

GHANA WATER LTD



PROPOSAL FOR REVIEW OF AGGREGATE REVENUE REQUIREMENT AND TARIFF

AUGUST 2025

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ABBREVIATIONS

ATMA	Accra Tema Metropolitan Assembly
AC	Asbestos Cement
AVR	Automatic Voltage Regulator
CapEx	Capital Expenditure
DMA	District Metered Areas
USD	Dollar
ECG	Electricity Company of Ghana Ltd
ERP	Enterprise Resource Planning
EPA	Environmental Protection Authority
FLL	Field Level Leadership
GHS	Ghana Cedis
GSA	Ghana Standards Authority
GSS	Ghana Statistical Service
GWL	Ghana Water Ltd
GoG	Government of Ghana
GAMA	Greater Accra Metropolitan Area
IPS	In-Planned Switching
IGF	Internally Generated Funds
IDA	International Development Association
ISO	International Organization for Standardization
Km	Kilometer
LICSD	Low-Income Customer Support Department
MMDAs	Metropolitan, Municipal and District Assemblies
MGD	Million Gallons per Day
MoF	Ministry of Finance
MLNR	Ministry of Lands and Natural Resources
MNOs	Mobile Network Operators
NHIL	National Health Insurance Levy
NWP	National Water Policy
NSC	New Service Connections
NRW	Non-revenue water
NEDCo	Northern Electricity Distribution Company
OpEx	Operational Expenditure
PIP	Performance Improvement Programme
PA	Public Address
PFM	Public Financial Management
PURC	Public Utilities Regulatory Commission
SMS	Short Messaging Service
SOPs	Standard Operating Procedures
SOE	State-Owned Enterprise
SDG	Sustainable Development Goal
TTT	Train-the-trainer

USAID	U.S. Agency for International Development
UNICEF	United Nations International Children's Emergency Fund
VAT	Value Added Tax
VFD	Variable Frequency Drive
VRA	Volta River Authority
W4L	Water for Life
WRC	Water Resources Commission
WTP	Water Treatment Plant
MWHWR	Ministry of Works, Housing and Water Resources

1. Introduction

1.1 Brief Background on GWL Operations

Ghana's urban population has increased from 17.5 million to nearly 19.9 million in 2021 to 2024 respectively. Ghana Statistical Service (GSS) figures indicate that fifty-eight percent (58%) of Ghana's population lives in urban areas. The migration from rural areas to towns and cities stimulates urban development and puts additional demand on utilities.

The rapid rate of urbanization outstrips the current urban water supply. Ghana Water Ltd (GWL) which is the sole urban water utility currently operates ninety urban water supply systems (eighty-six (86) active) throughout the country with an average production of 945,275m³ per day as against a daily potable water demand estimated at 1,192,717m³ per day as at 2024. Due to inability of GWL to meet the full water demand of the urban population, water is therefore rationed to some of customers.

The current water supply infrastructure (treatment facilities and pipelines) is sixty (60) percent of production capacity. Most of our water supply systems are over 50 years and their production capacities result in low yields. The quality of raw water at the abstraction points are also increasingly being degraded because of encroachment, mediocre agricultural practices, housing, rivers and small-scale alluvial mining ("Galamsey"), sand winning, commercial and industrial activities. Following this, rainfall variability has increased with prolong dry seasons becoming more pronounced. This leads to a reduction in production volumes during these periods.

Other issues and challenges facing the urban water supply sector include:

- Difficulty in getting full cost recovery tariffs.
- Inadequate investment in replacing overaged facilities e.g. Kpong-Tema transmission pipeline designed to last for 30 years is now 58 years.
- Poor quality of service because of inadequate tariff.
- Inability to pay on-lent loans due to inadequate tariff.
- Unreliable power supply.

The Water Sector Strategic Development Plan (2012-2025) acknowledges the need to chart a strategy for providing water services to these areas to help address the growing phenomenon of inadequate safe water delivery in peri-urban settlements.

With respect to the urban poor GWL Low-Income Customer Support Department (LICSD) is currently working in collaboration with PURC and other stakeholders to deliver improved services to targeted low-income urban poor areas.

The Government of Ghana (GoG) is committed to expanding access to safe water supply services in urban areas with particular focus on improving water production, expansion of distribution systems and ensuring sustainable financing of the sector.

Notwithstanding the challenges stated above, it is important to consider the broad sectoral focal areas that impact on water operations. These include but not limited to sustainable water sources, access to potable water, sustainable financing, improved public private partnerships, capacity building, good governance, good research and development, monitoring and evaluation, water safety and customer interest/education.

Based on our vision and mission GWL therefore call on our Regulator, the Public Utilities Regulatory Commission (PURC), to provide every necessary support to enable us to deliver on mandate.

1.2 Rationale/Objectives Underpinning Tariff Submission

GWL is expected among others to:

1. Provide services that are safe, reliable and affordable to consumers; and
2. Establish mechanism aimed at full cost recovery.

GWL must recover its costs to sustain its operations. In the past the approved tariffs have not led to full cost recovery. This has led to the inability of GWL to raise enough revenue to meet our revenue requirement in order to finance the much-needed capital investment projects, capital operation and maintenance. This has led to satisfactory level of service.

These capital investment projects include:

- Plant Water Quality Laboratories Refurbishment
- Construction of Water Quality Monitoring Laboratory
- Production Improvement Works
- Mains Extension
- Pipeline Replacement
- Construction of Customer Service Centres
- Dredging of Dam
- Construction of Water Treatment Plant and laying of pipelines
- Replacement and New Service Connection meters
- District Metered Areas (DMA)

Below are some pending issues which prevailed since the last tariff approval which has necessitated this review.

1.2.1 Inadequate tariff to carry out urgent repairs of assets and minor extensions

The average tariff per cubic meter approved in 2022 was USD 0.9210 but has dropped to USD 0.8476 in 2024 as a result of the depreciation of the cedi over the period as shown in the graph below. This affected our ability to carry out effective repairs and replacement of aged and obsolete equipment, pipelines, and other essential assets.

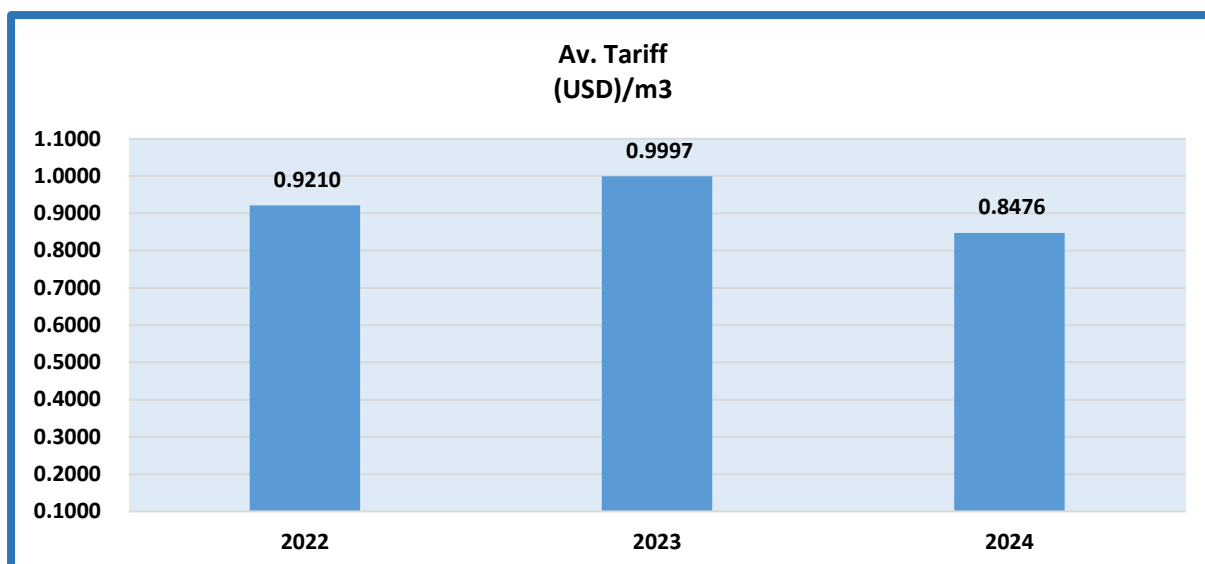


Figure 1: Average tariff in USD/m3

The inadequacy of the tariff is reflected in low Operating Cost Coverage Ratio and a low Assets Turnover ratio as well as mounting indebtedness.

1.2.2 Exchange rate fluctuation/ Depreciation of the cedi

Since the last major tariff adjustment in 2022, 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 9.99 (end of 2022) to 14.50 (end of 2024) according to the GCB Bank foreign exchange rate. The trend is depicted in the graph below.

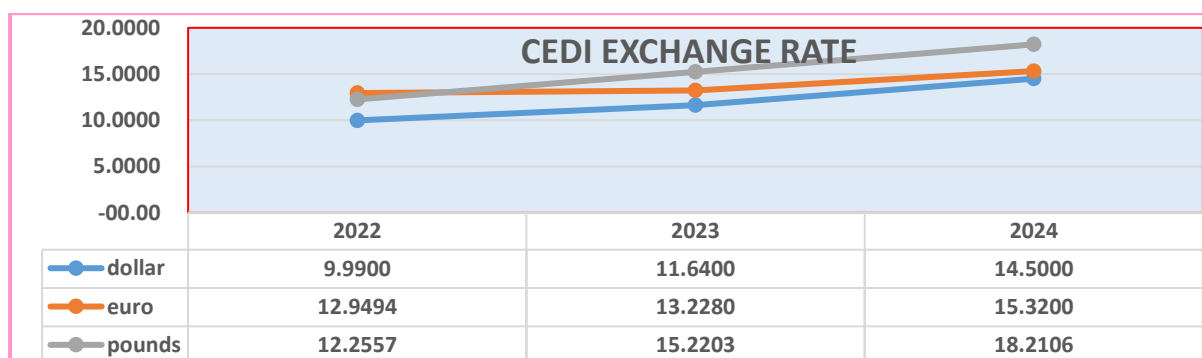


Figure 2: Cedi exchange rate

Source: GCB Bank

1.2.3 On-lending of Grants and Loans by Ministry of Finance (Debt Overhang)

Ministry of Finance (MoF) continues a policy on Grants and Loans contracted for or guaranteed for Projects to State-Owned Enterprise (SOE) of which GWL and Water Sector projects are of no exception. By this policy, Ministry of Finance (MoF) signs loan agreements with GWL at an interest rate of LIBOR plus 4 interest rates over a period not exceeding 15 years. Eight (8) such on-lending project agreements have been signed with MoF totaling GHS 14,632,796,389 at the end of 2024.

Currently GWL is saddled with a monthly loan repayment of GHS38.94 million which is 22.76% of average monthly revenue of GHS170.89 million.

Considering this, GWL has no option but to recover such Loans and Grants through the tariff for onward payment to MoF.

Table 1 below provides details on the on-lent loans.

Table 1: On-lent loans

LOAN NAME	PURPOSE OF LOAN	DATE OF LOAN	TENURE OF LOAN	LOAN AMOUNT (\$)	REPAYMENT (GHS)	INTEREST RATE
AKIM ODA	WATER SUPPLY PROJECT	25/08/2015	15 YEARS	165,615,426.00	93,689,436.00	5.36%
WA WSP	WATER SUPPLY PROJECT	25/08/2015	15 YEARS	55,500,000.00	24,690,657.54	1.00%
GAMA WSP	WATER SUPPLY PROJECT	14/07/2014	20 YEARS	50,800,000.00	7,707,810.00	2.00%
CAPE COAST WSP	WATER SUPPLY PROJECT	19/09/2014	15 YEARS	7,288,704.30	6,000,000.00	0.00%
CHINA GHEZOUBA	WATER SUPPLY PROJECT	25/08/2015	15 YEARS	276,250,000.00	126,593,063.04	2.00%
VARIOUS WATER PROJECT	WATER SUPPLY PROJECT	02/11/2015	15 YEARS	150,806,797.00	68,556,770.04	2.00%
URBAN WATER PROJECT	WATER SUPPLY PROJECT	25/09/2014	20 YEARS	96,350,000.00	20,298,719.58	16.50%
3K's	WATER SUPPLY PROJECT	28/08/2015	15 YEARS	234,506,800.00	119,733,595.26	3.36%
				1,037,117,727.30	467,270,051.46	

1.2.4 Land and Crop Compensation

In carrying out capacity expansion and pipe-laying projects, GWL is usually confronted with the issue of compensation to landowners who are adversely affected by these projects.

GWL 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 GWLs 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

Residential consumption constituted 68% of the total volume of water sold. Commercial, Industrial and MDA consumptions accounted for 10%, 3%, and 13% respectively. In terms of customer strength, residential customers make up 90% of the total number of customers but contributed a mere 51% 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 benefiting the poor.

The current tariff caters for lifeline tariff block of 0-5m³ for residential consumers. Having operated this scheme for the past two years, we wish to propose that the current situation is maintained.

Bottled Water Producers

GWL proposes to regroup Bottled water producers from bottled water and drinks category and move drinks to industrial category. There will be no more bottled water and drinks category.

2. Initiatives Undertaken

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, GWL has undertaken a number of projects including

capacity expansion, service delivery projects and system loss reduction projects. A detailed list of all completed ongoing and planned projects are outlined below.

The projects' status and values are shown in table 3 below.

Table 2: Project status and values

Project Status	No.	Total Amount GHS (million)	Total Amount USD (million)	Total Amount Euros (million)
Completed	22	102.45	922.86	351.00
Ongoing	8		72.70	195.20
Unachieved Planned	8	297.90	793.20	851.00
Total	38	400.35	1,788.76	1,397.20

However, the water infrastructural growth rate has not kept pace with economic and population growth, thereby making it impossible to satisfactorily serve the needs of our customers.

2.1 Projects Undertaken

COMPLETED PROJECTS

Several water supply projects were completed from 2011 to March 2025 in the Greater Accra, Eastern, Central, Brong Ahafo, Upper East, and Ashanti Regions of Ghana.

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

Table 3: Completed Projects during 2022 Tariff Proposal

No.	Project Name	Description	Cost	Areas Served
1	Koforidua Water Supply Project (Phases I, II & III)	Construction of 4.2 million gallons/day (19,200m ³ /day) water treatment plant, laying and reinforcement of transmission lines as well as improvement and extension of the distribution network	51.25 million Euros.	Okrase, Otoko, Ada, Effiduase, Jumapo, Asokore, Suhyien and all villages along the transmission line from Oterkpolu to Koforidua.
2	ATMA Rurals Water Supply (North & South of Kpong)	North of Kpong Construction of 14,000m³/day water treatment plant, supply and laying of transmission pipeline, supply and laying of distribution pipelines South of Kpong Construction of 28,000m³/day water treatment plant, supply and laying of transmission pipeline (59km of 600mm and 7km of 400mm), distribution improvement works (51km of 100mm) and construction of 4No. reservoirs.	North of Kpong 19,698,000 USD South of Kpong 41,029,000 Euros	Kpone, Prampram, Old Ningo, New Ningo and Dahwenya, Michel Camp, Afienea, Doyum, Kodiabe, Agomeda, Medie, Ayornya, Ayikuma, Menyum, Dodowa, Balawshi, Oyibi, Amrahia, Amanfro, Oshiyie, Frafraha, Abokobi, Pantang, 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
3	Kwanyaku to Kasoa Interconnection Water Supply Project	Transmission of water from Kwanyaku Treatment Plant to a reservoir in Kasoa	12.23 million Euros.	Kasoa, Nyanyanor and its environs
4	Mampong Water Supply Project	Rehabilitation of existing water treatment plant (2,500m ³ /day) and construction of a new water treatment plant (10,500m ³ /day)	23,112,000 USD	Darmang, Daaho, Basafour, Besease, Kyeremfaso, Krobo, Mpenya, Dadease, Bonkron, Nsuta and Beposo

No.	Project Name	Description	Cost	Areas Served
5	Kpong Water Supply Expansion Project	Construction of a new 186,000m ³ /day water treatment plant, supply and laying of new transmission mains from Kpong through Dodowa to Accra	273 million USD	Adenta, Madina, Kwabenya, Ashongman, North, East, and West Legon, Ashaley Botwe, Haatso, Boi, Asofaa and Dome
6	Kpong Intake Rehabilitation and Expansion Project	Rehabilitation of the existing Kpong intake station and installation of 15,000m ³ /day water packaged plant.	16.57 million Euros	
7	Teshie-Nungua Desalination Plant Project	Installation of 60,000m ³ /day Sea Water Reverse Osmosis (SWRO) plant.	115 million Euros	Teshie, Nungua, Burma Camp, GREDA Estates, Spintex, Baatsona, Sakumono, parts of La-Dadekotopon Lashibi,
8	Essakyir Water Supply Project	Phase 1 Construction of new water treatment plant of capacity 3.2 million gallons per day, laying of 38km transmission mains and distribution network improvement works (15km) Phase 2 Distribution pipeline improvement works	23.49 million Euros	Ekumfi Otum, Mumford, Dago, Mbroboto, Ekuampoano, Muna, Aboano, Sefara, Esuehyia, Akra, Asaafa, Etwaa, Nakwa, Asokwa, Abeka and Ekumfi Swedru.
9	Peri –Urban Water Supply Project at Berekum	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	1.41 million Euros	
10	Kumasi Water Supply Project (Additional Works)	Construction of 27,000m ³ (6million gallons) a day water treatment plant at Barekese, transmission/distribution pipeline	13 million Euros	Suame, Aboabo, Manhyia, Tafo, Abuakwa, Asuoyeboah, Abrepo, Patasi, Sofoline, Kwadaso, Santasi, Ahodwo, Nhyiaeso, Asokwa, Adum, Kejetia, Burokrom, Oforikrom

No.	Project Name	Description	Cost	Areas Served
		improvement works and reforestation.		
11	Five Towns Water Supply Project	Installation of 4 No. water packaged plants (totaling 1.54 million gallons per day) and transmission / distribution pipeline improvement works.	7.9 million Euros	Osenase, Apedwa, Anyinam, Kibi and Kwabeng.
12	Civil and Electro Mechanical Works for the Rehabilitation and Expansion of Breman Asikuma, Dunkwa - Offin Water, Tamale, Wa, Navrongo, Bawku, Berekum, Kpando, Peki, Aboso, Bogoso, Elubo, Axim, Agona and New Edubiase Prestea and Suhum Supply Systems	Construction of a Water treatment plants with transmission, distribution pipelines and mechanization of Boreholes in the selected townships.	83.62 million Dollars plus 10.34 million Ghana Cedis	Breman Asikuma, Dunkwa - Offin, Tamale, Wa, Navrongo, Bawku, Berekum, Kpando, Peki, Aboso, Bogoso, Elubo, Axim, Agona, New Edubiase Prestea and Suhum Supply Systems
13	Nsawam Water Supply Rehabilitation and Expansion Project - Phase I	Construction of a new 1.7 million per day treatment plant and distribution improvement works.	11.7 million Euros	Nsawam and its environs

No.	Project Name	Description	Cost	Areas Served
14	Kwahu Ridge, Konongo and Kumawu (3Ks) Water Supply Project	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	252 million USD	Kwahun Konongo and Kumawu
15	Wa Water Supply Project	Construction of a 15,000m ³ /day (3.3 million gallons per day) water treatment plant, 35km transmission pipelines and 32km distribution network improvement works	55.50 million USD	Wa Metropolitan Area, University for Development Studies Campus, Jamgoasi, Kong, Guo, Pase, Dorimon, Boro, Siriyiri, Bamaho, Boli, Buro, Chaira, Kolongo and Kperisi.
16	Cape-Coast Water Supply Project	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	20 million Euros.	Cape Coast, Moree, Abura, Mempeasem, Brimsu road (Akaikrom), Kwaw Pro, Apewosika, Amamoma, Kwesi Pra, New Ebu, Abakrampa, Yesunkwa, Bronibima Estate Annex, Sanka, New Abina/SSNIT, Yayakwano, Jukwa
17	Pipeline Replacement and Reservoir Maintenance Works		9.91 million Ghana Cedis	Nationwide

No.	Project Name	Description	Cost	Areas Served
18	Akim Oda, Akwatia and Winneba Water Supply Project	Constructio of 35,000m ³ /day capacity water treatment plant Rehabilitation of the Winneba Water Treatment Plant to its original capacity of 3 million gallons a day.	164.94 million USD	Akim Akim Manso, Atiankama Nkwanta, Aboaboa and Batabi Akwatia Bawdua, Topreman, Bamenase, Ghana Consolidated Diamond Camp, Asubone Camp No 4, Anhwiaso and Moframfadwen. Winneba Mpota, Gyahadze, Okyereko, Nsuekyir, Esubonpanyin, Pomadze, Ansafu, Bewadze, Gomoa Mampong, Dagui, Mankoadze, Mprumem, Nkroful, Onyadze, Otsew, Simbrofo, Ankamu and Apam.
19	Greater Accra Metropolitan Area (GAMA) Sanitation and Water Project	Supply and laying of approximately 290km of pipeline works of sizes varying from 110mm to 630mm in GAMA, particularly, low-income urban communities. Procurement and installation of 40,000 water meters	51 million USD	Manmomo, Gbegbeyise, Chorkor, Manponse, Glefe, Teshie-Nungua, Adjei Kojo, Tema, Ashaiman, Bankuma, Zinginshore, Taifa, Dome, Madina, Pantang, Sapeiman, Amasaman, Olebu, Amamorley, Pokuase, Tetegu, Amanfrom, etc
20	Pipeline Replacements, Reinforcements, Mains Extensions and Reservoir Maintenance Works	Replacement of pipe works such as steel, HDPE and uPVC material with sizes ranging from 110mm to 1050mm totaling approximately 761km. Maintenance works on storage reservoirs Repair works for treatment plants nationwide.	Out of GHS 126,2,381.83 only GHS77,214,167.29 has been paid	

No.	Project Name	Description	Cost	Areas Served
21	Upper East Region Water Supply Project	Construction of 20,000m ³ /day water treatment plant, 63km transmission and distribution network to improve upon the reliability of water supply within the Bolgatanga, Navrongo, Paga and Bongo areas As part of the project, the existing water supply system in Veia will be rehabilitated to produce 5,000 m ³ /day water to augment supply to Bongo and the northern part of Bolgatanga	37.68 million Euros	Tono, Gia, Navrongo, Paga, Bolgatanga, Bongo and its environs.
22	Desilting / Dredging of Owabi Reservoir	Dredging and disposal of 50,000m ³ of sediment to improve the active storage capacity of the Owabi Dam.	GH¢ 5 million	Owabi, Abuakwa, Koforidua, Asuoyeboah and its environs.

Completed Production Improvement Works

GWL has made significant investments to improve water production activities at various systems nationwide. A summary of the major interventions undertaken in the various regions (from 2022 to 2025) and its associated cost are detailed in the table 5 below. The cost of the works amounted to GHS 447,518,420, USD 1,555,435.98 and EURO 8,500,000.

Table 4: Completed production improvement works

No	Project	Description	Station	Funding Source	Cost	Outcome
1	ATMA Production	Utilise the Siemens Plant to its full capacity and transport 15,000m ³ /day (3.3MGD) of water daily from it to the Ghezouba Clear well, activate the idle capacity at the New works and transport the excess water to the Ghezouba Clear well.	Kpong	IGF	GHS 17,662,783.2	The works were completed in the year 2024 and has increased production by an estimated 6MGD. This has improved water supply to Accra East.
2	ATMA Production	Reconstruction of 4No. failed & Gravity Sand Filters	Weija Adam Clark Plant	IGF	GHS 40,000,000	Procurement processes have been initiated for the reconstruction of the 4no. failed filters at Weija Adam Clark. The works have been planned for the year 2025.
3	ATMA Production	Replacement of 3No. Soft Starters with new ones for New Intake Pumps No. 2, 3 and 4	New Intake/ Weija System	IGF	Euros 7,000,000	4No. new pumpsets with control panels (soft starters) were installed at the Weija New Intake in the year 2024

No	Project	Description	Station	Funding Source	Cost	Outcome
4	ATMA Production	(i). Replacement of 4No. Direct-on Line starters with Soft Starters.	Old Intake/ Weija System	IGF	GHS 15,966,874	Installation of 4No. Control Panels with soft starters at the Weija New Intake was executed in the year 2023.
5	ATMA Production	Rehabilitation of Tema Booster Station with 4No. new pump-sets, soft starters, Variable Frequency Drives, switchgears and other accessories	Tema Booster Station	IGF	GHS 77,000,000	Replacement of the 4No. Pumpsets at Tema Booster Station was executed in the year 2022. The replacement works have improved reliability of the system and water supply to Tema.
6	ATMA Production	Supply and installation of 1No. Automatic Voltage Regulator (AVR) at Sowutuom Booster Station.	Sowutuom Booster Station	IGF	GHS 765,822.2	The installation of AVR at Sowutuom Booster Station have improved reliability of the system and safeguarded major electromechanical equipment from low and high voltages.
7	ATMA Production	Refurbishment of 4No. High Lift motors	Kpong New Works	IGF	GHS 9,154,467.60	1No. Motor out of the 4No. Motors was refurbished in the year 2024 and installation works is ongoing. The refurbished motor is expected to improve reliability of the system.

No	Project	Description	Station	Funding Source	Cost	Outcome
8	ATMA	Supply and installation of 2No. pump-sets and 2No. control panels	Gbawe Booster Station	IGF	GHS 243,293.92	The pumpsets and control panels have been supplied pending installation. The works will be executed by the 2nd Quarter of 2025.
9	Western Region	Replacement of 3No. Transformers and 2No. Switchgears and accessories	Daboase Headworks	IGF	GHS 87,888,362.1	Supply of the transformers and switchgears have been done. Installation will be completed by end of 1st Qtr. 2025.
10	Western Region	Installation of 2No. Pump-sets and Soft Starter Control Panels	Bosomase Raw Water Intake	IGF	GHS 5,742,030	Installation of the pumpsets is currently ongoing at the the Bosomase Intake. Works are planned to be completed by end of 1st Qtr. 2025.
11	Western Region	Provision of 5 No. maintenance Dredgers	Daboase Headworks	Donor Funded	Euros1,500,000	1No. Dredger has been supplied under Sekondi-Takoradi Water Supply Expansion Project.
12	Central Region	Supply and installation of 2No. AVR's at each of the following stations	Kwanyaku, Sekyere – Hemang and Brimsu headworks	IGF	GHS 13,874,512.5	The installation of AVR's at various Stations in Central have improved reliability of the system and safeguarded major electromechanical equipment from low and high voltages.
13	Ashanti Production	Provision of 4No. AVR's at each of the following stations	Odaso, Konongo, Akyease Booster	IGF	GHS 15,370,269	The installation of AVR's at various Stations in Ashanti have improved reliability of the system and

No	Project	Description	Station	Funding Source	Cost	Outcome
			and Barekese Lowlift Station			safeguarded major electromechanical equipment from low and high voltages.
14	Ashanti Production	Installation of 3No. Low Lift pump-sets with soft starter panels and additional 4No. soft starter panels for High Lift pumps	Odaso Headworks	IGF	GHS 7,300,000	Installation of 3No. Low Lift Pump-sets with soft starters was executed in the year 2022. 4No. Control panels were installed for the Odaso High Lift Station in the year 2022.
15	Eastern Region	Installation of 3No. pumps with Control Panels	Nsawam New Works	IGF	USD 975,810	Installation of 2No. Pumpsets with control panels was executed in the year 2024.
16	Eastern Region	Rehabilitation of 1No. High Lift pump	Kotoso WTP	IGF	GHS 166,820.00	Installation of 1No. High lift pump was executed in the year 2022
17	Eastern Region	Installation of 2No. Booster Pumps with control panels	Kibi WTP	IGF	GHS 567,000	Installation of 2No. Booster Pumps with Control panels was executed in the year 2022.
18	Eastern Region	Installation of chemical dosing pumps and stirrers	Various plants in the Eastern Region	IGF	GHS 1,800,000	Installation of chemical dosing pumps at varous plants in Eastern Region such as Koforidua filter house, Dodi, Kibi, Tafo and Osino was executed in 2022.
19	Eastern Region	Installation of 1No. High Lift pump-set and 2No. Low Lift pump-sets	Dodi WTP	IGF	USD 346,882	Installation of 2No. High lift pumpsets at Dodi was executed in the year 2023.

No	Project	Description	Station	Funding Source	Cost	Outcome
20	Volta Region	Installation of popwer actuator valves at filter station	Kpeve Headworks	IGF	GHS 5,985,848.44	The rehabilitation of filters at Kpeve has improved water filtration process at the plant.
21	Volta Region	Installation of 2No. AVRs at Low Lift and High Lift pumping stations	Kpeve Headworks	IGF	GHS 4,763,070	Installation of 2No. AVRs at Kpeve Low Lift was completed in the year 2022
22	Northern Region	Dredging of Nawuni Intake	Dalun/Nawuni	IGF	GHS 50,000	Desilting of the Nawuni Intake was executed in the year 2023
23	Northern Region	Provision of 3No. soft starters for Dalun New Works plant.	Dalun New Works	IGF	GHS 6,283,048	Installation of 3No. soft starters for Dalun high lift was executed in the year 2024
24	Upper West Region	Replacement of Clarifier Bridge wheels	Jambusi Headworks	IGF	GHS 98,000	The execution of the works has improved water clarification process at the Jambusie Water Treatment Plant
25	Upper West Region	Rehabilitation of High Lift and Intermediate Pumping Station (IPS) pumping equipment with new bearings.	Jambusi Headworks	IGF	GHS 183,040.00	The works has improved operations at the plant.
26	Upper West Region	Repair of Scada System	Jambusi Headworks	Donor funded	USD 229,743.98	An assessment has been carried repair of the Jambusie Scada System through the support of the Korea Exim Bank for execution of works by the 2nd Quarter of 2025.

Completed Distribution Improvement Works

Mains Extensions

To access to potable water supply, a total length of 394.391km mains extensions were developed between the years 2022 to 2024 at a total cost of GHS 82,245,884.

The table 6 below shows breakdown of completed pipeline extension works on a regional basis.

Table 5: Completed pipeline extension works

S/N	REGION	METRS (m)	COST (GHS)
1	Upper East	24,900	2,150,464
2	Central	38,340	4,538,028
3	Northern	45,000	5,335,600
4	Tema	21,600	1,990,894
5	Upper West	4,018	759,402
6	Western	15,200	4,134,330
7	Brong Ahafo	42,616	20,653,846
8	Accra East	27,122	12,122,968
9	Ashanti South	16,350	1,716,750
10	Ashanti North	66,835	8,684,250
11	Accra West	71,860	17,076,852
12	Eastern	20,550	3,082,500
	TOTAL	394,391	82,245,884

However, limited mains extension works covering 138.5 km at a cost of GHS 69,321,814 are ongoing across the various regions as detailed in the table 7 below.

Table 6: Ongoing extension works

S/N	REGION	LENGTH (m)	COST (GHS)
1	Upper East	15,000	6,053,817
2	Northern	17,200	8,256,000
3	Tema	4,400	574,420
4	Upper West	14,000	15,737,368
5	Western	16,556	12,293,720
6	Brong Ahafo	45,600	22,211,311
7	Accra East	1,124	505,178
8	Eastern	24,600	3,690,000
	TOTAL	138,480	69,321,814

As a result of the mains extensions works, customer strength grew from 734,187 as at December 2022 to 790,531 as at December 2024 respectively, representing 8% increase in service connections within the stated period.

Repair, Replace and Rehabilitate pipeline infrastructure

A total length of 89.97km of the distribution network are has being replaced at a cost of GHS92,204,708 to improve flows and pressures in supply areas.

The table below details pipeline improvement works that were procured and completed as of February 2025.

Table 7: Repair, replace and rehabilitated pipeline infrastructure

S/N	REGION	LENGTH (M)	AMOUNT (GHS)
1	Ashanti North	6,336	13,091,430.00
2	Tema	8,160	13,080,234.00
3	Eastern	7,704	13,390,867.28
4	Accra East	7,464	10,091,173.18
5	Ashanti South	7,258	5,839,216.20
6	Volta	4,880	4,967,392.43
7	Upper East	1,088	1,802,200.00
8	BRONG Ahafo	5,052	5,563,097.00
9	Accra West	10,860	5,575,011.00
10	Central	7,934	5,332,087.50
10	Western	9,416	5,773,120.00
11	Upper West	7,368	4,455,580.00
12	Northern	6,450	3,243,300.00
		89,970	92,204,708.09

Faulty/ Obsolete Meter Replacement

As part of ongoing efforts to improve accuracy in customer metering, a total of 44,684No. faulty and obsolete meters were replaced within the period under review.

Table 8: Meter replacement works

No.	Region	No. of Meters Replaced
1	Accra East	22,420
2	Accra West	5,193
3	Tema	3,544
4	Ashanti North	977
5	Ashanti South	2,845
6	Eastern	2,151
7	Central	1,819
8	Western	2,464
9	Upper East	1,532
10	Upper West	893
11	Northern	679
12	Volta	89
13	Brong Ahafo	78
Total		44,684

Other Initiatives

Customer Service Centers

In order to bring our service closer to customers and improve efficiency, the customer service center at Sunyani has been divided into Sunyani East and West. Apart from the company's own collection points manned by GWL staff, management is also contracting third-party agents to collect revenue on its behalf.

Stealing of customer meters and accessories

GWL has intensified its effort to reduce significantly the thievery in the activities of the company.

- GWL will continue to use plastic cased customer meters to totally eradicate the stealing meters.
- The smart meters deployment has allowed reading to be taken remotely with the aid of software within a specific distance without getting into the customers' premises.
- The continuous use of electronic billing has ensured effective and efficient monitoring and evaluation of meter reading activities, billing and collection processes to prevent fraud and connivance.

Installation of Production Meters

Under the World Bank sponsored GAMA SWP Additional Financing

In its 5year non-revenue water strategic plan, GWL highlighted the determination of system input volumes as a key strategic milestone in its fight against non-revenue water. This involved the procurement and installation of flow meters at the beginning of the transmission and distribution networks to accurately measure the quantity of water delivered to the network. Currently we are in the process of metering the offtakes between Kpong WTP and Tema Booster Station. Breakdown of meters installed and commissioned per (production) region in the period is shown below:

Table 9: Meters installed and commissioned per region

Production Region	Installed		
	Raw Water	Final Water	Total
ATMA Production	7	19	26
Ashanti Production	25	18	43
Western Region	14	20	34
Central Region	16	29	45
Eastern Region	35	70	105
Volta Region	5	36	41
Brong-Ahafo Region	12	12	24
Northern Region	5	4	9
Upper East Region	5	5	10
Upper West Region	1	1	2
GRAND TOTAL	125	214	339

Design and Implementation of District Metered Areas

Under the World Bank sponsored GAMA SWP Additional Financing, GWL has designed and implemented 21 No. District Metered Areas (DMA) in the Accra East region. Additional DMAs are being designed to cover the entire Accra East region, a total of 64 DMAs are expected.

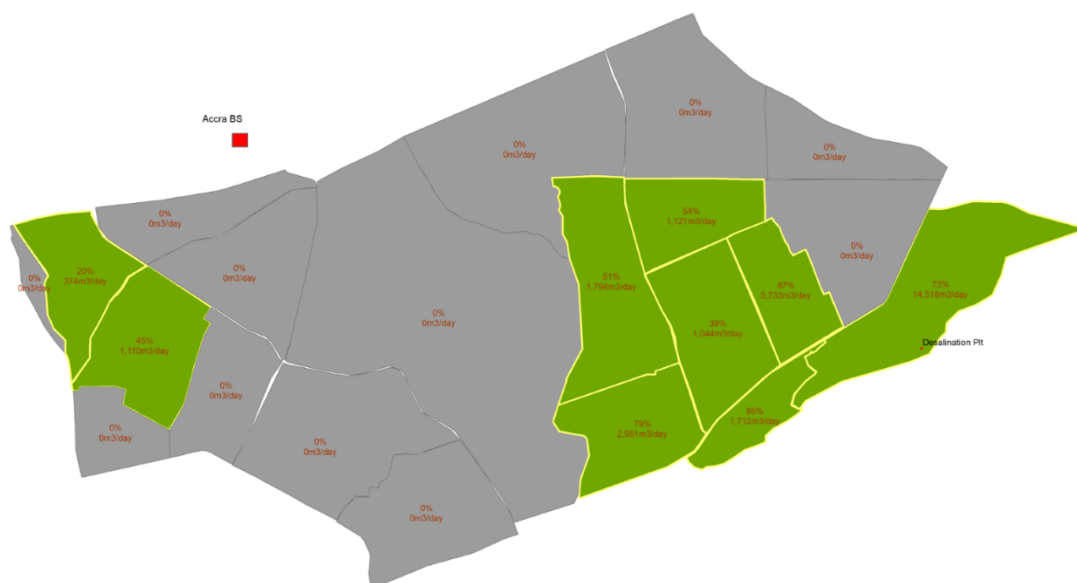


Figure 3: Segregation of water loss per area within project area.

Similar projects are currently on going, namely:

- The Strategic Sector Cooperation Project with the Kingdom of Denmark which is designing DMAs in the Tema Region and through the Project develop a Selective Pipeline Replacement Framework for Asset Management.
- The South Korea Funded Smart Water Management System being implemented in the Accra West Region of GWL. The project shall install smart leakage monitoring systems on designed DMAs to help detect leakages timely for resolution.

The Low-Income Customer Support Department (LICSD)

The Low-Income Customer Support Department (LICSD) of GWL has been at the forefront of enhancing water access for low-income urban communities through strategic partnerships and funding support from various stakeholders. LICSD in collaboration with UNICEF, Water for Life, VEI, WaterWorX and UN-HABITAT since 2022 achieved a lot with limited resources including but not limited to widespread adoption of subsidised household connections, installation of standpipes, construction of distribution pipelines, high level concrete water tanks, rehabilitation of treatment plants, capacity building and knowledge management.

The table 11 below presents a comprehensive financial breakdown of key projects undertaken by LICSD, showcasing the infrastructure expansion, and the number of beneficiaries impacted.

Table 10: Breakdown of key projects undertaken by LICSD

Project Name	Innovations	Results
UNICEF Equitable water supply services in 10 low income, high population density urban and peri-urban areas <i>Value: US\$ 1.62 million</i>	Piloting of recommendations from urban study undertaken in 2020. 8 ATM Standpipes by KNUST	• Work in progress • 35km Distribution improvements • 1,600 subsidized water connections. • Water safety planning • Water governance • Community engagement
World Bank (IDA) Greater Accra Metropolitan Area Project <i>Value (LICSD Component): US\$ 1.8 million</i> GAMA/GKMA Project <i>Value (LICSD Component): US\$ 1.6 million</i>	• Subsidised connections • Demand creation for water connection • Customer profile data collection • Profiling of standpipes/vendors • Customer education • Meetings with community leaders • Formation of water user associations • Follow-up on defaulted customers	• > 12,000 households connected (the project contributed more than 30% of new connections in GWL in 2019 alone) • Development of knowledge management products • > 26 LIUCs engaged on water issues • > 250,000 LIUC residents gained improved access to water services • Consultative process has deepened and improved relationship between LIUCs and GWL
WaterWorX Water Operator Partnership between GWL and the Dutch Water Sector (VEI b.v.) to support GWL to deliver sustained, world class services. <i>Value: EUR 3.1 million (phase I)</i>	Long-term peer-to-peer partnership to exchange knowledge and build capacity in support of achieving operational excellence and meeting the SDG 6 targets.	• NRW reduction exercises • 34.5km Distribution improvements • 7,754 subsidized household connections • Operational and financial resilience • Capacity building
Water for Life Water supply to the Peri-urban Poor at Acherensua in the Brong-Ahafo Region <i>Value: EUR 205,000 (2019)</i>		The project has improved on water supply to more than 9,000 low-income consumers through the following activities: • Construction of 50m³ high level storage tank • Rehabilitation of treatment plant

Project Name	Innovations	Results
		- Extension of 4km 100mm distribution network - Construction of 20 standpipes
WSUP Water Supply to the poor at Fiapre in Sunyani <i>Value: GH¢ 297,673.00</i> 2015	- Community involvement is a major component - Community training and Sensitisation in water management, sanitation and hygiene issues	- Drilling and Mechanisation of 2 no. boreholes: - Provision of 3km distribution network - Construction of 5 No. Water Kiosks, with metered standpipes for monitoring of water sales and non-revenue water.
Football for Water / VEI b.v. Water and Sanitation for 32 schools in the Northern, Central and Greater Accra Regions <i>Value: EUR 320,000 (2016)</i>	Setting-up WASH infrastructure for 32 schools in the Northern, Central and Greater Accra Region in Ghana including life skills training for boys and girls	- Provision of WASH facilities and SHEP training of pupils and teachers. - Training of World Coaches as role models to teach pupils life skills - Improved on WASH to more than 2,800 pupils and teachers in the Sakasaka Cluster of schools, 4,021 in the Central Region, more than 5,200 in the Gbawe Cluster of schools and 5,000 in the Ashaiman Cluster of schools all in the Greater Accra Region.
WSUP This project improved access to water supply to selected LIUCs in Kumasi by extending the water network. <i>Value: US\$ 900,000 (2018)</i>	Adoption of effective, sustainable and scalable models of pro-poor urban water services by the service provider and the local government. Connection to GCL's existing network at the edge of Adukrom and Akorem.	- Construction of 80m transmission main (incl. a bulk flow meter) and a 250m³ high level concrete water tank. - Provision of 12.8km distribution network - Construction of 640 No. metered house connections and 39 No metered standpipes for monitoring of water sales and non-revenue water.
W4L Water Supply to the Urban Poor at Acherensua <i>Value: EUR 110,000 (2015)</i>	- Rehabilitation of Treatment Plant - Additional distribution network - Construction of 10 standpipes	3,000 people benefitted directly. - Additionally, 8,800 people that were already connected to the system enjoyed more reliable water supply

Project Name	Innovations	Results
	Community Water and Sanitation Training	
RED-CROSS Water supply for poor households in Ashanti Mampong. Value: Gh 1,538,500.00	70% subsidy to 750 households and full 100% subsidy to 125 households, improving water accessibility and quality of residents	865 Subsidized water connections to six low-income urban communities in Ashanti Mampong.
UN-HABITAT Ensure reliable water supply for Shukura and Ga-Mashie communities especially to reduce COVID-19 risks.	Storage Tanks for all standpipes installed.	200 Subsidized water connections 6 Standpipes

ON-GOING PROJECTS

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

Table 11: Status of ongoing Project considered in the 2022 Tariff Proposal

No.	Project	Description	Completed Year	Cost	Population/Towns Served	Status
1	Sogakope-Lome Water Supply Project	Preparation of feasibility studies and design report. 411,873m ³ /day of potable water will be produced and about 80% will be delivered to Lome. 20% of the remaining production will be used by the communities located along the coast and main highway from Agordome to Aflao	2022	Preparatory phase 2,195,000.00 Euros	5.8 million population (Ghana and Togo) will be served by the year 2040 Communities to be Served Agordome, Sogakope, Abor, Agbozume, Akatsi, Dzodze, Denu and Aflao in Ghana and Greater Lomé area plus cities of Akepe, Noepe, Badja, Keve and Assahoun (Ave Prefecture) in Togo	Completed
2	Keta Water Supply Project	Rehabilitation of existing water treatment plant to restore it to its installed capacity of 7,200m ³ /day and Construction of a new water treatment facility of capacity 35,044 m ³ /day to meet the current and future water requirements of the people up to the year 2030.	32 months after commencement	USD 93,000,0000	Agordome – Sogakope, Keta, Anloga and all communities located along the highway between Agordome and Keta.	Project commenced in April 2020 and ongoing but delay due to Debt Restructuring Programme

No.	Project	Description	Completed Year	Cost	Population/Towns Served	Status
3	Upper East Region Water Supply Project	Construction of 20,000m ³ /day water treatment plant, 63km transmission and distribution network to improve upon the reliability of water supply within the Bolgatanga, Navrongo, Paga and Bongo areas As part of the project, the existing water supply system in Vea will be rehabilitated to produce 5,000 m ³ /day water to augment supply to Bongo and the northern part of Bolgatanga		37,683,266 Euros	Tono, Gia, Navrongo, Paga, Bolgatanga, Bongo and its environs.	Completed
4	Techiman Water Supply Rehabilitation and Expansion Project	Rehabilitation of the existing 4,500m ³ /day capacity water treatment plant Construction of a new 17,000m ³ /day water treatment plant, 27km of transmission pipelines and 147km of distribution pipelines	36 months after commencement	100 million Euros	Tadieso, Kuntunso, Ahansua, Techiman, Tacofiano, Tuobodum, Gyama, Krobo, Akrofrom, Aworowa, Akurugu Daboo, Tanoso, New Techiman, Afrantwo, Akomadan, Nkenkasu.	Commencement of project has delayed as a result of Debt Restructuring Programme

No.	Project	Description	Completed Year	Cost	Population/Towns Served	Status
5	Sunyani Water Supply Project	Phase 1 Construction of a new intake with capacity 57,500m³/day (12.8MGD), new water treatment plant with capacity 55,000m³/day (12.1MGD), 93km of transmission pipeline extension, 16,250m³ of storage facilities, distribution network expansion of various diameters totalling 100km and 49No. standpipes including the supply and installation of 2500No. individual household connections. Phase II Construction of a 21m high and 1000m long dam on the Tano River, distribution pipeline extension of 210km, 147No. standpipes including the supply and installation of 7500No. individual household connections.	Phase 1 36 months after commencement	Phase I 133,332,500.00 Euros	Sunyani and its environs (Target population of 405,093 people by 2040)	Project commenced in 2022 however works stalled as a result of Debt Restructuring Programme

No.	Project	Description	Completed Year	Cost	Population/Towns Served	Status
6	Sekondi – Takoradi Water Supply Rehabilitation and Expansion Project	Phase I Construction of a new weir and intake with capacity 220,000m³/day (48.9MGD), new water treatment plant with capacity 100,000m³/day (22.2MGD), 0.6km of raw water transmission pipeline, distribution pipeline expansion of various diameters totaling 25km and 5,000m³ of storage facilities. Phase II Construction of a new water treatment plant with capacity 100,000m³/day (22.2MGD), 47km of transmission pipeline extension, distribution pipeline expansion of various diameters totaling 273km, 25,000m³ of storage facilities, 150no. standpipes including the supply and installation of 10,000no. individual household connections.	40 months after commencement	Phase I 70 million Euros	Sekondi-Takoradi and its environs (target population 1,417,081 people by year 2040)	Project started in May 2022 and it is ongoing
7	Rehabilitation and Upgradation of Potable Water System in Yendi	Construction of a new intake with capacity 16,000m ³ /day (3.5MGD), new water treatment plant with capacity 15,000m ³ /day (3.3MGD), 27km of transmission pipeline, booster station with a ground reservoir and 4 new elevated water reservoirs, distribution network of various diameters totalling 50km and standpipes.	36 months after commencement	30 million USD	Yendi (Target population 133,000 people by year 2040)	Feasibility studies and preliminary designs completed. Procurement of the services of the contractor completed pending approval by the Indian EXIMBank. Delay due to Debt Restructuring Programme

No.	Project	Description	Completed Year	Cost	Population/Towns Served	Status
8	Wenchi Water Supply Project	Construction of 10,700m ³ /day water treatment plant, transmission and distribution pipeline works	36 months after commencement	32.7 million Euros	Wenchi (target population 93,000 people by year 2040)	Ongoing. Project commenced in 2022
9	Damongo Water Supply Project	Construction of a high lift pumping station with a design capacity of 9,600m ³ /day (2.2MGD), 115km of transmission pipeline extension, 4,000m ³ of storage facilities, distribution network expansion of various diameters and the supply of water	18 months after commencement	49.0 million USD	Damongo and its environs (target population of 80,000 people by year 2040)	Project yet to achieve financial close
10	Tamale Water Supply Project	Construction of a new intake with a design capacity of 145,300m ³ /day (32MGD), a new water treatment plant with a design capacity of 135,000m ³ /day (30MGD), 45km of transmission pipeline extension, 40,000m ³ of storage facilities, distribution network expansion of various diameters totalling 426km and the supply and installation of 10,000No. individual household connections material	36 months after commencement	223,287,979.50. USD	Tamale and its environs (target population 792,000 people by year 2040)	Project yet to achieve financial close
11	Nationwide Water Network Management Enhancement Project	i. Supply of office equipment, vehicles, GPS equipment, leak detection & repair material ii. Renovations of 11 offices plus the construction of 2 new office buildings iii. Piloting of hydraulic network modeling in Tema Region, leakage management in Kaneshie district and prepaid metering in Accra East district.	2022	8.0 million Euros	Nationwide	Completed

Table 12: Ongoing Projects for 2025 Major Tariff Proposal

No	Region	Project Name	Description	Est. Cost	Source of Funds	Timelines	Beneficiary Communities
1	Western	Sekondi-Takoradi Water Supply Expansion Project - Phase 1	Construction of a 100,000m ³ /day capacity Water Treatment Plant	70 million Euros	Commerzbank AG of Germany	2023 – 2025	Takoradi, Effiakuma, Kwesimintsim, Kojokrom, West Tanokrom, Anaji, Sekondi, New Takoradi, Essikado, Apremdo, Kweikuma, Ntankoful, Ngyyiresia, East Tanokrom, Effia Village, Fijai, Assakai, Adiembra, Kansaworodo, Nkroful, Aboadze, Abuesi, Apowa, Inchaban, Ketan, Dixcove Estates, Shama, Hwendo, Hotopo
2	Volta	Keta Water Supply Project	Construction of a 35,000m ³ /day capacity Water Treatment Plant Laying of 62km Transmission Pipeline Laying of 80km Distribution Pipeline	75.3 million Euros	Deutsche Bank of Italy	2020 – TBD ¹	Agordome, Sogakope, Dabala, Lolito, Kpodui, Salo, Agortoe, Anloga, Tegbi, Dzeukope, Keta and surrounding communities.

¹ To Be Determined (TBD): It is contingent on government lifting all restrictions on debt financing.

No	Region	Project Name	Description	Est. Cost	Source of Funds	Timelines	Beneficiary Communities
3	Greater Accra & Ashanti	GAMA Water & Sanitation Project - Additional Financing	Laying of 120km Distribution Pipelines in GAMA & GKMA 10,000No. Subsidized New Service Connections in GAMA & GKMA Creation of a Telemetry System within the Greater Kumasi Metropolitan Area to measure accurately the flow and pressure parameters of the distribution system for effective and efficient management Retooling of the GWL Kumasi Meter Shop	50.28 million US Dollars	World Bank	2023 - 2025	Various including selected low-income communities in GAMA and in GKMA

No	Region	Project Name	Description	Est. Cost	Source of Funds	Timelines	Beneficiary Communities
4	Bono	Wenchi Water Supply Project	Construction of a 13,000m³/day capacity Water Treatment Plant Laying of 13km Transmission Pipeline Laying of 95km Distribution Pipeline	30 million Euros	Belfius Bank of Belgium	2021 - 2025	Wenchi, Droboso, Yoyoano, Beposo, Asuano, Koase, Nkonsia, Awisa, Wurompo, Tainso, Akete, Nwoase
5	Greater Accra & Ashanti	Establishment of Smart Water Management System in GAMA	Establishment of DMAs (to measure/monitor flow and pressure) for 3No. selected Districts (Kasoa, Weija and Nyanyano) Construction of an Integrated Control Centre in Accra West Region.	10 million US Dollars	Exim Bank of Korea	2025 - 2027	Kasoa District, Nyanyanor District, and the Weija District

No	Region	Project Name	Description	Est. Cost	Source of Funds	Timelines	Beneficiary Communities
			Preparation of feasibility studies to establish smart water management system in GKMA				
6	Upper West	Post Completion Support of the Wa Water Supply Development Project	Remedial works to restore SCADA system destroyed because of flooding that occurred at the headworks. Construction of an embankment to protect the intake and WTP from future floods	1.48 million US Dollars	Exim Bank of Korea	2025 - 2026	Wa North and Wa South districts
7	Greater Accra	Automation of system for Water Treatment Plant in Keseve	Implementing cutting-edge technology for water treatment, including automatic sampling and online analysis to monitor key parameters such as pH, chloride, chlorine, and turbidity	0.92 million US Dollars	IGF	2025 - 2027	Ada

No	Region	Project Name	Description	Est. Cost	Source of Funds	Timelines	Beneficiary Communities
			Establishment of a dedicated control room equipped with advanced infrastructure to oversee and manage the entire water treatment operation efficiently Ensuring uninterrupted water supply with the installation of two intake water pumps, guaranteeing continuous operation with one active and one standby pump				
8	Greater Accra	Performance Based Contract for Water Loss Reduction in GAMA	Reduction of NRW by 23,000m ³ per day within the Greater Accra Metropolitan Area through the creation of DMAs and	20.4 million US Dollars		2023 - 2025	

No	Region	Project Name	Description	Est. Cost	Source of Funds	Timelines	Beneficiary Communities
			implementing water loss strategies				

2.2 Compliance with Directives of the Commission

GWL continues to comply with all directives of the Commission. We look forward to further strengthening this collaboration that exist between us.

3. Key Policy Issues for Tariff Consideration

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).

Metering and Accounting

It is proposed to procure every year, 120,000 No. residential meters (low flow ultrasonic type) for all regions. The following considerations were made in reaching this proposal:

1. Procurement of meters for customers has been slow in the last three years (81,000 planned yearly), creating a deficit in metering stock
2. GWL Customers have grown from 655,564 in December 2021 to 790,531 in December 2024.
3. There is a growing demand for service connections considering various interventions (network densification, etc.) especially in low-income communities
4. Current Metering ratio stands at 87.98%, creating an additional metering demand of approximately 120,000 (all regions combined) to achieve 100% metering
5. The rate of reported meter theft and irregularities has increased recently
6. It was planned to replace 20,000 to 30,000 mechanical meters of age 7 years and above in the previous tariff period, but was not achieved due to point 1 above
7. Considering the above, it is projected that
 - a. new service applications will grow at about 5% more than the 2024 increment (or 20% more than the average increment recorded between 2022 and 2024 inclusive), reaching $\cong 72,000$ new connections per year.
 - b. of faulty meters, installation of meters for unmetered customers and dealing with meter theft and meter irregularities will require $\cong 48,000$ per year to achieve 100% metering in the period

Two types of low flow ultrasonic meters for residential/low flow applications are proposed:

- Water Meters *WITH* flow control (throttle) valve (Type 1)
- Water Meter *WITHOUT* flow control (throttle) valve (Type 2)

Detailed minimum specifications for water meters for residential and low flow applications is attached to this document (Appendix C). Breakdown of metering requirements per region is shown table 14 below.

Table 13: Breakdown of Metering Requirements per Region per year (2025-2028)

Region	Meter Type	New Service	Replacement	Total
Accra East	With Valve	11,000	8,615	19,615
Accra West	With Valve	13,000	7,385	20,385
Ashanti North	With Valve	5,000	3,692	8,692
Ashanti South	With Valve	2,000	2,462	4,462
Brong Ahafo	Without Valve	2,000	1,231	3,231
Central	Without Valve	7,000	4,923	11,923
Eastern	Without Valve	5,000	2,462	7,462
Northern	Without Valve	4,000	2,462	6,462
Tema	With Valve	15,000	7,385	22,385
Upper East	Without Valve	1,000	1,231	2,231
Upper West	Without Valve	2,000	1,231	3,231
Volta	Without Valve	2,000	2,462	4,462
Western	Without Valve	3,000	2,462	5,462
Total		72,000	48,000	120,000

Total Number of Meters required for:

1. Type 1 – 75,538 No.
2. Type 2 – 44,462 No.

The table 15 below provide further details on the numbers

Table 14: Completed New Service Connections between 2022 to 2024

Region	Year			Average
	2022	2023	2024	
Accra East	8,057	10,468	10,128	9,551
Accra West	6,890	7,906	12,159	8,985
Ashanti North	4,115	5,092	5,120	4,776
Ashanti South	1,528	1,929	1,759	1,739
Brong Ahafo	1,534	1,269	2,160	1,654
Central	5,545	3,781	7,116	5,481
Eastern	3,461	4,016	4,335	3,937
Northern	2,439	2,108	4,106	2,884
Tema	10,427	10,721	14,025	11,724
Upper East	3,535	705	952	1,731
Upper West	1,268	1,719	1,900	1,629
Volta	2,560	3,042	1,793	2,465
Western	1,692	1,552	2,578	1,941
Total	53,051	54,308	68,131	58,497
Rounded to the nearest 10,000				60,000
5% increment over the 2024 rate of customer increase (Rounded)				72,000

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, GWL will undertake the following actions:

- Map and delineate all GWL catchment areas to understand its boundary conditions by the end of 2026.
- Always maintain 100% achievement for both water sampling and drinking water quality compliance for operational and regulatory requirements from all water treatment plants.
- Always maintain 100% achievement for both water sampling and drinking water quality compliance for operational and regulatory requirements from all distribution networks.
- Replace old and leaky pipelines to enhance reliability of the water supply system.
- Provide technical training and capacity enhancement programmes and workshops at least annually for all categories of staff to remain abreast of new trends and advances in technology.

4.1 Energy Improvement Works

As part of efforts to enhance energy efficiency, optimize operational performance, and reduce electricity costs, the following initiatives are being implemented:

Energy Audit

Comprehensive energy audit is being conducted across key facilities to assess energy consumption patterns, identify inefficiencies, and propose targeted interventions. These audits evaluate equipment performance, energy losses, and opportunities for cost savings through process optimization, equipment upgrades, and improved operational strategies. Findings from energy audits—such as those conducted by USAID, GWL, and its partner WaterWorx—have recommended the replacement of aging and inefficient equipment, particularly pump sets, to enhance energy efficiency. GWL plans to audit all its systems to establish a baseline for energy consumption, ensuring that subsequent audits can measure the impact of interventions. As part of the implementation of audit recommendations, inefficient electrical and mechanical equipment—including pumps, motors, lighting systems, and other high-energy-consuming devices—will be systematically replaced with modern, energy-efficient alternatives. These upgrades not only reduce energy consumption and operational costs but also improve service delivery by enhancing system reliability and performance. For instance, a USAID audit recommended the replacement of Weija and Kpong pump sets, along with regular corrective maintenance measures to optimize energy efficiency. The Weija New Intake pumps were replaced in December 2024, and their performance is being monitored to validate the expected energy and cost savings.

Installation of Capacitor Banks

Capacitor banks will be installed at various facilities to improve power factor, thereby reducing reactive power supply. This will help lower electricity costs by preventing utility-imposed surcharges due to poor power factor. Additionally, improved power factor enhances voltage stability, reduces losses in electrical distribution networks, and increases overall system efficiency.

Deployment of Automatic Voltage Regulators (AVRs)

Similar to systems like Kwanyako WTP, Winneba, Aframso, AVRs will be installed at the below listed systems to stabilize power supply fluctuations, ensuring continuous production and reducing the risk of equipment damage due to voltage variations. Stable voltage levels minimize the frequency of power disruptions and prevent excessive energy consumption caused by frequent starts and stops of electrical motors, pumps, and other equipment.

Optimization of Operational Equipment

Operational equipment will be assessed and optimized to improve efficiency and system performance. This includes load balancing, scheduling high-energy-demand operations during off-peak hours, upgrading control systems for better automation, and implementing best practices for energy conservation. Improved equipment operation will enhance reliability, extend asset lifespan, and lower energy expenses.

4.2 Planned Distribution Improvement Works

Mains Extensions

GWL intends to further expand the existing network by 212.2Km in order to enhance accessibility of water supply and improve capacity utilization of existing systems with idle capacity.

It is pertinent to note that, the proposed mains extension works will impact on the overall capacity utilization of some treatment plants such as Tono (Upper East), Jambusie (Upper West), Sekyere Heman (Central) that are limited operationally by inadequate pipe network to supply areas.

Repair, Replace and Rehabilitate infrastructure

GWL intends to further replace ageing pipe infrastructure across the country particularly, weak Asbestos Cement (AC) and steel pipelines.

Assessment carried out indicates that an estimated 202.5km length of the distribution network needs to be renewed as a matter of urgency to mitigate the high cost incurred on repairs of bursts and leakages and to ensure a hydraulically sound network.

Table 15: Planned Improvement Works

No.	Project Title	Project Description	Project Location	Industry Investment Category (Production/Transmission /Distribution Investment Type)	Benefits/Justification of the project-Impact on NRW /Water Quality/Water Reliability /Quality of Service	Planned Date of Commencement	Planned Date of Completion	Project Duration	Estimated operation and maintenance expenses relating to the proposed investment	Project Cost(GHS)	Project Cost(USD)	Project Cost(Euro)	Source of Funding
Plant Water Quality Laboratories That Need Refurbishment													
1	Plant Water Quality Laboratories That Need Refurbishment at Weija Old Lab (Candy and Bamag)	Retooling of Process Control Labs (Water treatment Plant Laboratories) to enhance water treatment processes optimization and process control monitoring (Quality Control/Assurance)	Weija Old Lab (Candy and Bamag)	Production	1) Improved water quality, quality of service delivery and public health protection 2) Treatment processes optimization	January 2026	December 2026	1year		6,400,000			IGF
2	Plant Water Quality Laboratories That Need Refurbishment at Kpong (Old Works, Tahal, Siemens)		Kpong (Old Works, Tahal, Siemens)	Production		January 2026	December 2026	1year		6,400,000			IGF
3	Plant Water Quality Laboratories That Need Refurbishment at Barekese		Barekese	Production		January 2027	December 2027	1year		6,400,000			IGF
4	Plant Water Quality Laboratories That Need Refurbishment at Owabi Station		Owabi Station	Production		January 2026	December 2026	1year		5,500,000			IGF
5	Plant Water Quality Laboratories That Need Refurbishment at Inchaban Station		Inchaban Station	Production		January 2026	December 2026	1year		4,500,000			IGF
6	Plant Water Quality Laboratories That Need Refurbishment at Bonsa Station		Bonsa Station	Production		January 2026	December 2026	1year		6,400,000			IGF

No.	Project Title	Project Description	Project Location	Industry Investment Category (Production/Transmission /Distribution Investment Type)	Benefits/Justification of the project-Impact on NRW /Water Quality/Water Reliability /Quality of Service	Planned Date of Commencement	Planned Date of Completion	Project Duration	Estimated operation and maintenance expenses relating to the proposed investment	Project Cost(GHS)	Project Cost(USD)	Project Cost(Euro)	Source of Funding
7	Plant Water Quality Laboratories That Need Refurbishment at Brimsu New Works			Production		March 2026	February 2027	1year		5,500,000			IGF
8	Plant Water Quality Laboratories That Need Refurbishment at Kwanyako Station		Kwanyako Station	Production		March 2026	February 2027	1year		6,400,000			IGF
9	Plant Water Quality Laboratories That Need Refurbishment Weija-Adam Clarke		Weija-Adam Clarke	Production		March 2026	February 2027	1year		6,400,000			IGF
10	Plant Water Quality Laboratories That Need Refurbishment at Bukonor Station		Bukonor Station	Production		March 2026	February 2027	1year		4,500,000			IGF
11	Plant Water Quality Laboratories That Need Refurbishment at Nsawam Station		Nsawam Station	Production		March 2026	February 2027	1year		6,400,000			IGF
12	Plant Water Quality Laboratories That Need Refurbishment at Kotoso Station		Kotoso Station	Production		May 2026	April 2027	1year		4,000,000			IGF

No.	Project Title	Project Description	Project Location	Industry Investment Category (Production/Transmission /Distribution Investment Type)	Benefits/Justification of the project-Impact on NRW /Water Quality/Water Reliability /Quality of Service	Planned Date of Commencement	Planned Date of Completion	Project Duration	Estimated operation and maintenance expenses relating to the proposed investment	Project Cost(GHS)	Project Cost(USD)	Project Cost(Euro)	Source of Funding
13	Plant Water Quality Laboratories That Need Refurbishment at Odaso Station	Retooling of Process Control Labs (Water treatment Plant Laboratories) to enhance water treatment processes optimization and process control monitoring (Quality Control/Assurance)	Odaso Station	Production	1) Improved water quality, quality of service delivery and public health protection 2) Treatment processes optimization	May 2026	April 2027	1year		4,500,000			IGF
14	Plant Water Quality Laboratories That Need Refurbishment at Sekyere Hemang Station			Production		May 2026	April 2027	1year		5,500,000			IGF
15	Plant Water Quality Laboratories That Need Refurbishment at Agodome Station		Agodome Station	Production		May 2026	April 2027	1year		4,000,000			IGF
16	Plant Water Quality Laboratories That Need Refurbishment at Kpeve Station		Kpeve Station	Production		May 2026	April 2027	1year		5,500,000			IGF
17	Plant Water Quality Laboratories That Need Refurbishment at Dalun Station		Dalun Station	Production		July 2026	June 2027	1year		5,500,000			IGF
18	Plant Water Quality Laboratories That Need Refurbishment at Yendi Station			Production		July 2026	June 2027	1 year		4,000,000			IGF

No.	Project Title	Project Description	Project Location	Industry Investment Category (Production/Transmission /Distribution Investment Type)	Benefits/Justification of the project-Impact on NRW /Water Quality/Water Reliability /Quality of Service	Planned Date of Commencement	Planned Date of Completion	Project Duration	Estimated operation and maintenance expenses relating to the proposed investment	Project Cost(GHS)	Project Cost(USD)	Project Cost(Euro)	Source of Funding
19	Plant Water Quality Laboratories That Need Refurbishment at Daboase Station		Daboase,	Production		July 2026	June 2027	1year		6,400,000			IGF
20	Plant Water Quality Laboratories That Need Refurbishment at Densu Station		Densu (koforidua)	Production		July 2026	June 2027	1 year		5,500,000			IGF
21	Plant Water Quality Laboratories That Need Refurbishment Abesim Station		Abesim Station	Production		July 2026	June 2027	1year		4,500,000			IGF
22	Plant Water Quality Laboratories That Need Refurbishment at Anum Station		Anum Boso	Production		July 2026	June 2027	1year		4,800,000			IGF
23	Plant Water Quality Laboratories That Need Refurbishment Tanoso Station			Production		July 2026	June 2027	1year		4,500,000			IGF
24	Plant Water Quality Laboratories That Need Refurbishment at Veia Station		Veia Station	Production		July 2026	June 2027	1year		4,500,000			IGF
Subtotal										128,000,000	-	-	
Laboratory for Water Quality Monitoring													

No.	Project Title	Project Description	Project Location	Industry Investment Category (Production/Transmission /Distribution Investment Type)	Benefits/Justification of the project-Impact on NRW /Water Quality/Water Reliability /Quality of Service	Planned Date of Commencement	Planned Date of Completion	Project Duration	Estimated operation and maintenance expenses relating to the proposed investment	Project Cost(GHS)	Project Cost(USD)	Project Cost(Euro)	Source of Funding
25	Laboratory for Water Quality Monitoring in Western Region	Establishment of Standard Regional Laboratory complete with lab equipment (including Heavy Metal detection equipment)	Western Region	Production, Transmission and Distribution	1) Improved water quality, quality of service delivery and public health protection 2) Generate adequate data for decision making	July 2026	June 2027	1year		27,250,000			IGF
Subtotal										27,250,000	-	-	
Production Improvement Works													
26	Replacement of pumpsets	Replacement of 15No. Pumpsets and control panels with soft starters and 7No. Borehole pumps	Kpong New Works, Barekese, Achiase, Owabi, Kpeve, Bonsa, Axim	Production & Transmission	To improve reliability and efficiency of major pump equipment. At Kpong New Works, the works is expected to reduce energy consumption and cost by 76% based on an assessment done in collaboration with USAID.	January 2026	December 2026	1 year	1,079,277	21,585,530	25,377,298		IGF
27	Lime Dosing Pump	Replacement of 16No. Lime Dosing Pump systems	Kpong New Works, Kpong Old Works, Weiija Candy, Weiija Bamag, China Ghezouba, Tahal, Essakyir, Bonsa , Biaso	Production	The dosing equipment will improve water treatment processes through effective coagulation, pH adjustments and disinfection	January 2026	December 2026	1 year	144,696	2,893,912			IGF
28	Stirrers (Lime & Alum)	Replacement of 4No. stirrers (lime & Alum)	Kpong New Works, Weiija Candy, Biaso	Production		January 2026	December 2026	1 year	50,824	1,016,474			IGF

No.	Project Title	Project Description	Project Location	Industry Investment Category (Production/Transmission /Distribution Investment Type)	Benefits/Justification of the project-Impact on NRW /Water Quality/Water Reliability /Quality of Service	Planned Date of Commencement	Planned Date of Completion	Project Duration	Estimated operation and maintenance expenses relating to the proposed investment	Project Cost(GHS)	Project Cost(USD)	Project Cost(Euro)	Source of Funding
29	Calcium hypochlorite dosing system	Installation of 18no. Calcium hypochlorite dosing system	Tema Booster, Kpong Old Works, Weija Adam Clark, Weija Bamag, Tahal, Konongo, Mampong, Nsawam, Biaso	Production & Transmission		January 2026	December 2026	1 year	252,387	5,047,745			IGF
30	Chlorine dosing system	Replacement of 19No. 20kg chlorine dosing system	Kpong Old Works, Dalun, Bukunor, Barekese, Owabi, China Plant, Akim Oda, Kpeve, Barekese, Sekyere Heman, Konongo, Mampong, Aframso	Production		January 2026	December 2026	1 year	565,989	11,319,786			IGF
31	Alum dosing systems	Replacement of 16No. Alum dosing systems	Weija Adam Clark, Weija Bamag, Mampong, Dalun, Salaga, Kpeve, Biaso, Nsawam, Akim Oda, Bonsa	Production		January 2026	December 2026	1 year	183,960	3,679,199			IGF
32	Potassium Permanganate dosing system	Installation of 4No. Potassium Permanganate dosing systems	Inchaban, Brimsu	Production		January 2026	December 2026	1 year	1,500			30,000	IGF
33	Silos (dry feeders)	Replacement of 2No. Silos (dry feeders)	Weija Candy	Production		January 2026	December 2026	1 year	17,500	350,000			IGF
34	Metering pump for polyelectrolyte dosing system	Installation of 1No transfer pump and 2No. Metering pump for polyelectrolyte dosing system	Barekese	Production		January 2026	December 2026	1 year	32,500	650,000			IGF
35	Energy Improvement Works	Replacement of 2No. 34.5KV switchgear and Installation of 500KvA transformer	Kpong New Works, Daboase	Production	To improve duration/time to isolate fault and repair time	September 2026	December 2026	3 months	200,000	4,000,000			IGF

No.	Project Title	Project Description	Project Location	Industry Investment Category (Production/Transmission/Distribution Investment Type)	Benefits/Justification of the project-Impact on NRW/Water Quality/Water Reliability/Quality of Service	Planned Date of Commencement	Planned Date of Completion	Project Duration	Estimated operation and maintenance expenses relating to the proposed investment	Project Cost(GHS)	Project Cost(USD)	Project Cost(Euro)	Source of Funding
36	Replacement of valves and fittings	Replacement defective 24No. Valves and fittings (butterfly valves, poppet valves and gate valves of varying sizes DN150 - DN700)	Kpong Old Works, Weija New Intake, Weija Candy, Weija Bamag	Production	To improve operability of valves for backwashing and reduce water treatment lossess. i.e. from 13% to 10% at the Weija System.	September 2026	August 2027	1 year	43,430	2,171,524			IGF
37	Provision of spare parts	Supply of spare parts for 4No. pumpsets and control panels at lowlift station	Weija New Intake	Production	To improve reliability of the newly installed pumpsets by providing minimum stock of spare parts for planned and unplanned maintenance works.	September 2026	December 2026	3 months	35,000			1,750,000	IGF
38	Pipeline Replacement	1) Replacement of 10km of 350mm Owabi-Suame AC transmission pipeline with 355mm HDPE, 2) Replacement of 174m of 100mm diameter steel raw water transmission pipeline with 110mm HDPE, 3) Replacement of defective (encrusted) pipework at Candy Sedimentation tanks	.	Transmission	To reduce plant downtimes that are occasioned as a result of bursts and leakages on raw and final water transmission pipelines.	February 2026	July 2026	6 months	274,064	13,703,219			IGF
39	Building Rehabilitation	Rehabilitation/Structural Retrofitting of Chemical Building House	.	Production	To repair defective sections of the building and restore aesthetics and	January 2026	December 2026	1 year	20,000		1,000,000		IGF

No.	Project Title	Project Description	Project Location	Industry Investment Category (Production/Transmission /Distribution Investment Type)	Benefits/Justification of the project-Impact on NRW /Water Quality/Water Reliability /Quality of Service	Planned Date of Commencement	Planned Date of Completion	Project Duration	Estimated operation and maintenance expenses relating to the proposed investment	Project Cost(GHS)	Project Cost(USD)	Project Cost(Euro)	Source of Funding
					functionality of the structure.								
40	Intake Screens	Replacement of 2No. Intake screens	Kpong Old Intake	Production	To reduce plant downtimes associated with clogging of the intake screens especially in the rainy season.	September 2026	December 2026	4 months	38,270	1,913,500			IGF
* Sub Total										68,330,889	26,377,298	1,780,000	
Mains Extensions/Improvements													
41	Mains Extensions/Improvements	Mains extension (110mm HDPE, 65.1km) pipeline in Upper East Region	Yorogo, Gambibgo Yarigabiisi, Tongo Beo, Nabisi - Zongo, Winkongo, Kunbagre, Pobaga, Dorongo, Tindonsobligo, Yikene, Sumbrungu, Gaabiisi, Zaare, Wuru – Tono, Nawognia, Saboro, Nayagnia, Doba, Vunania, Budania, Korania, Yogbania and Bonia	Distribution	1) Expands water distribution network by reaching more areas.	January 2026	December 2026	1 year		24,529,225			IGF

No.	Project Title	Project Description	Project Location	Industry Investment Category (Production/Transmission /Distribution Investment Type)	Benefits/Justification of the project-Impact on NRW /Water Quality/Water Reliability /Quality of Service	Planned Date of Commencement	Planned Date of Completion	Project Duration	Estimated operation and maintenance expenses relating to the proposed investment	Project Cost(GHS)	Project Cost(USD)	Project Cost(Euro)	Source of Funding
42		Mains extension (110mm, 90mm HDPE, 7.8km) pipeline in Central Region	Elmina Bronyibima, Elmina Kissi, Elmina Marine, Elmina Benyadze, Dunkwa Bibianeha - New Site, Dunkwa Oxford Mfuom, Dunkwa Borga's Estate, Dunkwa Bibianeha Land, Dunkwa Mbradan - New Site and Dunkwa Akyepim - Owiredu SC	Distribution		January 2026	December 2026	1year		2,507,189			IGF
43		Mains extension (110mm HDPE, 20km) pipeline in Northern Region	South West District (Kpalsi, Kanfeyili), West District (Kpanvo, Bamvim)	Distribution		January 2026	December 2026	1year		9,600,000			IGF
44		Mains extension (110mm HDPE, 5.5km) pipeline in Volta Region	Mercyful Down (Juapong District), North Juapong Clinic (Juapong District), Akwamuffie (Juapong District), Area 52 (Ho West District), Area 53 (Ho West District), Power House (Ho West District), Diamond Street (Ho West District), Horsita 1 (Ho East District), Henry House (Ho East District), Dabala	Distribution		January 2026	December 2026	1year		3,110,101			IGF

No.	Project Title	Project Description	Project Location	Industry Investment Category (Production/Transmission /Distribution Investment Type)	Benefits/Justification of the project-Impact on NRW /Water Quality/Water Reliability /Quality of Service	Planned Date of Commencement	Planned Date of Completion	Project Duration	Estimated operation and maintenance expenses relating to the proposed investment	Project Cost(GHS)	Project Cost(USD)	Project Cost(Euro)	Source of Funding
			Township (Sogakope District),Hospital Area (Hohoe District),Lowcost (Hohoe District) and Kpeve Adogbotornu (Dayi District)										
45		Mains extension (110mm HDPE, 11km) pipeline in Tema Region	Pure Oil, Gbetsile, Katamanso, Ash. West, Bulaso, Prampram, Charity Hills, Prampram, Ningo, Prampram, Community 26, Prampram, Bulaso, Ash East, Ada Foah, Ada, Community 16, Baatsona, Community 17, Baatsona, Ensign College Area, Kpong	Distribution		January 2026	December 2026	1year		1,299,300			IGF
46		Mains extension (110mm, 150mm, 100mm HDPE, 22.6km) pipeline in Upper West Region	Loho, Mangu, Tampalipaani, Dorimon, Dobile, Kumbiehi, Sombo, Dondoli Balaw-Feeli, Northern Star,	Distribution		January 2026	December 2026	1year		9,762,530			IGF

No.	Project Title	Project Description	Project Location	Industry Investment Category (Production/Transmission /Distribution Investment Type)	Benefits/Justification of the project-Impact on NRW /Water Quality/Water Reliability /Quality of Service	Planned Date of Commencement	Planned Date of Completion	Project Duration	Estimated operation and maintenance expenses relating to the proposed investment	Project Cost(GHS)	Project Cost(USD)	Project Cost(Euro)	Source of Funding
			Danko, Siriyiri, Zanko, Guo, T.I Ahmadiyya Shs, West Airport (Zindele)										
47		Mains extension (110mm, 150mm, 100mm HDPE, 13.8km) pipeline in Western Region	Daboase, Asorko Essama, Shama Junction, Kansaworodo Latter-Rain Church, Anaji Queen Of Peace, Coast To Coast DanTo Be, I Am To Kwesimintsim, Assakae Road, Apremdo To Kingsbury (1), Kofikrom, Mentukwa, Behind Post Office- Elubo. Kilometer 3- Enchi Rd(Elubo)	Distribution		January 2026	December 2026	1year		6,422,400			IGF
48		Mains extension (110mm HDPEs, 7km) pipeline in Brong Ahafo Region	Semanhyia, Anyinaso, Kutre After Wheel Barrow Junction, Baptist, Kofisua and Manso Road	Distribution		January 2026	December 2026	1 year		3,229,170			IGF
49		Mains extension (110mm HDPE, 35.3km) pipeline in Accra East Region	Nii Adja Kwaso Rd, Agbawe Rd, Lakma Rd, Ako Adjei Park Down, Motuary Rd To Korle Bu Traffic Light , Abelemkpe(Maame Dokonor), Maamobi	Distribution		January 2026	December 2026	1year		5,988,849			IGF

No.	Project Title	Project Description	Project Location	Industry Investment Category (Production/Transmission /Distribution Investment Type)	Benefits/Justification of the project-Impact on NRW /Water Quality/Water Reliability /Quality of Service	Planned Date of Commencement	Planned Date of Completion	Project Duration	Estimated operation and maintenance expenses relating to the proposed investment	Project Cost(GHS)	Project Cost(USD)	Project Cost(Euro)	Source of Funding
			Polyclinic Newtown Islamic Hospital, Airport (Mirage) Airport(Nyaho), Newtown Timber Market Alajo Polo Park, Dzorwulu Perfect Touch, Aquatex (Mafia Parliament) Martey Tsuru/ East Airport Int. School, Martey Tsuru/ Behind Liz Spot, Tse Addo / Naadus Enclave, East Legon, Ghana Link Area Bush Canteen, Salem Estates, Adjiringanor, Coco Vanilla Area, Adjiringanor Methodist Church Area, Alade Guest, Pantang Borla, Antis, Powerland, Ahmadyia, Behind Wass, Agbogba										
50		Mains extension (110mm HDPE, Length 10.5km) pipeline in Ashanti South Region	West 1-Kokoso, West 1-Akyeremade, West 1-Kromoase, West 1-Aburaso	Distribution		January 2026	December 2026	1year		5,204,063			IGF

No.	Project Title	Project Description	Project Location	Industry Investment Category (Production/Transmission /Distribution Investment Type)	Benefits/Justification of the project-Impact on NRW /Water Quality/Water Reliability /Quality of Service	Planned Date of Commencement	Planned Date of Completion	Project Duration	Estimated operation and maintenance expenses relating to the proposed investment	Project Cost(GHS)	Project Cost(USD)	Project Cost(Euro)	Source of Funding
51		Mains extension (110mm HDPE, Length 5.3km) pipeline in Ashanti North Region	Bomso , Asawasi A-Line , B-Line Anyankaso, Maakro Akomadan Maakro/ Anomangye, Maakro Township, Buokrom Estate Asokore Mampong Abrukutoaso Tunsoom	Distribution		January 2026	December 2026	1year		2,996,000			IGF
52		Mains extension (110mm & 160mm HDPE 150mm & 100mm uPVC, Length 10.1km) pipeline in Accra West Region	Manhean area Oshuiman Area Weija intake through the river to Azumah Dam site Azumah Stone House to Police Quarters Wiaboman Last Stop Odumase - Estate Top	Distribution		January 2026	December 2026	1year		5,684,562			IGF
53		Mains Extensions/Improve ments in Eastern (22km)		Distribution		January 2026	December 2026	1year		5,300,239			IGF
Subtotal				217,155m						85,633,626	-	-	
Pipeline Replacement													
54	Pipeline Replacement	Pipeline replacement in Upper West (Length: 3.84 Km; Size: 110mm)	Dondoli, Zongo, Sokpeyiri-Zongo, Fongu, Tampilipaani and Degu	Distribution	Enhances reliability of water supply system.	January 2026	December 2026	1year		646,734			IGF

No.	Project Title	Project Description	Project Location	Industry Investment Category (Production/Transmission /Distribution Investment Type)	Benefits/Justification of the project-Impact on NRW /Water Quality/Water Reliability /Quality of Service	Planned Date of Commencement	Planned Date of Completion	Project Duration	Estimated operation and maintenance expenses relating to the proposed investment	Project Cost(GHS)	Project Cost(USD)	Project Cost(Euro)	Source of Funding
55		Pipeline replacement in Central Region (Length 5km, Size: 110mm, 90mm, 160mm)	Saltpond Prabiw, Baifikrom Village Line, Baifikrom - Enyan Maim, Saltpond Pacific Station, and Saltpond Obokor - Krofu	Distribution		January 2026	December 2026	1year		2,053,867			IGF
56		Pipeline replacement in Northern Region (Length 20km)	East District (Kanvili, Kamina & Environs),North East District (Kalpohini & Russian Bangallows	Distribution		January 2026	December 2026	1year		5,914,000			IGF
57		Pipeline replacement in Volta (Length: 24 Km; Size: 90mm, 110mm & 160mm HDPE)	Mercyful Down (Juapong District),North Juapong Clinic (Juapong District),,,Akwamuffie (Juapong District),Area 52 (Ho West District),Area 53 (Ho West District),Power House (Ho West District),Diamond Street (Ho West District),Horsita 1 (Ho East District),Henry House (Ho East District), Dabala Township (Sogakope District),Hospital Area (Hohoe District),Lowcost	Distribution		January 2026	December 2026	1year		18,017,189			IGF

No.	Project Title	Project Description	Project Location	Industry Investment Category (Production/Transmission /Distribution Investment Type)	Benefits/Justification of the project-Impact on NRW /Water Quality/Water Reliability /Quality of Service	Planned Date of Commencement	Planned Date of Completion	Project Duration	Estimated operation and maintenance expenses relating to the proposed investment	Project Cost(GHS)	Project Cost(USD)	Project Cost(Euro)	Source of Funding
			(Hohoe District) and Kpeve Adogbotornu (Dayi District)										
58		Pipeline replacement in Accra West (Length: 26.98 Km; Size: 90mm, 110mm & 160mm HDPE)	Mile 7 area, Tesano, Darkuman Kokompe, Darkuman road, Eduardo Mohdlana road, Eduardo Mohdlana road, Larterbiokorshie, Korle-Bu area, First Light-Flamingo area, Mataheko area, Kaneshie, Atico area, Kaneshie, Bubushie, Cocoa Clinic area, Kaneshie polyclinic area, La Paloma area, Eduardo Mohdlana road, Guggisberg Ave (Canara,	Distribution		January 2026	December 2026	1year		77,608			IGF

No.	Project Title	Project Description	Project Location	Industry Investment Category (Production/Transmission /Distribution Investment Type)	Benefits/Justification of the project-Impact on NRW /Water Quality/Water Reliability /Quality of Service	Planned Date of Commencement	Planned Date of Completion	Project Duration	Estimated operation and maintenance expenses relating to the proposed investment	Project Cost(GHS)	Project Cost(USD)	Project Cost(Euro)	Source of Funding
			Mamprobi), Dansoman Exhibition, Dansoman roundabout- Flamingo, Flamingo area, Tunga, Sahara, Dansoman Tunga, Sahara, Dansoman High Street, Bortianor area										
59		Pipeline replacement (Length: 7.48m; Size: 110mm HDPE) pipeline in Western Region	Cemetery Road- Stadium Top, Tacotel, Sekondi Road, Sekondi Road (Goli tank farm),, Sekondi Road - Paa Grant, Atlanti Roundabout - Beach Road, Ahmadiyah Junc - Windy Ridge, BOG - Goodnews Roundabt, Goodnews Rounabt - Ghapoha Hospital, SSNIT House, Omni bank -Market Circle	Distribution		January 2026	December 2026	1year		12,323,325			IGF

No.	Project Title	Project Description	Project Location	Industry Investment Category (Production/Transmission /Distribution Investment Type)	Benefits/Justification of the project-Impact on NRW /Water Quality/Water Reliability /Quality of Service	Planned Date of Commencement	Planned Date of Completion	Project Duration	Estimated operation and maintenance expenses relating to the proposed investment	Project Cost(GHS)	Project Cost(USD)	Project Cost(Euro)	Source of Funding
60		Pipeline replacement (Size: 110mm HDPE, Length: 18.2km) pipeline in Brong Ahafo Region	Penkwase traffic light to Chiraa	Distribution		January 2026	December 2026	1year		15,816,028			IGF
61		Pipeline replacement (Size: 110mm, 225mm, 160mm, 315mm HDPE; Length: 9.7km) pipeline in Accra East Region	Palm Wine Junction, Napty to Labone - Cbg Enclave, Labone Cbg to Lord Of Wings, Togo Embassy to Hometouch, Palm Wine to Liberty School, Togo Embassy to Ghana Inter. School, Linerty to La Presby (Gwcl Collection Point), Kojo Sardine to Nokotwainshishi, Kojo Sardine to New Rd, Brotherhood Church to Borla Junction, Maamobi, Airport-Chinese Embassy, Kokomlemle-Britania Hotel, Paloma - Panama Park, Airport-Foreign Affairs, Oxford St., Mortuary Rd., Industrial Area – Toyota, Osu, Oyarifa and Ritz	Distribution		January 2026	December 2026	1year		7,096,490			IGF

No.	Project Title	Project Description	Project Location	Industry Investment Category (Production/Transmission /Distribution Investment Type)	Benefits/Justification of the project-Impact on NRW /Water Quality/Water Reliability /Quality of Service	Planned Date of Commencement	Planned Date of Completion	Project Duration	Estimated operation and maintenance expenses relating to the proposed investment	Project Cost(GHS)	Project Cost(USD)	Project Cost(Euro)	Source of Funding
			to School Junction										
62		Pipeline replacement (Size:110mm HDPE, Length: 17.6km) pipeline in Ashanti South Region	West 2- Patasi, West 2- Patasi, West 2- Santasi, West 2- Adiembra, West 1- Kwadaso, West 1- Kwadaso Estate	Distribution		January 2026	December 2026	1year		10,860,135			IGF
63		Pipeline replacement (Size:400mm, 315mm & 160mm HDPE, Length: 8km) pipeline in Ashanti North Region	From Airport Round About To Anloga Junction, Kodie, Breman Fie and Moshie Zongo	Distribution		January 2026	December 2026	1year		14,840,000			IGF
64		Pipeline replacement (Size:200mm, 250mm, 315mm, 400mm HDPE Length: 6km) pipeline in Accra West Region	Mile 7 area, Tesano, Eduardo Mohdlana road, First Light-Flamingo area, Mataheko area, Kaneshie, Eduardo Mohdlana road, Dansoman Exhibition, Flamingo area, Bortianor area	Distribution		January 2026	December 2026	1year		11,817,147			IGF

65		Pipeline replacement (Size:150mm, 75mm HDPE Length: 25km) pipeline in Eastern Region	Akim Oda Wtp-Asene Reservoir, Akim Swedru-Salem Borehole-, Cocoa Shed, Swedru Salem, Aboabo Market-Ebenezer Junct, Asene Funeral Ground- Aegis, Akropong , Larth Junction, Baptist Area, Nagisa Pharmacy - Atua Hosp. Jxn, Fan Milk Jxn - Sawyer L/A Sch, Agatorm Jxn - Atua Hosp., Kotoso Wtp To Tafo, Tafo Booster Station To Mpraeso, Mpraeso Booster To Nkwatia, Atibie To Mpraeso Traffic Light, Mpraeso Traffic Light To Booster, Kotoso Town Roads, Tafo Town Roads , Asakraka Town Roads, Bepong Town Roads, Mpraeso Town Roads, Atibie Town Roads, Nteso Town Roads, Bokuruwa Town Roads, Aduamoa Town Roads, Nkwatia Town Roads , Abetifi Town Roads, Pepease Town Roads , Twenedurase ,Obo , Nkawkaw Town Roads, Suhyen (Raw Water), Okumen (Raw Water),	Distribution		January 2026	December 2026	1year		6,040,911			IGF
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			Srodade(Vodafone -Aya Junct), Srodade (Vodafone- Galloway), Adweso(Gallowa y-205), Jumapo(Jumapo- Kofikrom), Asokore(To Oyoko), Srodade(Gwl- B.Foster), Krutown(Ghattec o-Krutown), Anlo Town (Annex- Ada), Yawkyerema(Gha nss-Vodafon), Effiduase(Ghanas s-Effiduase), Nsawam Township Hospital Road, Nsawam – Prisons, Doboro, Doadekye, Ntoaso, Satellite F-Station, Aboyor East, Ayekotse, Anglican To Police Stn, Filter Hse To Y Junction, Kwabeng, Osino, Begogo, Tafo, Kukurantumi, Anyinam, Bunso										
Sub-Total				202,538m						105,503,433	-	-	

No.	Project Title	Project Description	Project Location	Industry Investment Category (Production/Transmission /Distribution Investment Type)	Benefits/Justification of the project-Impact on NRW /Water Quality/Water Reliability /Quality of Service	Planned Date of Commencement	Planned Date of Completion	Project Duration	Estimated operation and maintenance expenses relating to the proposed investment	Project Cost(GHS)	Project Cost(USD)	Project Cost(Euro)	Source of Funding
Customer Service Centres													
66	Customer Service Center	Building of customer service center in Western Region	Western Region	Distribution	Improved customer satisfaction through timely and effective resolution of customer complaints.	January 2026	December 2026	1 year		3,600,000			IGF
67		Building of customer service center in Volta Region	Volta Region	Distribution		January 2026	December 2026	1 year		3,600,000			IGF
68		Building of customer service center in Northern Region	Northern Region	Distribution		January 2026	December 2026	1 year		3,600,000			IGF
Sub-Total										10,800,000	-	-	
Pollution Mitigation Measures													
69	Dredging of Barekese Dam	Dredge, dispose of, and engineer one-third of the silted volume at Barekese	Barekese	Production	80% increase in reservoir/dam holding capacity	January 2026	December 2026	1 year			21,723,079		IGF
Sub-Total										-	21,723,079	-	
Water Supply Project													
70	Damango Water Supply Project	1. Construction of 10,000m3/day Water Treatment Plant 2. Supply and laying of 116km transmission pipeline. 3. Construction of 100km distribution pipeline of various sizes. 4. Construction of elevated water tanks and ground level tanks. 5. Construction of stand pipes	Yipala, Banyasi, Ntereso, Fulfoso, Sumpini, Busunu, Kebiesu, Tailorpe, Alhassan Kura, Jonokponto, Achubunyo, Soalepe, Canteen, Frafra Settlement No.3, Boroto, and Nabori	Production, Transmission and Distribution	1. Increase access to improved water supply 2. Boosts business opportunities and enhances livelihoods in beneficiary communities. 3. improves health and eliminate any potential public health concerns related to water related diseases such as cholera,	October 2025	April 2028	30 month			70,000,000		IGF

No.	Project Title	Project Description	Project Location	Industry Investment Category (Production/Transmission /Distribution Investment Type)	Benefits/Justification of the project-Impact on NRW /Water Quality/Water Reliability /Quality of Service	Planned Date of Commencement	Planned Date of Completion	Project Duration	Estimated operation and maintenance expenses relating to the proposed investment	Project Cost(GHS)	Project Cost(USD)	Project Cost(Euro)	Source of Funding
					dysentery, giardia, etc								
Sub-Total										-	70,000,000	-	
Meter Replacement and New Service Connection													
71	Meter replacement and New Service Connection	11000 New Service Connection and 8615Replacement	Accra East	Distribution	Improve on customer satisfaction	January 2026	December 2026	1 year				5,402,952	IGF
72		13000 New Service Connection and 7385Replacement	Accra West	Distribution		January 2026	December 2026	1 year				5,615,048	IGF
73		5000 New Service Connection and 3692Replacement	Ashanti North	Distribution		January 2026	December 2026	1 year				2,394,211	IGF
74		2000 New Service Connection and 2462Replacement	Ashanti South	Distribution		January 2026	December 2026	1 year				1,229,058	IGF
75		2000 New Service Connection and 1231Replacement	Brong Ahafo	Distribution		January 2026	December 2026	1 year				889,979	IGF
76		7000 New Service Connection and 4923Replacement	Central	Distribution		January 2026	December 2026	1 year				3,284,190	IGF
77		5000 New Service Connection and 2462Replacement	Eastern	Distribution		January 2026	December 2026	1 year				2,055,408	IGF
78		4000 New Service Connection and 2462Replacement	Northern	Distribution		January 2026	December 2026	1 year				1,779,958	IGF
79		15000 New Service Connection and 7385Replacement	Tema	Distribution		January 2026	December 2026	1 year				6,165,948	IGF
80		1000 New Service Connection and 1231Replacement	Upper East	Distribution		January 2026	December 2026	1 year				614,529	IGF
81		2000 New Service Connection and 1231Replacement	Upper West	Distribution		January 2026	December 2026	1 year				889,979	IGF

No.	Project Title	Project Description	Project Location	Industry Investment Category (Production/Transmission /Distribution Investment Type)	Benefits/Justification of the project-Impact on NRW /Water Quality/Water Reliability /Quality of Service	Planned Date of Commencement	Planned Date of Completion	Project Duration	Estimated operation and maintenance expenses relating to the proposed investment	Project Cost(GHS)	Project Cost(USD)	Project Cost(Euro)	Source of Funding
82		2000 New Service Connection and 2462Replacement	Volta	Distribution		January 2026	December 2026	1 year				1,229,058	IGF
83		3000 New Service Connection and 2462Replacement	Western	Distribution		January 2026	December 2026	1 year				1,504,508	IGF
Sub-Total										-	-	33,054,826	
District Metered Areas (DMAs)													
84	District Metered Areas (DMAs)	Establishment of 6no. (2no. each) DMAs in Accra West Region	Weija, Nyanyanor and Kasoa District	Distribution	Establish Baseline, and commence water loss reduction interventions	January 2026	December 2026	1 year			10,200,000		IGF
										-		-	
Total										425,517,949	128,300,377	34,834,826	

Table 16: Summary of Planned Improvement Works

Planned Works	GHS	USD	Euros	Length (meters)
Plant Water Quality Laboratories That Need Refurbishment	128,000,000			
Laboratory for Water Quality Monitoring	27,250,000			
Production Improvement Works	68,330,889	26,377,298	1,780,000	
Mains Extension	85,633,626			217,155
Pipeline Replacement	105,503,433			202,538
Customer Service Centres	10,800,000			
Dredging of Barekese Dam		21,723,079		
Construction of Water Treatment Plant and pipelines at Damango		70,000,000		
Meter Replacement and New Service Connection			33,054,826	
District Metered Areas (DMA)		10,200,000		
Total	425,517,949	128,300,377	34,834,826	

5. Service Delivery and Efficiency Targets

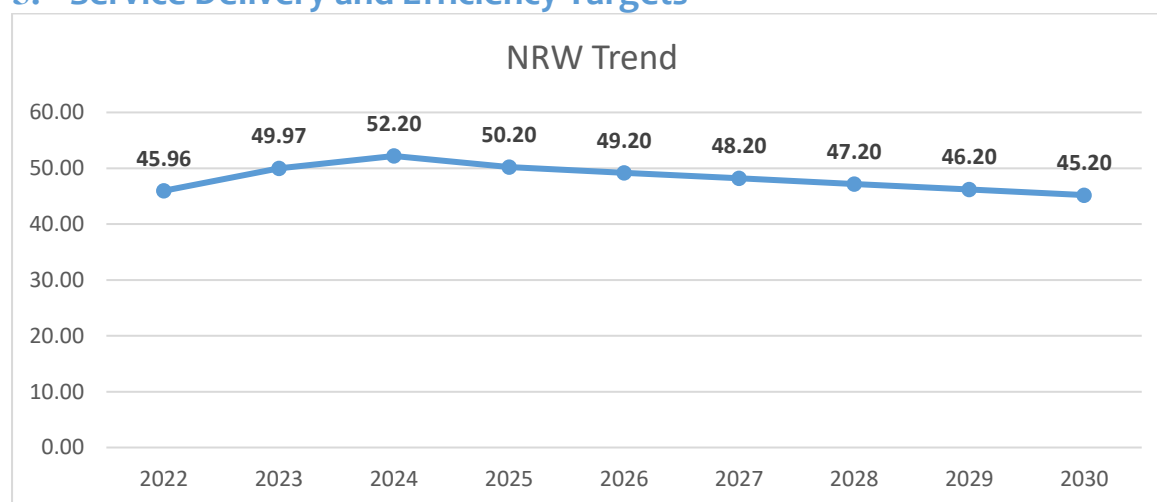


Figure 4: Non-revenue water trend

Table 19 provides Service Delivery and Efficiency Targets which are now briefly discussed.

Table 17: Service delivery and efficiency targets

Performance indicator	Unit	2022	2023	2024	2025	2026	2027	2028	2029	2030
NRW (%)	%	45.96	49.97	52.20	50.20	49.20	48.20	47.20	46.20	45.20
Resolution of complaints-Commercial (hrs)	Hrs	1	1	1	1	1	1	1	1	1
Resolution of complaints- Technical (hrs)	Hrs	24	24	24	24	24	24	24	24	24
Resolution of complaints- Water Quality (hrs)	Hrs	24	24	24	24	24	24	24	24	24

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.

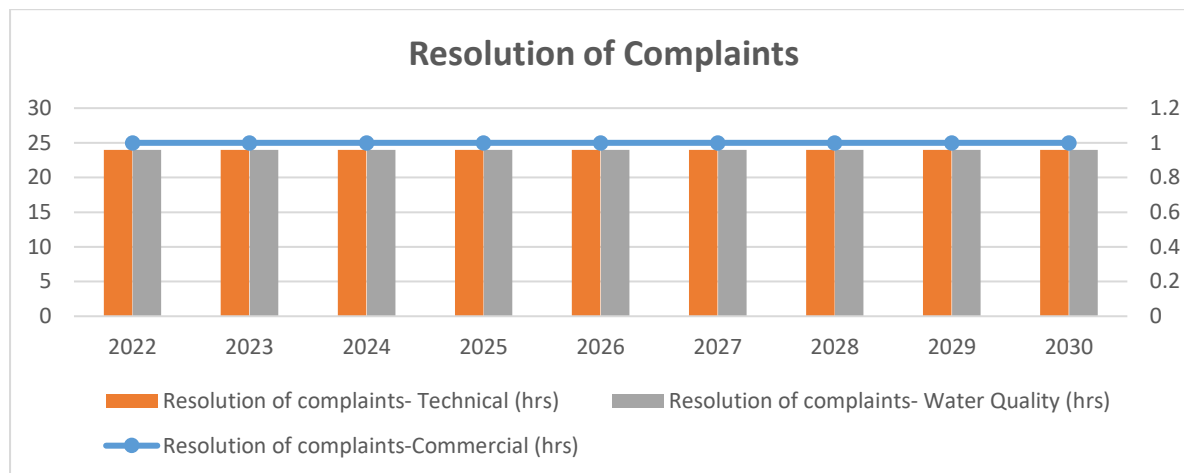


Figure 5: Resolution of complaints

Table 18: Billing and complaints

Billing	2022	2023	2024	2025	2026	2027	2028	2029	2030
Frequency of billing	12	14	12	12	12	12	12	12	12
Frequency of meter reading	12	14	12	12	12	12	12	12	12
Payment period after bill delivered	14	14	14	14	14	14	14	14	14
Number of Complaints	141,729	108,810	95,747	94,097	92,477	90,857	89,237	87,617	85,997
Billing	2,601	7,668	4,913	4,663	4,413	4,163	3,913	3,663	3,413
Un-reflected payments	6,049	3,054	3,674	3,424	3,174	2,924	2,674	2,424	2,174
Quality of water	501	545	349	299	249	199	149	99	49
Wrong disconnection	95	133	166	116	96	76	56	36	16
Metering reading errors	427	469	423	373	323	273	223	173	123
others	132,056	96,941	86,222	85,222	84,222	83,222	82,222	81,222	80,222

The Communications Department was resourced to effectively drive user friendly communication models to educate the public and project the GWL brand. GWL will work more to win the understanding and sympathy of the company's publics. The focus areas will be customer relations, stakeholder and corporate identity, and community and employee relations. The public will continuously be educated on their roles and responsibilities per the customer charter.

GWL will continue to draw up programmes to inform and educate the public on sustainability, water conservation, water usage and illegal activities.

6. Technical / Operating Performance Indicators/Indices

Table 19: Operating Performance Indicator

Performance indicator	2022	2023	2024	2025	2026	2027	2028	2029	2030
Capacity utilization (%)	92.8	88.1	89.4	88.7	87.7	87.7	87.9	87.7	87.7
Water produced (Mm ³)	320.9	340.7	346.0	342.8	343.4	343.4	343.4	343.4	343.4
Water quality compliance (%)	95	95	95	95	95	95	95	95	95

Raw water

Climate change (rainfall, drought, flood), illegal mining activities (precious metals, sand winning, etc.), urbanisation, rapid population growth, industrial growth, run-off from agricultural activities leading to nutrient loads, aquaculture, untreated municipal and industrial waste, indiscriminate dumping of solid waste, release of hazardous chemicals, etc.) and siltation.

The growing menace of illegal alluvial mining (Galamsey) has had adverse effects on water quality on Birim, Pra, Bonsa, Anunu, Osino, Black Volta, Tono and Oda rivers. This has had a severe toll on water production at a number of our water treatment plants such as Kibi, Bunso, Osino, Anyinam, Daboase, Bonsa, Odaso, Konongo, Jambusie, Abesim, Sekyere Hemang etc.

Sand winning and its associated activities on the Black Volta and Nawuni river has also had similar effects at Jambusie and Dalun WTP.

GWL will continue with the following strategies as part of the activities to overcome the challenges to achieve the stated goals.

- 1) GWL will closely collaborate with Water Resources Commission (WRC) and other relevant stakeholders to achieve its mandate.
- 2) Using existing data to assess raw water adequacy and other measures to meet year 2030 demands.
- 3) Dredging/Desilting works would be undertaken at the worse affected intakes to improve raw water availability and quality.
- 4) Working with stakeholders (including WRC, Traditional Authorities, MMDAs, EPA and other departments and Ministries) in meaningful raw water protection and preservation. GWL in collaboration with key stakeholders will develop a model of continuous education on the adverse effects of river pollution (through illegal alluvial mining and deforestation) to the local populace.
- 5) Cooperating with African water partners from Burkina Faso, Cote D'Ivoire, and Togo in management of riparian water resources.

- 6) 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

To effectively address Water Quality challenges to boost consumer confidence in water supplied to consumers, our process control and regional Laboratories will be upgraded and equipped to attain state-of-the art status to able handle the difficult water quality challenges. The Central Laboratory will be upgraded to serve as a reference laboratory for the other regional laboratories. This action will be preceded by auditing. Adequate means of transportation will be provided to improve the frequency of water quality monitoring and management in the distribution network.

The Company would pursue the building of capacity of the Water Quality Assurance department with the aim of achieving ISO 17025:2018 (International Standard for testing and calibration laboratories) Certification of GWL's Laboratories. Water Safety Plans would be developed and implemented for remaining Water Supply Systems nationwide.

Standard Operating Procedures (SOPs) for all components of water supply systems will be developed and implemented. Development and implementation of SOPs will go a long way to enhance general performance of the water supply systems, for example, reduction in the frequency of filter rehabilitation and maintenance, equipment breakdowns, waste of resources, breach in water quality standards and judicious use of water treatment chemicals. SOPs will also be developed for all methods, procedures and equipment, for Laboratory Protocols, equipment and processes.

Studies to identify emerging trends and technologies for developing cost effective methods in Water Quality Assurance and Water Treatment will be conducted. Waste water from all water treatment systems needs to be treated before discharging the environment to ensure environmental compliance and prevent recontamination of our source waters. To this end, all WTPs will be upgraded or optimized to include well-functioning sludge treatment facilities.

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

Management will put in place strategic plans to ensure all Water Treatment Chemicals are available in adequate quantities and quality throughout the year to ensure continuous operations (minimum stock of six months). This will guarantee uninterrupted water supply to meet water production demand.

Reserve Accounts for key Operational Procurements such as water treatment chemicals, Electro-Mechanical Parts, Pipes and Fittings; and Customs Clearance and Haulage have been created to ensure availability of these critical inputs at all times. However, this is continuously evaluated and driven by budget allocation.

Treatment plant operations

Customers want water as and when they need it. In order to ensure that water production is stable throughout the period, GWL 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 provision for stand-by equipment and critical spare parts available at the production stations, the capacity utilization can be maintained or improved.

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

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

7. Financial Performance Indicators/Indices

Table 20: Financial Performance Indicators

Performance Indicator	2022	2023	2024	2025	2026	2027	2028	2029	2030
Operational Cost (GHS)	8,098	4,110	5,525	8,098	9,462	11,060	13,154	15,296	17,745
Operating Cost per authorized consumption (GHS/m ³)	20.48	24.11	33.41	47.44	54.24	62.17	72.55	82.79	94.29
Chemical cost per cubic meter (GHS/m ³)	0.30	0.65	0.81	0.98	1.17	1.40	1.68	2.00	2.32
Electricity Cost per cubic meter (GHS/m ³)	1.43	2.25	2.34	2.65	2.96	3.32	3.81	4.27	4.78

Operation Cost



Figure 6: Operating Cost (GHS' million)

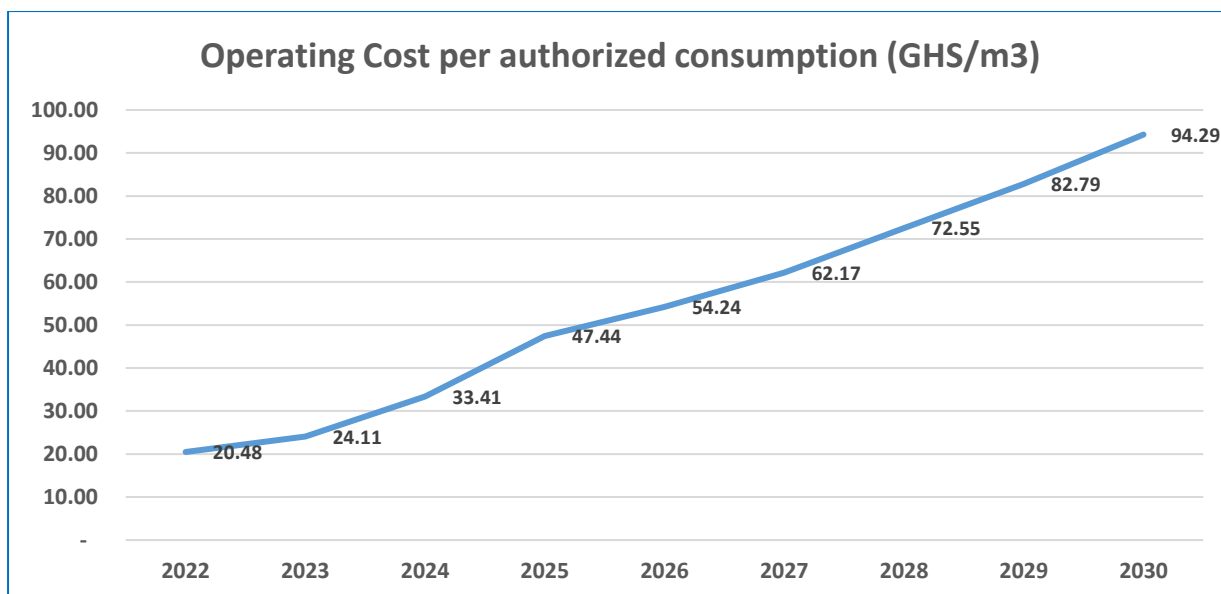


Figure 7: Operating Cost per authorized consumption (GHS/m³)

There has been a spiral increase in operating costs of the company which is attributed to external factors and production challenges. These contributory factors are outlined below :

- Depreciating value of the cedi affecting general prices of goods and services.
 - Frequent bursts and leakages on transmission and distribution pipelines due to road construction activities as well as natural occurrences result in unplanned shutdowns and increased repair costs.
 - Deterioration of raw water quality due to illegal alluvial mining activities around catchment areas have increased the quantities and cost of water treatment chemicals and reagents. Some key systems affected include Odaso in the Ashanti Region, Bunso and Osino in the Eastern Region, Daboase in the Western Region and Sekyere Heman in the Central Region.
- Obtaining Value for Money in procurement*

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

- Continuously implementing framework contracts for common user items with the aim of ensuring standardization and reducing total acquisition costs.
- 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.
- Ensure adequate security at central stores and other key storage points to prevent theft and pilfering.

Enhance customer engagement

Customer engagement will be enhanced by the use of Public Address (P.A.) systems to send information to the public in all regions as well as making radio announcements. The use of bulk short messaging service (SMS) and social media platforms would be intensified to reach more customers. Furthermore, the company's PR managers will also continue to disseminate information to the general public through local radio stations.

Budgetary Control

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

- Adherence to the Public Financial Management (PFM) Act 2016
- Implementation of budgetary guidelines and allocations
- Monthly management reports on revenue and expenditure analysis
- Development of a framework agreement for the purchase of operational items from suppliers
- Timely disbursement of monthly operational mandates to support regions/units.
- Compliance with the use of the Enterprise Resource Planning (ERP) Programme (Ebiz Frame) to integrate key business processes and functions across all regions and departments to eliminate inefficiencies, provide consolidated and monthly reports to meet reporting requirements from stakeholders and management.

Labour Productivity

The total staff strength at the end of December was 5,923 which was made up of 5,638 and 285 regular staff and non-regular staff respectively.

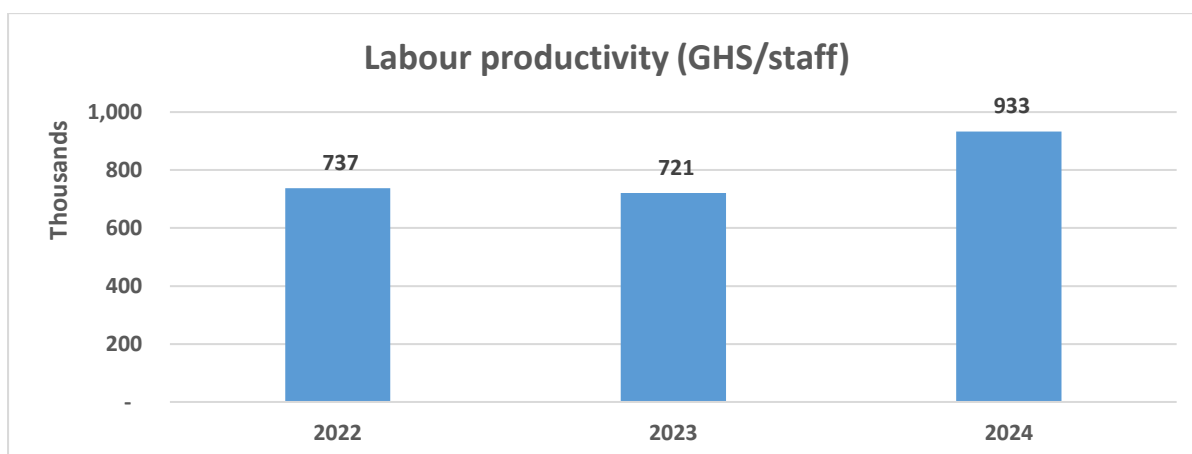


Figure 8: Labour productivity (GHS/staff)

Regular senior staff was One Thousand, Four Hundred and Thirty-One (1,431) representing 25% while regular Junior Staff stood at Four Thousand, Two Hundred and Seven (4,207) representing 75% of the total regular staff.

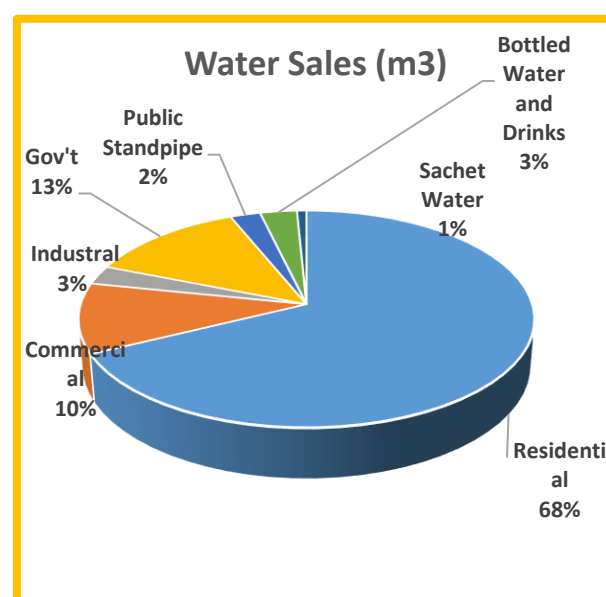
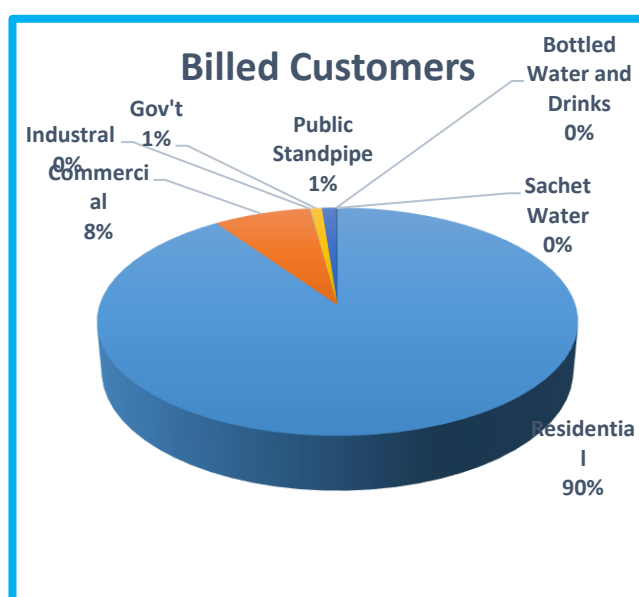
8. Commercial Performance Indicators/Indices

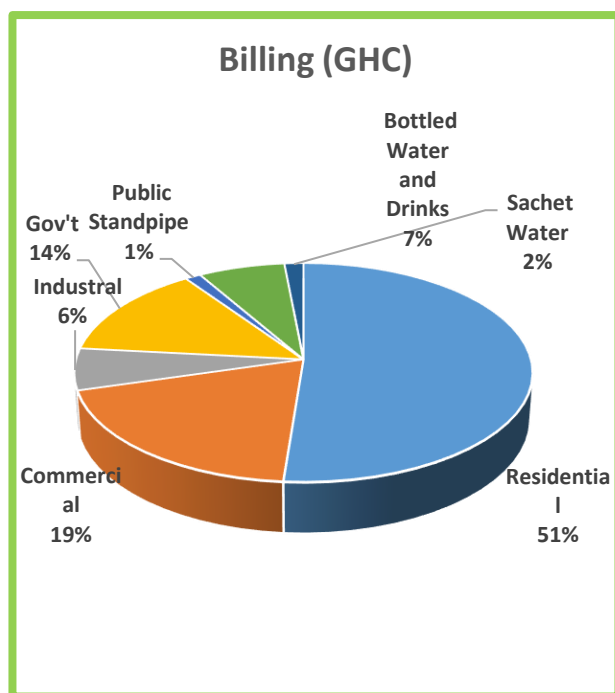
Table 21: Commercial Performance Indicators

INDICATOR	2022	2023	2024	2025	2026	2027	2028	2029	2030
Water Sales (m3)	173,421,042	170,444,860	165,380,789	170,720,753	174,458,161	177,892,377	181,326,593	184,760,808	188,195,024
Private Billing (GHC)	1,179,701,213	1,760,638,977	1,772,048,468	1,827,118,681	1,867,227,747	1,904,102,581	1,940,977,414	1,977,852,247	2,014,727,080
MDAs Billing (GHC)	190,793,818	264,683,640	289,686,155	306,040,731	312,737,436	318,890,879	325,044,322	331,197,766	337,351,209
Private Collection (GHC)	1,045,918,844	1,612,946,751	1,723,906,937	1,790,576,308	1,829,883,192	1,866,020,529	1,902,157,865	1,938,295,202	1,974,432,539
MDAs Collection (GHC)	176,544,836	42,597,572	53,297,621	55,087,332	56,292,738	57,400,358	58,507,978	59,615,598	60,723,218
Private Collection Ratio %	88.66	91.61	97.28	98.00	98.00	98.00	98.00	98.00	98.00
MDAs Collection Ratio %	92.53	16.09	18.40	18.00	18.00	18.00	18.00	18.00	18.00
Total Collection Ratio %	89.20	81.74	86.20	86.52	86.52	86.52	86.52	86.53	86.53
Customer Strength No.	890,567	942,529	986,078	1,008,078	1,040,043	1,072,008	1,103,973	1,135,938	1,167,903
Billed Customers No.	734,187	766,056	790,531	820,446	849,361	878,276	907,191	936,106	965,021

Water Sales and Billing Categorisation

Residential Customers constitute 88% of total customer strength whilst in terms of sales volume it is 65.9%, it contributes only 56% of total billing.





Water Sales

A new metering policy has been adopted for which all mechanical meters are to be replaced with smart meters to ensure accurate meter reading for billing.

As at December 2024, 902,494 (91.51%) out of the total customer strength of 986,197 in our billing database has been verified. As such, customer survey exercises will be undertaken to identify the 8.49% unverified customer, investigate unbilled customers to clean up the customer database 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 is at the advanced stage of development and will be deployed soon to enable customers apply and monitor progress of new service on-line.

Collection

Availability of financial liquidity is important for a smooth operation cycle of a service provider. Collecting revenues from the consumers on time helps in self-financing expenses and costs of the GWL. Low financial liquidity forces GWL to take loans with high interest and additional costs.

Revenue collection efforts will be intensified to ensure that all consumers pay their bills in a timely manner. As mentioned earlier, payment applications have been deployed by GWL, authorized partner banks, Mobile Network Operators (MNOs) and authorized 3rd parties through which customers can make payments electronically and be credited in real-time at their comfort.

Disconnections notice will be sent to customers in arrears via SMS. Defaulting customers will be disconnected promptly to minimize arrears build up. Follow up action on disconnected customers will be intensified to ensure that the disconnection has been effectively done, and that the customer has not been illegally re-connected and the arrears paid.

Legal action to recover arrears from recalcitrant customers will be intensified. GWL will continue encouraging payment of bills through the various GWL payments platforms (GWL app, *1010#, banks, third parties), public education, sending demand notice (via SMS) and instituting reward schemes for loyal customers.

9. Key Challenges Likely to Impact Service Delivery

Electricity Supply

- ✓ Supply Side Management
 - Poor power quality accelerates the deterioration of water production equipment (electromechanical equipment).
 - Inadequate supply of electricity to meet customer demand.
 - Unreliability of power supply to meet demand at the water treatment plants.
- ✓ Demand Side Management
 - Intermittent power fluctuations due to disturbances on the transmission/distribution lines affect water production.
 - Unexpected equipment fault from the supply authorities.
 - Frequent shut downs for major maintenance works on the distribution lines, transformers and switchgears have rippling effect on water production.
 - Prevalent power outages due to inefficient equipment.

GWL operations is such that power interruptions adversely affect customers at the tail end of the distribution networks and on high elevations are deprived of their supplies.

9.0 Energy Consumption-Production Plants Electricity Usage

Energy constitutes the highest cost element in GWL operation cost build-up. From the audited report of GWL from 2022 to 2024, energy constitutes 50% of its total production cost and 27% of its operating cost. This puts a lot of pressure on GWL operations and adequate measures internally and externally should be put in place to cater for energy cost since it is a primary input of operations.

Internally, GWL is

- carrying out energy audit to save on consumption and cost.
- Optimising operations.

Externally, the regulator should approve tariffs adequate to cater for rising cost of electricity.

Even though GWL is exempted by law from payment of taxes and other levies, we have been paying VAT, NHIL & GETFUND, Streetlighting and Government Levy on energy supplied by ECG, NEDCo, GRIDCo and VRA. It is therefore necessary for GWL to be adequately compensated in this regard.

9.1 Availability of Chemicals and Laboratory Reagents

The company imports Aluminium Sulphate, Polyelectrolytes Coagulants, Hydrated Lime (Calcium Hydroxide), Liquefied Chlorine gas, Calcium Hypochlorite, Potassium Permanganate, Activated Carbon, Chlorine Tablets (Calcium Hypochlorite Based), Sodium Hydroxide (Soda Ash) for water treatment. To ensure that water quality from source to end-user meets the Ghana Drinking Water Quality standards set by the Ghana Standards Authority (GSA). GWL ensures that it always has sufficient stock (minimum of six months stock) for Water Treatment Chemicals and Analytical Chemicals and reagents for water quality monitoring.

9.2 Breakdown of Production Facilities plant and Equipment

Factors such as aged equipment, poor raw water quality and prevalent power outages and fluctuations lead to frequent breakdown of critical electromechanical equipment, even though the company carries out regular maintenance activities. GWL is however unable to stock critical spare parts and replacement parts due to financial constraints to fix these breakdowns immediately.

However, if the current tariffs are approved as required, GWL will carry out all the needed repair, rehabilitation, and replacement of the key production facilities plant and equipment timeously to improve on plant availability and consequently the reliability of water supply to our customers.

9.3 Expansion of Production Capacity

The company operates about 86 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.

As earlier noted, GWL 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.

9.4 Production Losses

Production losses include water used for backwashing, cleaning of water receptacles and desludging at the production stations. Industry standards for production losses is 5-10%. GWL strives to fall within the industry standards in most its treatment plants. However, raw water quality challenges in galamsey and sand winning prone areas result in high production losses at the affected stations. GWL is in constant collaboration with the various regional security councils to reduce or eliminate the impact of these illicit activities. The Company will carry out the needed maintenance to ensure that high standards are attained.

9.5 illegal Mining

Illegal mining contributes significantly to Poor Water Quality (high turbidity, colour and high Concreations of chemical constituents) of raw water. This results in High Water Treatment Chemicals usage and frequent plant shut down for maintenance and repairs at the following systems: Kibi, Bunso, Osino, Daboase, Bonsa, Odaso, Konongo, Apedwa, Jambusi and Dalun. Aside this, siltation of raw water sources and intakes from these mining activities affects availability(volumes) and quality of raw water for production.

GWL is closely collaborating with the Water Resources Commission (WRC), Environmental Protection Authority (EPA), Ministry of Lands and Natural Resources (MLNR) to find a lasting solution to mitigate the impact of illegal mining activities on our operations. GWL has also

undertaken some dredging works at some systems to improve the availability and quality of raw water for production for example Konongo, Sekyere Hemang, Owabi and Baifikrom.

9.6 Organizational Reform and Restructuring

Internal Reforms

Management in 2022 took a giant leap after the Performance Improvement Programme (PIP) to introduce the Continuous Improvement Programme (CIP). In 2022, GWL in collaboration with the World Bank launched the Field Level Leadership (FLL) for which 18no. staff were undertaken through train-the-trainer (TTT) programme. The implementation of the programme led to the training of 350 staff. In 2024, 1055no. Junior Distribution Staff were trained in SOP for distribution while 180no. staff were also trained in Utility Management.

Currently, the second phase of the SOP training for Junior Production Staff is scheduled for 2025. GWL intends to roll out more TTT programmes in subsequent years to increase knowledge transfer and behavioural change among staff. This will go a long way to motivating all staff to give their best.

9.7 Commercial Customer Complaints and Dispute Resolution

The company operates a toll-free Call Centre, and a Customer App developed to receive customer complaints 24/7 at the comfort of their homes. Customer. Complaints are logged and relayed to the appropriate office for necessary action. The complaints mostly relate to irregular flow, leakages, poor water quality (colored water), billing and payment related issues.

GWL will continue to invest in the application of technology to ensure that customer complaints are resolved in a timely manner and modify its business operations to ensure that customers are served in the best possible way.

9.8 Resolution of Court Cases

The company still has some long outstanding court cases relating to land title and delays in payment of compensation to project affected persons. Usually, parcels of land and private 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 and institute legal actions

9.9 Government and Public Sector Debts

Previously, there was a debt clearing 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. The government has abolished this mechanism, and the implication is that individual public utilities are now directly responsible for the collection of 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 to pay 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.

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

9.10 Surcharge and Subsidies

The company aims to bridge the inequality gap through government subsidies to carry out capital investment projects to enhance access to potable water. For this purpose, annual budgets are presented to the Ministry of Finance (MoF) through the Ministry of Works, Housing and Water Resources (MWHWR) to facilitate these programmes but this government support is not forthcoming. GWL leverages on its strategic relationships to mobilize support from development partners such as the World Bank, VEI/WaterWorX and UNICEF to maintain its operations.

The introduction of a surcharge on water tariff is critical to fund infrastructural upgrades to the existing water network. The availability of subsidies and surcharges are significant in ensuring that GWL is committed to achieving its mandate.

9.11 Government Grants

The 2024 National Water Policy (NWP), implemented by the MWHWR provides programs to achieve the UN Sustainable Development Goal (SDG) Six (6) of “Clean Water and Sanitation”. As such the Government of Ghana (GoG) aims to improve water supply and expansion projects funded with external grants and concessional loans under multi-lateral agreements.

Under urban water supply, projects such as the Wenchi and Sekondi-Takoradi WSP amongst many others are to enhance water infrastructure in urban and rural areas. As such, GWL has long-terms loans contracted by the GoG from international lending agencies and on-lent to the company to implement water policy objectives of the government. Also, a decline in the government’s budget allocation for investment in the water sector continually presents funding challenges to complete these projects. These actions are adversely affecting GWL’s ability to service its debts and maintain operational efficiency to meet growing population demands in urban and rural areas.

9.12 Access to Finance and Repayment of Financing Costs

GWL seeks to leverage on its assets to maintain the revenue required to sustain its operations. However, GWL incurs significant losses as expenditure increases, hence the inability of the company to attract commercial funding.

To enhance the value of GWL, an asset revaluation exercise was carried out to reflect the true values of its assets in financial reports. Also, GWL intends to extensively use its annual budgets, and work plans as strategic tools to improve on its return from assets. This will enable GWL honor its financial obligations such as repayment of financing costs from external sources.

Also, periodic assessment of the company’s financial capacity will enable the GWL assess financing and investment opportunities beneficial in achieving its mandate.

An adjusted tariff that enables GWL recover its full costs is critical in financing decisions such as bilateral borrowing agreements from financial institutions and agencies to embark on viable projects.

9.13 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.

9.14 Water Sold to Independent Water Distributors

GWL has agreed to sell bulk treated water to CWSA saline belt communities in the Central Region. A provisional tariff of GHS8.62/m³ has been agreed between the two parties. The tariff shall be subjected to review in line with PURC tariff adjustment guidelines.

The bulk water is being sourced from the following GWL systems: Brimsu, Baifikrom, Essakyir as well as Kwanyaku systems, and currently serves the following under listed communities:

Table 22: Communities served

No.	Name of Community	Name of Political District	Source of water supply
1	Tsetsi	AburaAsebu Kwamankese District	Brimsu
2	Essakyir	Ekumfi District	Essakyir
3	Obrachere	Awutu Senya District	Kwanyaku
4	Bawiiase	Awutu Senya District	Kwanyaku
5	Baifikrom	Mfantseman Municipal	Baifikrom
6	Kyiren Nkwanta	Gomoa West District	Kwanyaku
7	Agona Nyakrom	Agona West District	Kwanyaku
8	Anomabo	Mfantseman Municipal	Baifikrom
9	Edzibol	Mfantseman Municipal	Baifikrom
10	Botoku	Awutu Senya District	Kwanyaku

There are plans to replicate similar arrangement in Upper East Region.

9.15 Human Resource-Skilled Manpower

Training

The company's limited financial resources make it difficult to implement its training program within any particular year. This makes it difficult for the company to equip staff with current skills needed to solve the dynamic challenges of the work.

9.16 Production Infrastructure Constraints

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

9.17 Destruction of pipelines by Agents of MDAs

GWL has observed the rising incidence of destruction of pipe mains by public agencies (i.e. Road agencies, Power agencies, Telcos etc.) and their agents during the execution of projects which affects the supply of water to supply areas.

This issue is prevalent in regions such as Western, Accra West, Upper East, Ashanti North and Ashanti South resulting in no flow condition in their supply areas.

An estimated 173.94km of pipelines have been destroyed due to road projects.

Table 23: Length of pipeline damaged by contractors

No.	Region	Diameter of damaged pipes (mm)	Length of damaged or destroyed pipes (m)
1	Western	Various (19mm - 525mm)	14,484
2	Accra West	Various (50mm - 200mm)	12,040
3	Upper East	Various (50mm - 160mm)	1,670
4	Ashanti North	Various (63mm - 315mm)	8,989
5	Ashanti South	Various (100mm - 200mm)	36,760
Total			73,943

GWL is closely collaborating with the Public Agencies during the planning and implementation stages of projects to avoid the destruction of distribution and transmission pipelines.

9.18 Aged and structurally weak pipelines

Supply in some areas are affected by bottlenecks caused by encrustation of aged distribution pipelines that limits their hydraulic performance. Additionally, structurally weak transmission pipelines which result in frequent bursts and leakages affects the supply of water in the distribution network. The weak and aged pipelines are gradually being replace with HDPE and PVC pipes for an improved supply regime to the affected supply areas.

9.19 Illegal Activities

GWL is still faced with the challenge of illegal activities in the distribution network such as meter by-passes, illegal connections, tampering of meters by customers and installation of in-line suction pumps by customers. Illegal connections and meter tampering forms part of apparent losses which contribute to the high NRW whiles the connection of in-line suction pumps by customers distorts the regular flow and pressure conditions in the network and deprives some customers of the desired level of service. These connections are proactively being pursued at the District level to correct the anomalies.

10. Strategies to Address Key Challenges

The strategies to address the key challenges noted above have been presented in the preceding sections. In addition, table 30 below outlines the strategies to address key challenges:

Table 24: Strategies to address key challenges

No.	Key Challenges	Measures to Address Challenges
1	Electricity Supply	Liaise with ECG to provide the company with dedicated lines to GWL water treatment plants.
2	Energy Consumption (Production Plants Electricity Usage)	1) Conduct energy audits in accordance with ISO 50002 standards. 2) Procure automatic voltage regulators (AVRs) for power supply quality. 3) Continue with the installation of capacitor banks for power factor correction.

No.	Key Challenges	Measures to Address Challenges
		4) Installation of surge protection devices especially at major headworks to protect GWL electromechanical equipment from damage due to abnormal voltages.
3	Availability of Chemicals and Laboratory Reagents	1) Continue with the installation of efficient laboratory and dosing equipment. 2) Use alternative and more efficient water treatment chemicals where applicable.
4	Breakdown of Production Facility	Allocate sufficient funds to carry out repairs, replacement and rehabilitate aged equipment.
5	Illegal Mining	1) GWL collaborating with Water Resources Commissions (WRC) and Environmental Protection Agency (EPA) to find a lasting solution 2) Liaise with security agencies to check illegal small scale mining operations.
6	Organizational Reform and Restructuring	Reward and Sanction mechanisms would be implemented to motivate all staff to give off their best to put the company on sound financial footing.
7	Resolution of Court Cases	1) Government should hasten the payment of compensation.
8	Government and Public Sector Debts	GWL needs support from government in applying sanctions
9	Surcharge and Subsidies	Funds should be allocated by Sector ministry
10	Government Grants	1) Full cost reflective tariff will be approved by PURC 2) Continue to liaise with government to make necessary funding available to carry out the needed investment.
11	Human Resource-Skilled Manpower	Competitive condition of service for staff retention.
12	Production Infrastructure Constraints	Government should help in expansion in water supply infrastructure
13	Destruction of pipelines by Public Agencies	Close collaboration with Public Agencies during the planning and implementation stages of projects
14	Aged and structurally weak pipelines	Gradual replacement of worse affected distribution pipelines with HDPE and PVC
15	Illegal Connections	Intensify the activities of the Loss Control Teams (LCT) in the districts to proactively pursue illegal connections and consumer irregularities.

11. GWL Water Production System Related Data

11.0 Projected Water Production Data

Table-25 GWL Water Production Systems Data 2021-2027

Parameter	Unit	2022	2023	2024	2025	2026	2027	2028	2029	2030
A. Projected Raw Water Abstraction Capacity	m ³ /Day	1,046,810	1,133,852	1,133,852	1,133,852	1,148,565	1,148,565	1,145,427	1,148,565	1,148,565
B. Gross Production Capacity	m ³ /Day	1,059,675	1,059,675	1,059,675	1,059,675	1,073,425	1,073,425	1,070,492	1,073,425	1,073,425
C. Authorised Water Usage @ Production Site	m ³ /Day	42,371	65,363	66,351	65,760	56,466	56,466	56,466	56,466	56,466
D. Average Net Effective Production Capacity	m ³ /Day	1,059,675	1,059,675	1,059,675	1,059,675	1,073,425	1,073,425	1,070,492	1,073,425	1,073,425
E. Water available for transmission	m ³ /Day	835,182	887,066	898,016	892,458	894,043	894,043	894,043	894,043	894,043
F. Target Availability of Production Plants	%	95	95	95	95	95	95	95	95	95

11.1 Capital Expenditure Financing Plan

Table-26 Summary of Water Production Related Capital Expenditure Financing Plan (Million GHS)
2025-2030

Item	2022	2023	2024	2025	2026	2027	2028	2029	2030
Accumulated Depreciation	9,963	10,630	11,519	11,386	11,608	11,840	12,082	12,336	12,595
Retained Earnings	9,049	9,033	4,063	5,002	5,971	7,278	9,228	10,976	12,709

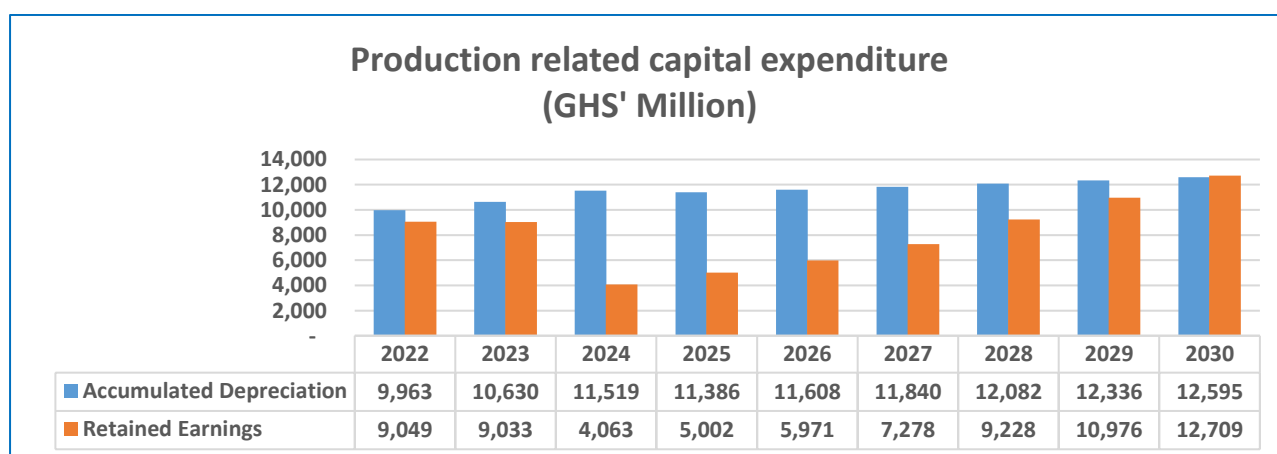


Figure 9 Production related capital expenditure (GHS' Million)

12. Operation and Maintenance Costs

Table-27 Water Related Operation and Maintenance Costs (Million GHS) 2025-2030

Item	2022	2023	2024	2025	2026	2027	2028	2029	2030
Fixed O & M Costs	968	1,369	1,953	2,639	3,043	4,314	6,770	11,329	20,706
Variable O & M Cost	792	1,120	1,598	2,159	2,490	3,529	5,539	9,269	16,942

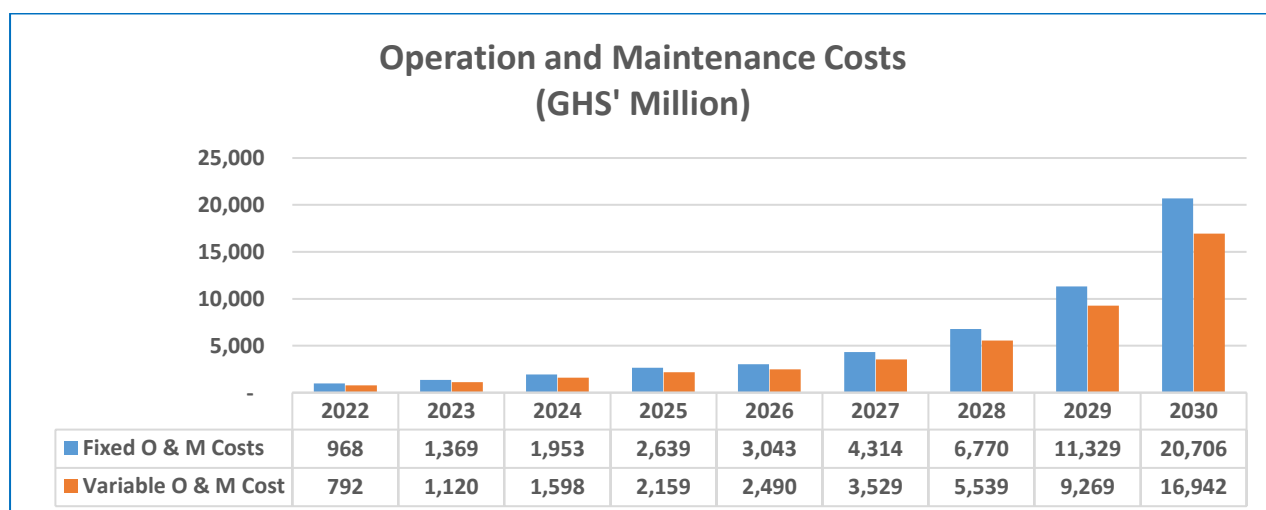


Figure 10: Water Related Operation and Maintenance Costs (Million GHS)

13. Administration and General Costs

Table-28 Water Related Administration and General Costs (Million GHS)

Item	2022	2023	2024	2025	2026	2027	2028	2029	2030
Fixed O & M Costs	260	367	475	533	597	686	768	860	954
Variable O & M Cost									

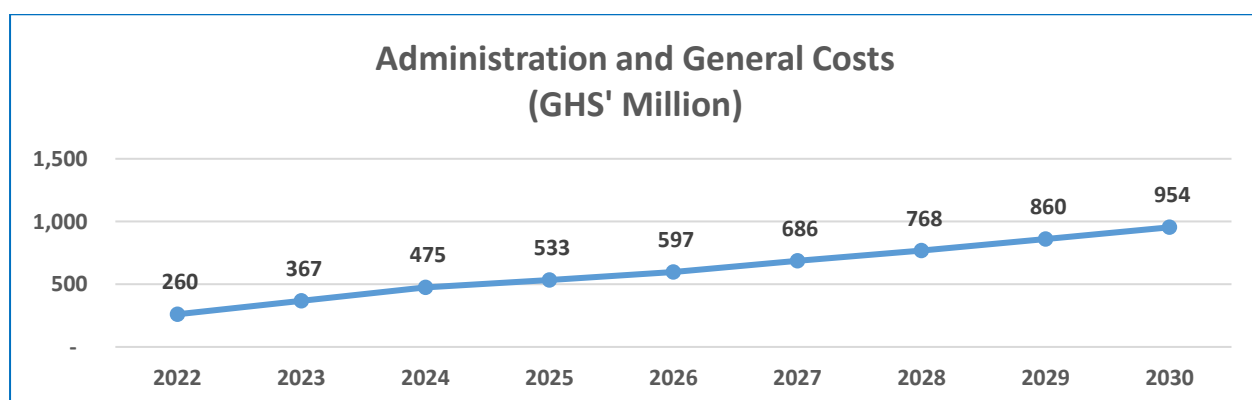


Figure 11: Administration and General Costs (Million GHS) 2025-2030

14. Human Resource Costs- Employee Costs

Table-29 Water Production Related Human Resource Costs (Million GHS)

Item	2022	2023	2024	2025	2026	2027	2028	2029	2030
Fixed O & M Costs	369	575	535	1,595	1,971	2,437	3,012	3,723	4,601
Variable O & M Cost									

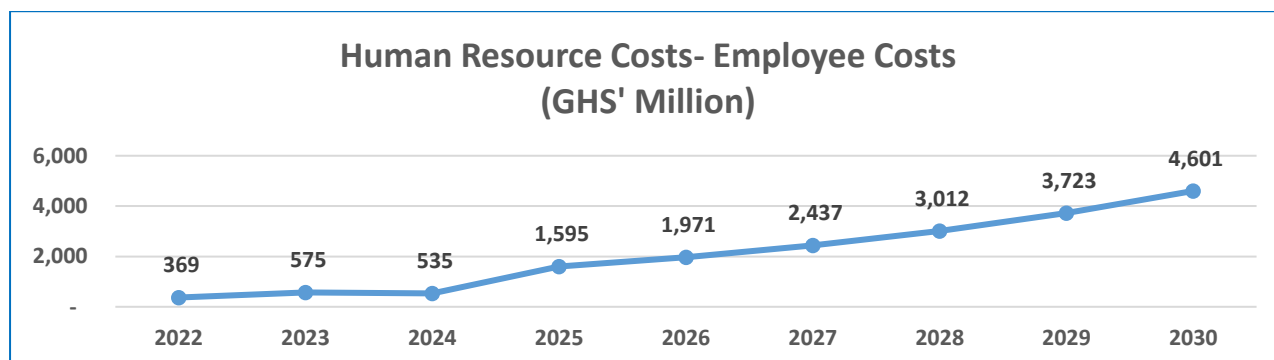


Figure 12: Human Resource Costs (Million GHS) 2025-2030

15. Public Education

Table-30 Summary of Public Education Costs (Million GHS)

Item	2022	2023	2024	2025	2026	2027	2028	2029	2030
Stakeholder Communication & Sensitisation (Pubic Education)	3.43	7.43	6.95	8.56	10.22	12.46	15.79	18.78	21.75

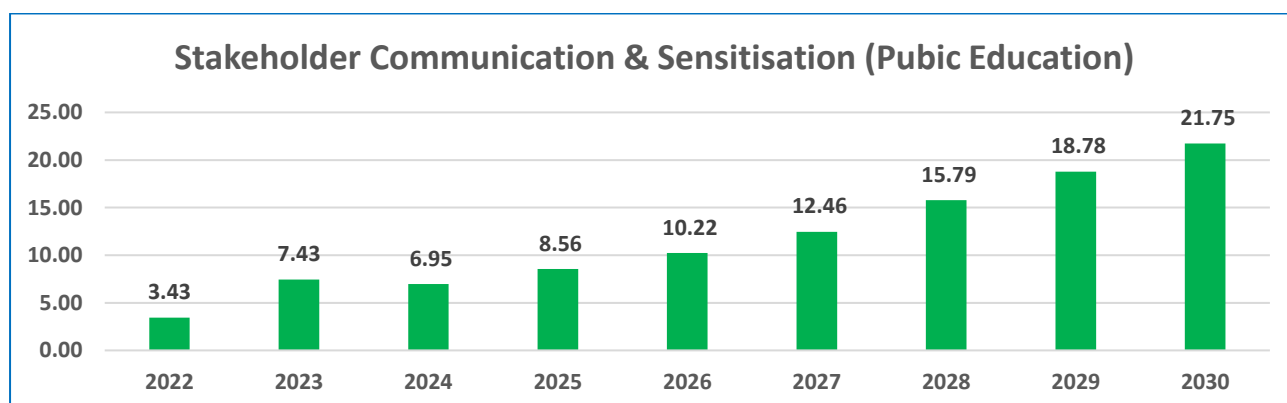


Figure 13: Public Education Costs (Million GHS)

16. Financing and Interest Costs

Table-31 Water Production Related Financing and Interest Costs (Million GHS)

Item	2022	2023	2024	2025	2026	2027	2028	2029	2030
Interest on Foreign Loans	99.40	128.17	198.26	222.05	248.69	278.53	320.32	358.75	401.80
Interest on Domestic Loans	0.19	-	4.68						
Interest on Working Capital Loan									

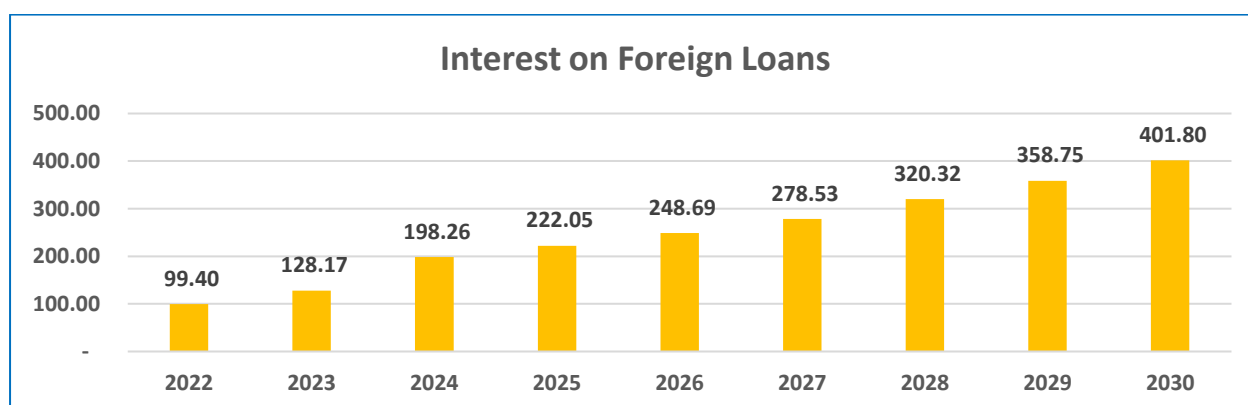


Figure 14: Interest on foreign loans

17. Return on Equity

Table-32 Water Production Related Equity Financing Costs (%)

Item	2022	2023	2024	2025	2026	2027	2028	2029	2030
Rate of Return	8	8	8	8	8	8	8	8	8

18. Depreciation

Table-33 Depreciation (Million GHS)

Item	2022	2023	2024	2025	2026	2027	2028	2029	2030
Depreciation of Assets	901	666	857	960	1,075	1,205	1,349	1,511	1,692

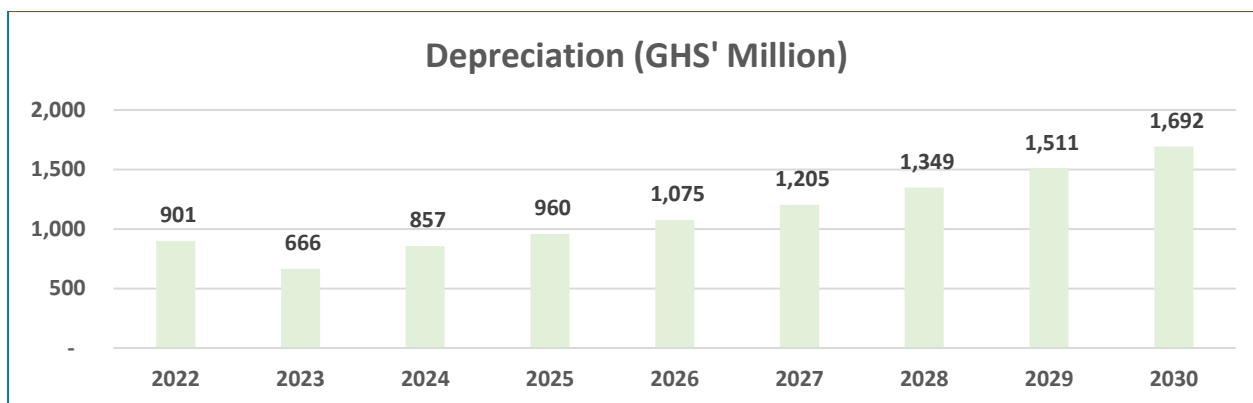


Figure 15: Depreciation (GHS' million)

19. 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 2025 to 2030. These are detailed in the accompanying spreadsheets. The increase in tariff is mainly due to exchange rate fluctuation, 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. GWL is required to make exchange loss payments and repayment of various loans and their interest's repayments through tariffing.

Table-34: Summary of Water Production Revenue Requirement (Million GHS) 2025-2030

Item	2025	2026	2027	2028	2029	2030
A. Capital Recovery Component (CRC)						
B. Fixed O & M Component (FOMC)						
C. Revenue from Water Charge						

20. 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 2022 to 2030 which are shown in the tables below. The method and assumptions are also discussed.

Table 35: Cash Operating Expenses

THE COST BUILDUP	2024					
	Production	Transmission	Distribution	Commercial	General Admin	Total
	GH¢	GH¢	GH¢	GH¢	GH¢	GH¢
Personnel	119,981,231.86	5,381,486.96	107,923,359.31	157,472,446.72	138,371,535.65	529,130,060.50
Propose Salary						
Long Service Award Provision						
Personnel Cost	119,981,231.86	5,381,486.96	107,923,359.31	157,472,446.72	138,371,535.65	529,130,060.50
Chemicals	280,754,455.89	733,298.26	5,900.00	-	7,255.23	281,500,909.38
Electricity Consumption	553,218,346.76	29,324,106.90	2,586,361.55	506,190.24	4,877,797.67	590,512,803.12
VAT/NHII/GETF	110,643,669.35	5,864,821.38	517,272.31	101,238.05	975,559.53	118,102,560.62
Fuel	4,990,056.80	353,559.22	9,905,436.33	8,006,622.95	18,606,975.30	41,862,650.59
Materials	7,067,623.63	-	2,482,782.51	1,119.09	54,098,757.15	63,650,282.38
Reagents	4,429,094.47	49,470.98	-	-	1,632,747.92	6,111,313.37
Hiring of Equipment	655,935.09	993,250.83	-	3,100,605.00	1,826,563.74	6,576,354.66
Overheads	8,364,044.66	343,130.56	12,396,397.27	13,480,574.79	252,450,742.79	287,034,890.07
Bad Debts	-	-	-	-	-	-
R & M	299,091,431.56	8,591,224.84	90,078,939.94	12,729,190.37	30,986,425.85	441,477,212.55
Financial Cost					16,488,189.42	16,488,189.42
Exchange Loss (Local)					20,753,986.62	20,753,986.62
Levies					29,057,882.84	29,057,882.84
Crop and Land Compensation		111,954.53	5,715,752.20			5,827,706.73
Pipeline right of way & Vegetation Management			17,142,700.00			17,142,700.00
Contract Service						-
Meters			65,916,896.11			65,916,896.11
Capital Maintenance	658,383,283.86	47,027,377.42	235,136,887.09	85,266,627.60	22,349,878.38	1,048,164,054.35
Cash Operating Expenses	2,047,579,173.93	98,773,681.88	549,808,684.61	280,664,614.80	592,484,298.09	3,569,310,453.31
ABSORPTION						
COMMERCIAL						
Distribution - 100%			280,664,614.80			
GENERAL ADMINISTRATION						
Production - 70%	414,739,008.66					
Transmission - 5%		29,624,214.90				
Distribution - 25%			148,121,074.52			
TOTAL	2,462,318,182.60	128,397,896.78	978,594,373.93			3,569,310,453.31

Table 36: Projected costs and revenue requirement

	GWL PROPOSED REVENUE REQUIREMENT								
					PROJECTIONS				
Item Description	2022	2023	2024 Base	2025	2026	2027	2028	2029	2030
Recurrent Expenditure:	GH¢	GH¢	GH¢	GH¢	GH¢	GH¢	GH¢	GH¢	GH¢
Personnel Cost	368,878,001.53	454,421,768.18	529,130,060.50	1,149,758,739.70	1,421,101,802.27	1,756,481,827.61	2,171,011,538.93	2,683,370,262.11	3,316,645,643.97
Chemicals	96,386,965.56	221,893,814.56	281,500,909.38	336,604,712.39	402,495,084.84	481,283,497.70	575,494,742.38	688,147,838.20	796,806,381.85
Electricity Consumption	362,394,442.95	558,050,242.86	590,512,803.12	661,374,339.49	740,739,260.23	829,627,971.46	954,072,167.18	1,068,560,827.24	1,196,788,126.51
VAT/NHIL/GETFUND (Energy)	54,359,166.44	111,610,048.57	118,102,560.62	132,274,867.90	148,147,852.05	165,925,594.29	190,814,433.44	213,712,165.45	239,357,625.30
Fuel	31,492,013.90	39,107,300.12	41,862,650.59	58,741,274.88	70,113,585.70	85,461,449.61	108,348,025.81	128,869,141.90	149,217,579.41
Materials	37,046,806.40	72,183,687.75	63,650,282.38	78,353,497.61	93,522,734.75	113,994,861.38	144,522,685.26	171,895,281.85	199,037,546.85
Reagents	2,032,647.24	1,744,704.31	6,111,313.37	7,523,026.76	8,979,484.74	10,945,093.95	13,876,190.10	16,504,340.51	19,110,375.88
Hiring of Equipment	12,436,267.48	6,331,413.22	6,576,354.66	8,095,492.59	9,662,779.95	11,777,962.48	14,932,100.84	17,760,240.73	20,564,582.75
Overheads	164,782,074.99	303,757,914.36	287,034,890.07	353,339,949.67	421,746,563.93	514,066,886.77	651,733,999.05	775,172,418.47	897,572,143.34
Repairs & Maintenance (R&M)	298,688,789.63	274,266,806.75	441,477,212.55	543,458,448.65	648,672,004.30	790,666,306.04	1,002,406,742.80	1,192,262,579.89	1,380,520,841.26
Financial Cost	3,961,826.72	7,695,043.88	16,488,189.42	20,296,961.18	24,226,452.86	29,529,623.39	37,437,656.53	44,528,348.68	51,559,374.94
Exchange Loss (Local)	4,307,423.39	39,722,151.97	20,753,986.62	25,548,157.53	30,494,280.83	37,169,478.90	47,123,465.35	56,048,649.69	64,898,731.47
Levies	20,563,827.97	18,804,007.27	29,057,882.84	35,770,253.78	42,695,374.91	52,041,392.47	65,978,077.38	78,474,325.23	90,865,421.19
Crop and Land Compensation	1,965,864.16	394,526.00	5,827,706.73	6,527,031.54	7,310,275.32	8,187,508.36	9,170,009.36	10,270,410.49	11,502,859.75
Pipeline right of way & Vegetation Management		17,142,700.00	17,142,700.00	17,142,700.00	17,860,000.00	17,860,000.00	17,860,000.00	17,860,000.00	17,860,000.00
Capital Maintenance	269,770,061.72	311,248,984.85	1,048,164,054.35	1,819,075,236.25	2,171,248,201.99	2,591,601,853.89	3,093,335,972.81	3,692,205,817.14	4,407,016,863.34
Construction of Customer Service Centers				10,800,000.00	10,937,688.30	10,937,688.30	10,937,688.30	10,937,688.30	10,937,688.30
Construction of Regional Laboratories				27,250,000.00	63,900,000.00	63,900,000.00	63,900,000.00	63,900,000.00	63,900,000.00
Plant Water Quality Laboratories Refurbishment				128,000,000.00	26,666,667	26,666,667	33,450,667	37,464,747	41,960,516
Meters	31,746,763.58	51,384,944.27	65,916,896.11	627,557,298.72	749,052,391.76	913,019,960.31	1,157,526,705.68	1,376,762,263.74	1,594,153,025.18
Cash Operating Expenses	1,760,812,943.65	2,489,760,058.93	3,569,310,453.31	6,047,491,988.63	7,109,572,485.38	8,514,345,623.59	10,363,932,867.86	12,344,707,346.29	14,570,275,327.55
Capital Recovery Cost									
Return on Assets	100,318,168.90	100,318,168.90	100,318,168.90						
Interest on Loans (Cost of Debt)	99,402,516.00	128,173,699.29	198,255,595.91	222,046,267.42	248,691,819.51	278,534,837.85	320,315,063.53	358,752,871.15	401,803,215.69
Depreciation	900,244,551.37	666,251,418.42	857,345,033.93	960,226,438.00	1,075,453,610.56	1,204,508,043.83	1,349,049,009.09	1,510,934,890.18	1,692,247,077.00
Sub Total	1,099,965,236.27	894,743,286.61	1,155,918,798.74	1,182,272,705.42	1,324,145,430.07	1,483,042,881.68	1,669,364,072.62	1,869,687,761.33	2,094,050,292.69
Loans									
Loan Repayment	489,656,297.02	479,317,737.51	467,270,051.46	456,931,560.36	545,393,510.45	556,953,878.92	579,297,832.22	543,474,397.89	529,081,053.74
Sub Total	489,656,297.02	479,317,737.51	467,270,051.46	456,931,560.36	545,393,510.45	556,953,878.92	579,297,832.22	543,474,397.89	529,081,053.74
GWL Grand Total	3,350,434,476.94	3,863,821,083.05	5,192,499,303.51	7,686,696,254.41	8,979,111,425.90	10,554,342,384.20	12,612,594,772.71	14,757,869,505.51	17,193,406,673.98
DESALINATION									
Capacity Charge	127,269,061.57	116,913,135.77	198,618,705.72	264,752,334.00	316,008,385.86	322,706,619.91	335,653,009.05	314,896,426.06	306,556,727.54
Water Charge	33,527,121.10	33,615,123.82	33,661,440.00	32,672,635.20	38,998,057.37	39,824,675.05	41,422,366.91	38,860,832.31	37,831,644.30
Electricity Cost	41,009,198.93	95,157,924.04	100,327,466.12	114,251,044.32	127,961,169.64	143,316,510.00	164,813,986.49	184,591,664.87	206,742,664.66
Desalination Total Cost	201,805,381.60	245,686,183.63	332,607,611.84	411,676,013.52	482,967,612.88	505,847,804.95	541,889,362.45	538,348,923.24	551,131,036.50
GWL OPEX	1,760,812,943.65	2,489,760,058.93	3,569,310,453.31	6,047,491,988.63	7,109,572,485.38	8,514,345,623.59	10,363,932,867.86	12,344,707,346.29	14,570,275,327.55
GWL OPEX & DEPRECIATION	2,661,057,495.02	3,156,011,477.35	4,426,655,487.24	7,007,718,426.63	8,185,026,095.95	9,718,853,667.42	11,712,981,876.95	13,855,642,236.47	16,262,522,404.55
GWL OPEX & CRC	2,860,778,179.92	3,384,503,345.54	4,725,229,252.05	7,229,764,694.05	8,433,717,915.46	9,997,388,505.27	12,033,296,940.48	14,214,395,107.62	16,664,325,620.24
GWL GRAND TOTAL	3,350,434,476.94	3,863,821,083.05	5,192,499,303.51	7,686,696,254.41	8,979,111,425.90	10,554,342,384.20	12,612,594,772.71	14,757,869,505.51	17,193,406,673.98
DESAL OPEX	201,805,381.60	245,686,183.63	332,607,611.84	411,676,013.52	482,967,612.88	505,847,804.95	541,889,362.45	538,348,923.24	551,131,036.50
OPEX Desal and OPEX GWL	1,962,618,325.26	2,735,446,242.56	3,901,918,065.15	6,459,168,002.15	7,592,540,098.26	9,020,193,428.55	10,905,822,230.31	12,883,056,269.53	15,121,406,364.04
OPEX Desal, OPEX GWL & DEPRECIATION	2,862,862,876.62	3,401,697,660.98	4,759,263,099.08	7,419,394,440.15	8,667,993,708.82	10,224,701,472.38	12,254,871,239.40	14,393,991,159.71	16,813,653,441.04
OPEX Desal, OPEX GWL & CRC	3,062,583,561.52	3,630,189,529.17	5,057,836,863.89	7,641,440,707.57	8,916,685,528.33	10,503,236,310.23	12,575,186,302.93	14,752,744,030.86	17,215,456,656.73
GWL & DESAL GRAND TOTAL	3,552,239,858.54	4,109,507,266.68	5,525,106,915.35	8,098,372,267.93	9,462,079,038.78	11,060,190,189.15	13,154,484,135.15	15,296,218,428.75	17,744,537,710.47
Total Estimated Revenue Requirement	3,552,239,858.54	4,109,507,266.68	5,525,106,915.35	8,098,372,267.93	9,462,079,038.78	11,060,190,189.15	13,154,484,135.15	15,296,218,428.75	17,744,537,710.47
Cost / m³									
GWL OPEX	10.57	15.31	22.54	37.06	42.64	50.07	59.80	69.91	81.01
GWL OPEX & DEPRECIATION	15.98	19.40	27.96	42.95	49.08	57.16	67.58	78.46	90.41
GWL OPEX & CRC	17.18	20.81	29.84	44.31	50.58	58.80	69.43	80.49	92.65
GWL GRAND TOTAL	20.12	23.76	32.80	47.11	53.85	62.07	72.77	83.57	95.59
DESAL OPEX	29.37	31.51	47.18	54.54	62.69	64.35	67.60	65.88	66.18
OPEX Desal and OPEX GWL	11.32	16.05	23.59	37.83	43.52	50.71	60.14	69.73	80.35
OPEX Desal, OPEX GWL & DEPRECIATION	16.51	19.96	28.78	43.46	49.69	57.48	67.58	77.91	89.34
OPEX Desal, OPEX GWL & CRC	17.66	21.30	30.58	44.76	51.11	59.04	69.35	79.85	91.48
GWL & DESAL GRAND TOTAL	20.48	24.11	33.41	47.44	54.24	62.17	72.55	82.79	94.29

Table 37: Proposed Tariff Structure

	Categories	Existing Tariff	Proposed Tariff	Expected Sales	Expected Billing	Expected Revenue	Customers
		GHp	GHp	m3	GHs	GHS	No.
	Residential						
(a)	0- 5	528.176	2,009.7720	6,486,508	34,260,176.97	130,364,014.87	315,210
(b)	above 5	934.4558	3,555.7146	107,005,907	999,922,903.44	3,804,824,603.85	419,459
(c)	Non Residential	1580.9172	6,015.5764	8,139,204	128,674,069.10	489,620,012.02	27,431
(d)	Commercial	2828.3569	10,762.2317	9,586,649	271,144,658.54	1,031,737,411.42	40,910
(e)	Industrial	2828.3569	10,762.2317	7,675,334	217,085,848.03	826,037,260.35	522
(f)	Public Institution/Gov't Depts.	1357.6113	5,165.8711	22,755,060	308,925,267.57	1,175,497,085.59	7,126
(g)	Public Standpipe	632.7664	2,407.7508	3,725,139	23,571,430.57	89,692,073.93	8,629
(h)	Bottled Water Producers	2828.3569	10,762.2317	3,028,983	85,670,460.76	325,986,209.33	35
(i)	Sachet Water Producers	2488.9541	9,470.7640	1,298,687	32,323,728.56	122,995,600.26	1,087
(j)	Bulk Supply	896.8042	3,412.4458	392,573	3,520,613.63	13,396,350.17	11
(k)	Port & Harbour	3699.4909	14,076.9993	626,708	23,184,996.35	88,221,646.15	26
	Total			170,720,753	2,128,284,154	8,098,372,268	820,446

APPENDICES

A: The Low Income Customer Support Department (LICSD)

The Low-Income Customer Support Department (LICSD) of Ghana Water Ltd (GWL) has been at the forefront of enhancing water access for low-income urban communities through strategic partnerships and funding support from various stakeholders. This report provides a financial overview of the projects implemented by LICSD, detailing financial contributions, project costs, infrastructure developments, and beneficiaries reached. The objective of this report is to inform Stakeholders about the impact of these initiatives and encourage further stakeholder involvement to sustain and expand water service delivery to underserved populations.

SUMMARY OF PROJECTS IMPLEMENTED

The table below presents a comprehensive financial breakdown of key projects undertaken by LICSD, showcasing the financial contributions, infrastructure expansion, and the number of beneficiaries impacted.

Project Name	Innovations	Results
UNICEF Equitable water supply services in 10 low income, high population density urban and peri-urban areas Value: US\$ 1.62 million	- Piloting of recommendations from urban study undertaken in 2020. 8 ATM Standpipes by KNUST	- Work in progress 35km Distribution improvements 1,600 subsidized water connections. - Water safety planning - Water governance - Community engagement
World Bank (IDA) Greater Accra Metropolitan Area Project Value (LICSD Component): US\$ 1.8 million GAMA/GKMA Project Value (LICSD Component): US\$ 1.6 million	- Subsidised connections - Demand creation for water connection - Customer profile data collection - Profiling of standpipes/vendors - Customer education - Meetings with community leaders - Formation of water user associations - Follow-up on defaulted customers	> 12,000 households connected (the project contributed more than 30% of new connections in GWL in 2019 alone) - Development of knowledge management products > 26 LIUCs engaged on water issues > 250,000 LIUC residents gained improved access to water services - Consultative process has deepened and improved relationship between LIUCs and GWL
WaterWorX Water Operator Partnership between GWL and the Dutch Water Sector (VEI)	Long-term peer-to-peer partnership to exchange knowledge and build capacity in support of achieving	- NRW reduction exercises 34.5km Distribution improvements

b.v.) to support GWL to deliver sustained, world class services. <i>Value: EUR 3.1 million (phase I)</i>	operational excellence and meeting the SDG 6 targets.	• 7,754 subsidized household connections • Operational and financial resilience • Capacity building
Water for Life Water supply to the Peri-urban Poor at Acherensua in the Brong-Ahafo Region <i>Value: EUR 205,000 (2019)</i>		The project has improved on water supply to more than 9,000 low-income consumers through the following activities: • Construction of 50m³ high level storage tank • Rehabilitation of treatment plant • Extension of 4km 100mm distribution network • Construction of 20 standpipes
WSUP Water Supply to the poor at Fiapre in Sunyani <i>Value: GH¢ 297,673.00</i> 2015	• Community involvement is a major component • Community training and Sensitisation in water management, sanitation and hygiene issues	• Drilling and Mechanisation of 2 no. boreholes: • Provision of 3km distribution network • Construction of 5 No. Water Kiosks, with metered standpipes for monitoring of water sales and non-revenue water.
Football for Water / VEI b.v. Water and Sanitation for 32 schools in the Northern, Central and Greater Accra Regions <i>Value: EUR 320,000 (2016)</i>	Setting-up WASH infrastructure for 32 schools in the Northern, Central and Greater Accra Region in Ghana including life skills training for boys and girls	• Provision of WASH facilities and SHEP training of pupils and teachers. • Training of World Coaches as role models to teach pupils life skills • Improved on WASH to more than 2,800 pupils and teachers in the Sakasaka Cluster of schools, 4,021 in the Central Region, more than 5,200 in the Gbawe Cluster of schools and 5,000 in the Ashaiman

		Cluster of schools all in the Greater Accra Region.
WSUP This project improved access to water supply to selected LIUCs in Kumasi by extending the water network. Value: US\$ 900,000 (2018)	Adoption of effective, sustainable and scalable models of pro-poor urban water services by the service provider and the local government. Connection to GWL's existing network at the edge of Adukrom and Akorem.	• Construction of 80m transmission main (incl. a bulk flow meter) and a 250m³ high level concrete water tank. • Provision of 12.8km distribution network • Construction of 640 No. metered house connections and 39 No metered standpipes for monitoring of water sales and non-revenue water.
W4L Water Supply to the Urban Poor at Acherensua Value: EUR 110,000 (2015)	• Rehabilitation of Treatment Plant • Additional distribution network • Construction of 10 standpipes • Community Water and Sanitation Training	• 3,000 people benefitted directly. • Additionally, 8,800 people that were already connected to the system enjoyed more reliable water supply
RED-CROSS Water supply for poor households in Ashanti Mampong. Value: Gh 1,538,500.00	• 70% subsidy to 750 households and full 100% subsidy to 125 households, improving water accessibility and quality of residents	• 865 Subsidized water connections to six low-income urban communities in Ashanti Mampong.
UN-HABITAT Ensure reliable water supply for Shukura and Ga-Mashie communities especially to reduce COVID-19 risks.	• Storage Tanks for all standpipes installed.	• 200 Subsidized water connections • 6 Standpipes

FINANCIAL IMPACT AND CONTRIBUTIONS

The above projects have collectively contributed significantly to enhancing potable water access in various LIUCs across Ghana. The key financial contributions can be summarized as follows:

- **Direct Cash Grants to GWL:** GH¢ 50,536,191.17
- **Total Project Investments:** Over GH¢ 100,732,560.78 in implemented projects.
- **Infrastructure Expansion:**
 - **New Water Connections:** 36,323 households

- **Pipeline Extensions:** Over 572.5 km
- **Standpipes Installed:** 95 standpipes (8 being automated)
- **Population Reached:** Over 500,000 beneficiaries

BENEFITS AND IMPACTS

1. **Increased Access to Safe Water:** The projects have facilitated access to potable water in over 270 underserved communities, reducing dependence on unsafe water sources.
2. **Improved Public Health Outcomes:** With access to clean water leading to better health and sanitation conditions.
3. **Economic and Social Benefits:** The availability of water has improved household productivity, reduced time spent fetching water and enhanced economic opportunities in low-income areas.
4. **Infrastructure Development:** The extension of pipelines and installation of new standpipes have strengthened the water supply network, ensuring sustainability and reliability.

RECOMMENDATIONS AND WAY FORWARD

RECOMMENDATIONS AND WAY FORWARD

Given the significant impact of these projects, it is imperative that more stakeholders, including PURC, come on board to support LICSD’s efforts.

The following recommendations are proposed:

- **Increased Regulatory and Financial Support:** PURC should consider policy incentives that encourage further investments in low-income water projects.
- **Community Engagement and Awareness:** Strengthening community-based initiatives to ensure sustainable water usage and management.

CONCLUSION

The LICSD of Ghana Water Limited remains committed to ensuring equitable water distribution, particularly for LIUCs. With continued financial and regulatory support, these initiatives can be expanded to reach even more underserved populations. We look forward to PURC’s consideration and further collaboration in advancing these efforts.

B. WATER LOSS REDUCTION MANAGEMENT

Management launched a five-year non-revenue water (NRW) reduction plan in January 2020 which consolidated existing efforts to reduce non-revenue water and prescribed strategies for reducing non-revenue water. The plan has been the primary reference for all yearly workplans developed since its development, and almost all non-revenue water reduction activities.

Following the appointment of the regional NRW officers, a comprehensive training bordering on knowledge areas required for the discharge of their duties was organised. The training touched on Leadership, SWOT Analysis, Evolution of NRW, Water Theft, Water Auditing, etc. All regions were subsequently tasked to develop a detailed NRW Reduction Plan in the year 2021, these plans were developed and submitted to management. After a year of implementation, regions were tasked to revise their strategic plans with new information and the learnings acquired in the year. All regions have completed their regional strategic plans covering the period 2023 to 2026. The status of implementation of all strategies outlined in the national strategic plan is presented in the next paragraph.

Short term Strategies

Planning Horizon: Short-term
Planned Duration: 18 months (2020-2021)
Planning Philosophy: Knowledge gathering, capacity building and setting the stage

Component	Status	Projected Completion
(1) Production Metering	- A total of 426 meters: 409 Magnetic Meters, and 17 Ultrasonic Clamp-on Meters were procured and delivered on 17 March 2021 for installation on all 90 water systems. - Installation commenced in August 2021 and as at the end of September 2023, 339 No. Mag meters had been installed, out of the number installed 263 have been commissioned as at September ending 2022. Meters have been installed in all regions Chamber construction is currently ongoing in Northern and Upper East regions	Quarter 4 2023
(2) Inter-regional Metering	- Metering of trunk mains connecting two or more regions has been completed for ATMA, and a SCADA system (including a Control Room) established for it. 21 No. magnetic meters and 21 No. pressure loggers have been installed to monitor flow and pressure between Accra East-Accra West and Accra East-Tema	Completed

(3) Upgrade Meter Laboratories (Add one more)	• There are two meter test laboratories for testing and refurbishing domestic meters: Accra meter shop and Kumasi meter shop. • The rehabilitation and upgrade of the Accra meter shop was completed in June 2021. The works included rehabilitation of existing Meter and Instrumentation building, creation of storage for same, installation of 1 number modern semi-automated test bench able to accurately test smart ultrasonic meters. • Assessment for Kumasi meter shop has been completed, and rehabilitation expected in 2023. The rehabilitation works has been included as a deliverable of the GAMA SWP, and features prominently in the Terms of Reference developed for the establishment of a telemetry system for the Kumasi system • Architectural and Structural Designs have been completed for the construction of a third Metershop in Tamale, procurement of contractor has commenced and it is expected to be completed in Q4 of 2023	Completed Completed Completed
(4) Improve Consumer Metering	• Categorised into 3 distinct sub-activities: tackling poor industrial and bulk customer metering, achieving 100% effective customer metering and introduction of Automatic Meter Reading (AMR). • 226 number magnetic meters were procured for industrial metering in 2021, installation commenced in August 2021. As at September 2023, all meters have been installed and configured. • To achieve 100% metering, 150,000 number customer meters were procured for all regions replace faulty customer meters and customers without meters, all meters have been installed by September 2022. • Two smart meter projects have been initiated to introduce AMR; One makes use of Drive-by technology and the other makes use of a Fixed network. ◦ 40,000 have been installed in the three ATMA regions for the drive-by project, drive-by tests completed. Roll out of drive-by meter reading commenced in September 2022 for	Completed Completed

	Dansoman District, the rest of the districts will be covered in the next two quarters. 16,890 smart meters have been installed in the Northeast district of the Accra East region. 20,000 meters are expected to be installed and configured to the fixed network										
(5) Integrate NRW reduction into Regional Operational structure	- The appointment of non-revenue water officers for the regions has been completed for all 13 regions. - Appointed officers were trained on cutting-edge industry tools for reducing non-revenue water. As at December 2022, all regions had developed a non-revenue water strategic plan for implementation beginning 2023.	Completed									
(6) Behavior Change and Capacity Building	- Survey to understand NRW Training and capacity needs at the regional/district levels was conducted in Q1 of 2021. - Based on the report of this survey, a change campaign was initiated in all districts in GAMA led by the Managing Director. The campaign was conducted between January and May 2021. - Following the appointment of regional non-revenue water officers, introductory training on non-revenue water production was provided to all district management staff in the 8 regions that have non-revenue water officers. - Selected Engineers (T&I and Operations) were given training in Hydraulic Network Modelling in 2021, and 15 no. Synergi water licenses procured for all regions and Head Office.	Completed Recurrent Recurrent Completed									
(7) Inventory of water supply Assets (Pipe Network)	- This is the continuous mapping and digitizing of GWL spatial assets comprising pipe network, distribution appurtenances, etc. - As at September 2023, 11,409 kilometres of pipelines had been mapped and digitized countrywide. <table> <thead> <tr> <th>Region</th><th>Total mapped(km)</th><th>Net</th></tr> </thead> <tbody> <tr> <td>Accra East</td><td>1,945</td><td></td></tr> <tr> <td>Accra West</td><td>1,716</td><td></td></tr> </tbody> </table>	Region	Total mapped(km)	Net	Accra East	1,945		Accra West	1,716		Recurrent Activity
Region	Total mapped(km)	Net									
Accra East	1,945										
Accra West	1,716										

	Tema 1,726 Ashanti South 804 Ashanti North 774 Central 2,059 Western 529 Volta 762 Upper East 376 Upper West 295 Brong-Ahafo 635 Eastern 692 Northern 963 Total 13,276 • The GIS software used for mapping and digitizing was upgraded in 2021 to allow for the development of (web and mobile) services on the GIS. • The establishment of a Continuously Operating Reference Stations (CORS) completed	
(8) Provide Basic tools at the regional level (Loggers, Flow meters, etc.)	• All regions (including ATMA Production and Ashanti Production) have been provided with: ○ portable flow meters (2 No.) ○ digital pressure loggers (10 No.) ○ thickness loggers (10 No.) and ○ metal detectors (1 No.). • The measuring tools are to aid the regions to conduct basic measurements on their distribution systems to have a better understanding of the systems to reduce the losses. • In addition to the tools, GIS offices in all regions have been renovated and furnished with computers, plotters, scanners, etc.). At least 2 No. GNSS devices were provided per region. 2 No. new offices have been constructed for Accra West and Eastern regions • Increase availability of better tools is planned for 2024	Completed

(9) Demonstration Projects	Leakage Detection activities (in 6 DMAs) in the Kaneshie District helped save at least GHS 5 million under the Nationwide Network Management Project	Completed
	NRW level in Santeo and Amasaman has been reduced from 72% to 19% and 56% to 23% respectively under the Water works Project	Completed
	91 number unreported leakages were discovered in April 2022 under the Strategic Sector Cooperation Project with the City of Aarhus being implemented in the Tema Region. All leakages have been resolved.	Ongoing

General Comment:

These activities were gravely affected by the COVID-19 pandemic, as most of them bordered on procurement, especially devices that were imported.

Medium term Strategies

Planning Horizon: Medium-term

Planned Duration: 24 months (2021-2023)

Planning Philosophy: Defined structure, improved monitoring and management, retooling, change management

Activity	Status	Projected Completion
(1) Consumer Metering (Smart and Prepaid Introduced)	- Commenced under the Short term planning horizon. The introduction of Prepaid meters is being piloted in the Accra East region; 820 prepaid meters had been installed in the pilot area as at the end of December 2021. - Board of Directors to direct on the way forward	Suspended
(2) Network Zoning and DMA design and Implementation	- Commenced for PBC Areas, refer to PBC summary - Guideline document for zoning networks and designing DMAs drafted.	Ongoing Q1 2024
(3) Active Leakage Search (Night Flow, Step testing, etc.)	- Planned. - To introduce a Rapid Response Team and an Active Search Team in all regions. Proposal submitted to Management in March 2023, approval pending	2024 Recurrent
(4) Continuous Capacity	Planned	Recurrent

Building (Training, retooling, etc.)		
(5) Asset Management Software (digitized leakage reporting, etc.)	• Planned	September 2024
(6) Aggressive Public Education and Perception Management	• Planned	July 2024
(7) Metering of Transmission Mains (Terminal points)	• Partially commenced under the Production Metering Project • Implementation has commenced in ATMA production under the production metering activity	Planned
(8) Walk and Cycle Analysis	• Planned	Ongoing, Recurrent

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Long term Strategies

Planning Horizon: Long-term

Planned Duration: 2023-2028

Planning Philosophy: Asset Management, Full Technology Deployment

Activity	Status	Remarks	Projected Completion
(1) Metering of Distribution Zones (Districts, DMAs, etc.)	Planned		Planned
(2) Active Leakage Management	Planned		Initiated
(3) Risk based network analysis (from Leakage Reports)	Planned		Planned
(4) Activation of Asset Management (AM) Principles	Planned		Planned
(5) Linkage between AM, GIS, and PPD	Planned		

(6) Replacement of weak pipes and redesign of bottlenecks	Status quo	Current Practice	Ongoing
(7) Strengthen Distribution network	Status quo	Current Practice	Ongoing
(8) Implementation of Full SCADA for Booster operations	Planned		Planned

C - MINIMUM SPECIFICATIONS FOR LOW FLOW WATER METERS – SMART ULTRASONIC TYPE

These specifications are meant for:

- Domestic meters of size DN 15; DN 20, and DN 25

General Requirements

- The meters are intended for measurement of flow of potable water in household connections in outdoor conditions; at a nominal pressure of PN 10 and temperature ranging from 10 to 38 Degree Celsius. Meters may have to withstand ambient temperature of up to 50 Degree Celsius in humid tropical conditions.
- The water meters shall be manufactured in accordance with International Standards, such as latest versions of OIML R 49, ISO 4064, BS 5728, or equivalent provided that they meet the requirements of these specifications. These specifications must be considered as binding.
- The water meters shall meet all relevant requirements prescribed in the Weights and Measures Act, and must be pattern approved by the Ghana Standards Authority
- The supplier must state in his bid the standard to which the water meters proposed are manufactured and any deviations from these specifications.
- Measurements by the meters shall be electronic measurements based on the ultrasonic principle.
- The water meters shall have a service life not less than 10 years and shall maintain normal function throughout its service life. The year of Manufacture shall be inscribed on the meter.
- For meters with throttle valves, It shall be possible to operate water meters as Postpaid or as Prepaid at will.
- All meters shall be supplied complete with connectors and washers.
- Water quality standard is shown below:

Parameter	Units	Standard
pH		6.5 – 8.5
Colour	H.U.	15

Turbidity	NTU	5
Chlorine Residual	mg/L	0.5
Iron	mg/L	0.3
Manganese	mg/L	0.1

DESIGN AND CONSTRUCTION

Accuracy

Meter accuracy shall conform to the stated design standard and the maximum permissible error shall not exceed $\pm 2\%$ ($Q_2 \leq Q < Q_4$) and $\pm 5\%$ ($Q_1 \leq Q < Q_2$) within the stated operating temperature. The accuracy of flow measurements shall not be affected irrespective of the angle of installation.

Register/Display

The register shall indicate volumetric readings in cubic meters; must read to three decimal places, thus to 1 litre; and the display must be easy to read regardless of lighting conditions and temperature. It shall register instantaneous flow readings as well as cumulative flow readings between any two-time periods.

Air flow through the meter shall not be recorded and shall not affect the accuracy of measurements

Pressure Loss

The pressure loss over the meter shall not exceed 0.063 MPa between minimum (Q_1) and nominal (Q_3) flows.

Dynamic Range

The ratio of $Q_3:Q_1$, R, shall not be less than 250 for both horizontal and vertical positions, where different R-values apply for various orientations, both must be inscribed on the meter.

The following Minimum (Q_1) and Nominal (Q_3) flows shall apply:

Flow Regime	DN15	DN20
Q_1 (l/h)	10	25
Q_3 (m3/h)	2.5	4

Data Storage

The meter shall have an in-built storage. It shall be able to store daily readings for a period of at least 12 calendar months. It shall be possible to locally retrieve data stored on the meter at any time using an appropriate read-out option (via USB, Bluetooth, etc.)

Communication

The registered readings from the meter shall be visible for manual reading, as well as being transmitted to other devices. It shall be possible to communicate with third party devices; remote reading; and/or data transfer via a network.

Meters shall communicate via appropriate channels according to the Laws of Ghana and shall support interchangeable operation between a Fixed Network or Drive/Walk by Mode as may be determined by GWL. In that regard, meters may be fitted with Meter Bus protocol and/or Long Range (LoRa) communication protocol or better, which is approved by the National Communications Authority of Ghana.

Valves

The meter shall be fitted with the following:

- non-return valve (check valve) to prevent reverse flow.

The NRV shall be fitted in the assembly at manufacture (in-built) and must not be detachable. It shall prevent reverse flow and shall function through the lifespan of the meter.

Where a Throttle valve is fitted with the assembly, it shall be operated remotely to allow for remote disconnection and reconnection of the meter.

The open/close cycles of the valve shall not be less than 10,000 times in this case, It shall not be possible to manually operate the valve. Remote operation of valve shall be flexible; may be set based on tariff considerations; prevailing commercial policy, and at will.

End connectors

Each meter shall have two end connectors or unions or tail pieces. The unions shall consist of a short pipe nipple, nut and gasket. The nut shall have two holes by which the joints can be secured through sealing.

Glass cover

The register shall have a transparent cover free from bubbles, dirt or other defect that reduce transparency. Heat treated, breakage resistant glass or a comparable plastic material is preferred.

The cover shall withstand normal ambient conditions and a temperature of 70 degrees Celsius without deformation. Provision should be made for the removal of condensation on the underside of the cover.

Protection

The components that make the meter accessible such that the correct indications and/or register can be influenced, shall be sealed. The meter shall detect and prevent unauthorised access and indicate such events on its display.

The meter shall be protected from harmful dusts, or ingress of water, and shall perform under flooded conditions. As such, the meter shall have an IEC rating of IP68 and shall withstand hydrostatic pressure of up to 1.5 mwc or better.

Meters shall be supplied with strainers/filters already in place or available for fitting in-situ.

MATERIALS

All parts of the meter shall be robust, durable and non-corrosive. All parts in contact with water must be water resistant.

The supplier shall clearly list all parts of the meter and specify materials of manufacture.

Housing

The meter housing shall be made fully of high-performance thermoplastic. It shall be sprayed blue with the direction of flow engraved on the body of the meter.

Internal Parts

Internal components shall be made of high-grade polymer provided it will not affect the quality of water adversely.

Connectors/unions/tail pieces

End connectors to DN15 meters shall be in composite material of same grade.

End connectors to the others; DN20, shall be in brass to the same grade.

The gasket/washer shall be of a compressible material; fibre or reinforced rubber to ensure leak-proof joint after tightening.

DIMENSIONS

Nom. Diameter	Thread	Length (mm)
15	G ¾" B	110
20	G 1" B	190

MARKING

Each meter shall bear clear and permanent marking, either raised or impressed with the particulars specified below:

- Manufacturer's name or brand name
- Registered trademark, metrological class, working temperature and pressure on display
- Nominal size of water meter on the body
- Direction of flow with an arrow on the body.
- Serial number of meters on register seal cap
- Year of Manufacture
- GWL Label on front plate

TEST CERTIFICATE

All tests relevant to the water meters shall be conducted by or under the supervision of an authorized certifying agency in the country of manufacture of the meters.

Certificates showing the results of all such tests issued or endorsed by the agency shall be submitted by the supplier before meters are shipped.

SPARE PARTS AND INSTRUCTION MANUALS

Recommended spare parts and accessories shall be supplied together with the meters purchased. Up to 5% of total meters purchased in fast moving recommended spare parts.

The supplier shall provide in writing details of the stock of spare parts that will be available for goods purchased for a period of not less than five years after the date of delivery.

Five sets of instruction manuals on meters supplied shall be delivered with the meters, instruction manuals shall be in English language.