Expenses	728,618,246.28	857,263,414.64	985,852,926.83	1,104,155,278.05	1,236,653,911.42	1,482,855,434.18
Depreciation	755,586,165.91	793,350,835.00	598,140,468.71	626,890,495.34	658,880,301.55	694,730,082.03
Rehab & Replace	84,074,796.87	144,586,016.40	166,273,918.86	186,226,789.12	208,574,003.82	239,860,104.39
Financial cost	1,296,114.06	2,470,300.00	2,840,845.00	3,181,746.40	3,563,555.97	4,098,089.36
Levies	8,333,480.00	16,756,800.00	19,270,320.00	21,582,758.40	24,172,689.41	27,798,592.82
Loan Repayment	410,822,768.13	431,363,906.54	452,932,101.87	475,578,706.96	499,357,642.31	524,325,524.42
Interest on Loans	26,590,926.00	125,346,628.00	131,613,959.40	138,194,657.37	145,104,390.24	152,359,609.75
Exchange Losses	30,275,668.00	85,700,000.00	98,555,000.00	110,381,600.00	123,627,392.00	142,171,500.80
Return on assets	874,138,284.55	893,143,718.84	913,452,095.80	938,666,937.36	969,880,824.36	1,008,427,100.22
Crop and Land Compensation	2,441,761.73	2,734,773.14	3,144,989.11	3,522,387.81	3,945,074.34	4,536,835.49
Capital Expenditure	52,036,837.34	486,990,687.25	504,666,510.51	578,957,440.90	668,443,794.92	776,317,358.34
Total	2,974,215,048.87	3,839,707,079.81	3,876,743,136.09	4,187,338,797.71	4,542,203,580.33	5,057,480,231.81
Cost / m3	19.94	24.05	21.99	21.73	23.57	26.24
	2,976,087,183.25	3,257,336,136.36	3,263,357,356.57	3,487,327,274.35	3,738,926,286.82	4,127,224,960.75
DESALINATION						
Capacity Charge	78,419,880.00	85,239,000.00	85,750,434.00	90,012,384.00	94,615,290.00	99,218,196.00
Water Charge	-	4,071,320.00	4,654,259.00	4,885,584.00	5,135,415.00	5,385,246.00
Energy Charge	-	36,321,553.64	41,769,786.69	46,782,161.09	52,396,020.42	60,255,423.49
Distribution & Commercial Charges		19,440.00	22,356.00	25,038.72	27,542.59	30,021.43
Desalination total	78,419,880.00	125,651,313.64	132,196,835.69	141,705,167.81	152,174,268.01	164,888,886.91
Cost / m3		29.19	30.71	32.92	35.35	38.31
Total Estimated Revenue Requirement(95%)-Net	3,052,634,928.87	3,965,358,393.45	4,008,939,971.78	4,329,043,965.52	4,694,377,848.34	5,222,369,118.72
5% Provision of Bad Debts	160,664,996.26	208,703,073.34	210,996,840.62	227,844,419.24	247,072,518.33	274,861,532.56
Total Estimated Revenue Req'ment(100%)	3,213,299,925.13	4,174,061,466.79	4,219,936,812.39	4,556,888,384.76	4,941,450,366.67	5,497,230,651.28
Cost / m3	21.55	25.45	23.37	23.13	25.08	27.90

PROPOSED TARIFF STRUCTURE

	Categories	Existing Tariff	Proposed Tariff	Sales	Current Billing	Expected Revenue
		GHp	GHp	m3	GHs	GHs
	Metered Domestic					
(a)	0- 5	298.172	670.0562	5,969,116	17,798,232.17	39,996,431.43
(b)	5 and above	507.3948	1,976.3658	87,349,553	443,207,089.27	1,726,346,672.70
(c)	Commercial	836.0166	3,117.3302	28,023,180	234,278,438.03	873,575,055.21
(d)	Industrial	1,007.0200	4,958.2149	6,426,760	64,718,755.40	318,652,559.23
(e)	Public Distribution/Gov't Depts.	650.9074	2,994.1676	26,279,908	171,057,865.98	786,864,491.30
(f)	Premises without connection (public standpipe)	334.6242	655.4713	5,854,856	19,591,766.53	38,376,900.93
	Special Commercial (bottled water producers)	5,078.9159	13,983.1350	388,450	19,729,069.88	54,317,545.79
	Sachet water producers	1,121.0221	8,889.6864	3,665,470	41,090,724.89	325,848,755.99
	Ocean Going Vessels	11,400.2250	45,518.1294	23,894	2,723,950.32	10,876,024.22
	Total			163,981,187	1,014,195,892	4,174,854,437

Proposed Meter Maintenance Fee

GWCL wishes to again propose the introduction of a token charge for all billed customers. This will be a charge towards meter maintenance. Customers pay for meters only once in

GHANA WATER COMPANY LIMITED
PROPOSALS FOR REVIEW OF AGGREGATE REVENUE REQUIREMENT AND TARIFF

their life time, the maintenance and replacement of such meters is borne by GWCL. Sister utilities including Electricity Company of Ghana and Communication Service providers are guaranteed a fixed monthly charge from each customer even when the customer does not utilize the service. This proposal has been made by GWCL in earlier submissions, but has been rejected by PURC each time. We however believe that this should be introduced for all customers. GWCL will be able to promptly maintain and replace all faulty meters of customers at no cost.

Our proposal for each customer category is tabulated below:

Category	Rate/ Month (GHS)	Unbilled Customers	Billed Customers	Amount/ Month (GHC)
Domestic	5	104,977	434,462	2,172,310.00
Premises without Connection(Public stand pipes)	0	3,467	7,043	-
Commercial	10	34,768	59,267	592,670.00
Industrial	10	281	271	2,710.00
Public/ Gov't Dept	10	5,072	5,812	58,120.00
Sachet Water Producers	10	563	812	8,120.00
Special Commercial (Bottled Water Producers)	10	11	8	80.00
Total		149,139	507,675	2,834,010.00