

PUBLIC UTILITIES REGULATORY COMMISSION



ANNUAL REPORT 2008

Mission

*To lead in the development of a sustainable utility sector which
adequately responds to stakeholder interests by assuring
universal access to affordable services*

Vision

To become a regulatory institution comparable to the best in Africa (2012)

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List of Abbreviations

| | | |
|---------------|---|--------------------------------------|
| ATMA | - | Accra Tema Metropolitan Area |
| AVRL | - | Aqua Vitens Rand Limited |
| BST | - | Bulk Supply Tariff |
| CSCs | - | Consumer Service Committees |
| DWSP | - | Drinking Water Safety Plans |
| ECG | - | Electricity Company of Ghana |
| GRIDCo | - | Ghana Grid Company Limited |
| GWCL | - | Ghana Water Company Limited |
| GWh | - | Gigawatt - Hour |
| KWh | - | Kilowatt – Hour |
| KVA | - | Kilovolt - Ampere |
| MDA | - | Ministries, Departments and Agencies |
| MW | - | Megawatts |
| NED | - | Northern Electricity Department |
| SLT-HV | - | Special Load Tariff – High Voltage |
| TAPCO | - | Takoradi Power Company |
| TICO | - | Takoradi International Company |
| VRA | - | Volta River Authority |
| WHO | - | World Health Organization |

1. PURC IN BRIEF

The Public Utilities Regulatory Commission was established in 1997 under Act 538 to regulate and oversee the provision of utility services. Public Utilities are defined in the Act as bodies engaged in the supply, transmission or distribution of electricity or water for a fee, whether directly or indirectly. Act 538 however makes provision for PURC to regulate other utility services through a Legislative Instrument recommended by the Minister with responsibility for a particular sector. Under the Energy Commission Act 1997 (Act 541), the Commission has an additional responsibility to regulate aspects of the natural gas industry.

Currently, the Commission regulates electricity and urban water services provided by the Volta River Authority (VRA), the Electricity Company of Ghana (ECG), the Northern Electricity Department of VRA (NED) and the Ghana Water Company Limited (GWCL) to their customers. Operations of community water systems are excluded from the Commission's purview.

The 9 members of the Commission are appointed by the President in consultation with the Council of State. The Commission consists of a Chairman, an Executive Secretary, 4 persons with knowledge in matters relevant to the functions of the Commission, and a representative each of the Trades Union Congress (TUC), the Association of Ghana Industries (AGI) and Domestic Consumers. In 2005 and 2006, two members of the Commission resigned to take up other full-time appointments. They are yet to be replaced, and the vacancies kept the number of members at 7. The Commission is supported by a Secretariat of engineering/technical, economics, financial, customer service, legal and other staff.

The Commission works through Committees comprised of both Commissioners and Secretariat staff, which deliberate on matters and submit recommendations to the Commission for approval. The Committees are: Technical & Tariffs, Finance, Legal, Consumer and External Relations, and Administrative.

The mandates of PURC include: approving rates chargeable for provision of utility services, protecting the interests of consumers and providers of utility services, monitoring the compliance of utility companies with standards of performance established by licensing authorities, and promoting fair competition among public utilities. The Commission also receives and resolves complaints related to the provision of utility services. The Commission has rule making powers and has issued some Subsidiary Legislation to enhance consumer protection in the provision of utility services.

By virtue of Section 4 of Act 538, the Commission is an independent body and is not subject to the direction or control of any person or authority in the performance of its functions. PURC is however statutorily required to submit audited statements of accounts and reports of its operations yearly to Parliament. In addition to the institutional representation on the Commission of AGI and TUC, PURC consults stakeholders extensively. Indeed, the Commission is enjoined by law, its regulatory policy and good regulatory practice to take reasonable account of representations made to it by consumers before approving any rates.

2. THE COMMISSION

Commissioners are by statute appointed for five year terms which may be renewed. As at December 2008, the Commission comprised:

Professor Kwabena Frimpong-Boateng – Chairman, a renowned cardiothoracic surgeon and the Chief Executive Officer of the Korle Bu Teaching Hospital in Accra. He is also the Director of Ghana's National Cardiothoracic Center and President of the Ghana Heart Foundation as well as the Ghana Red Cross Society.



Mr. Stephen Nyante Adu - Member and Executive Secretary. Mr. Adu is a Financial Consultant. He was the Acting General Manager and Financial Controller of Ghana Leasing Company Ltd. and worked briefly with Price Waterhouse as an Associate Consultant.

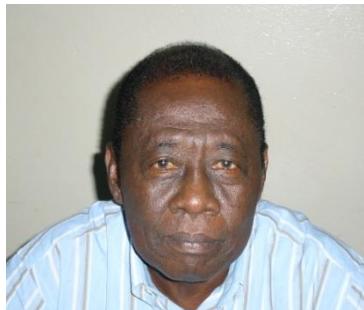


Mr. Alex Bonney - Member. He is currently the Chairman of the Trades Union Congress (TUC), appointed to represent that organization as one of the two key institutional representatives on the Commission. Mr. Bonney is by profession an Accountant.



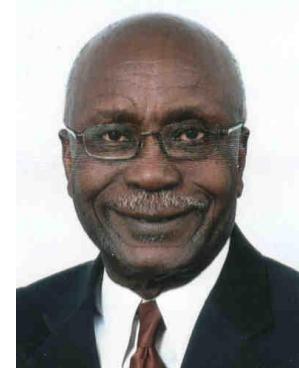
Mr. Andrew Lawson – Member. Mr. Lawson is the representative of the Association of Ghana Industries on the Commission. He is an Engineer by profession. He is the Chairman of the Board of Directors of British American Tobacco Company Ltd. (BAT) and a Board Member of Mechanical Lloyd Company Ltd.

Nana Kobina Nketsia V – Member. Nana Nketsia is the Omanhene of Essikado in the Western Region. He is also a lecturer at the University of Cape Coast. He currently serves as the Chairman of the Museums Board and was the Chairman of the Ghana Broadcasting Corporation.



(GWCL).

Mr. Kwame Osei – Poku - Member. Mr. Osei-Poku is an Engineer by profession. He is a Water Consultant and a former Deputy Managing Director of the Ghana Water and Sewerage Corporation, now Ghana Water Company Ltd.



Mr. Andrew E. Quayson –Member. Mr. Quayson is an Engineer by profession and the current Chairman of the Energy Foundation. He was formerly the Managing Director of Juapong Textiles Ltd. and Ghana Textiles Printing Co. Ltd. and also the Executive Director of the Association of Ghana Industries. Mr. Quayson was at one time the President of the Ghana Institution of Engineers.

3. EXECUTIVE SUMMARY

Introduction

2008 saw the end of the term of office of the PURC Board members who were appointed in 2003. In spite of numerous challenges, there were some modest achievements during the Commission's term. Among other accomplishments, the Board oversaw the development of essential policy documents such as the PURC Tariff Policy, Social Policy and draft Water Rate-setting Guidelines. Tribute must also be paid to their steady leadership in ensuring that the value of utility tariffs was maintained through the diligent review of relevant parameters and application of an automatic tariff adjustment formula. We are determined to build positively on their hard work to achieve the PURC vision of creating a regulatory body that adequately responds to stakeholders concerns and builds a sustainable utility sector.

Finance

Inadequate funding has plagued the Commission since it was established, and continues to pose a challenge. The current uncertainty of funding undermines regulatory effectiveness. For instance (i) it is difficult to recruit and retain professional staff, (ii) certain critical technical projects which are at the core of sound and empirical decision making cannot be undertaken, and (iii) office accommodation remains cramped and inadequate and much needed professionals cannot be recruited. Further, intensive consumer education programmes and decentralization of services are constrained. The process for achieving independent funding through a regulatory charge or levy was pursued during the year. The next important step is to obtain Cabinet endorsement and move for Parliamentary approval. It is important that stakeholders demonstrate their commitment to the success of utility regulation in the country by providing adequate financial support to PURC.

Tariffs

There were two significant occurrences in the year 2008 with disruptive implications for electricity and water production. These were the unprecedented increases in the global price of crude oil by almost 100% to almost \$140/bbl and the delay of natural gas delivery through the West African Gas Pipeline.

It would be recalled that the Commission in November 2007 gazetted new tariffs including an electricity Bulk Supply Tariff (BST) of GH¢6.92/kWh. This was based on a natural gas equivalent price of about \$67/bbl of Light Crude Oil (LCO), and the expectation that natural gas from Nigeria would be available from 1st February 2008. The steep rise in crude oil prices in 2008 therefore caused uncertainty and placed significant pressure on the country's thermal generation capability which could not be ameliorated through the use of natural gas. These events also raised questions about the nation's energy security and how to secure energy sources that would prevent future exposure.

As a short term measure, the Commission reviewed the rates paid by Special Load, High Voltage (SLT-HV) electricity consumers following high level consultations with the utility companies, the Ghana Chamber of Mines, Association of Ghana Industries and Government. This was against the backdrop of government subsidies to VRA which were proving to be unsustainable.

No adjustment was made to water tariffs during the year as the review was limited to the purchase of crude oil for power generation during the oil crisis. This decisive action by PURC was designed to help VRA recover at least the fuel costs to help sustain the system. A full assessment of this regulatory action and its impact on the utilities as well as their customers is yet to be performed.

PURC Projects

In 2008 the Commission actively pursued a number of projects aimed at improving its monitoring capabilities and enhancing quality of service delivery. The projects included the launching of the Water Tanker Service Guidelines which provides for registration of water tankers and quality standards for water storage and delivery, roll-out of Drinking Water Safety Plans and completion of the Water Inspector's Manual for auditing and enforcement of drinking water quality. PURC's collaboration with stakeholders (Water Aid - Ghana, AVRL, and GWCL) on pro-poor pilot schemes in Accra to explore creative water supply options also progressed during the year. The pilot is aimed at obtaining adequate information to refine social policies and regulatory decisions for expanding access to water across the country.

With regard to the electricity sector, proposals were evaluated for undertaking a Cost of Service and Tariff Study to audit the operations of the utility companies. This aimed at ascertaining the actual cost of production, help establish the rate base and improve the Commission's tariff setting assumptions. It is expected that the study, which is to be funded by the World Bank, will be carried out in 2009.

During the year PURC also finalized its penalty scheme which provides a framework for the payment of compensation to consumers who are adversely affected by a utility company's failure to adhere to performance standards.

Establishing additional regional offices remained one of the major challenges in 2008. Efforts to set up a fourth regional office at Koforidua in the Eastern region were obstructed by perennial financial difficulties. However, a pilot Consumer Services Committee (CSC) was established in Sekondi during the year. Essentially, the CSCs are to consult with public utilities on matters that affect consumers in the area, advise the Commission on service quality and help educate customers on their rights and responsibilities. The five member volunteer team was taken through an orientation programme to build their capacities for effective discharge of their "watch dog" role in overseeing the operation of the utilities in their districts. PURC looks forward to partnering with community members to improve service delivery.

C Consumer Services

The dynamic nature of the utility sector coupled with the growing awareness and sophistication of consumers make it imperative for the Commission to provide outstanding customer service and ensure that the utilities do the same. In view of this the Commission has been working hard to accelerate the establishment of regional offices, enhance skills of consumer service personnel and finalize the enforcement mechanisms needed to ensure compliance by the utilities. However there is the urgent need for adequate funding to computerize PURC's complaint processes and make it more responsive to complainants. Staff also undertook regular monitoring of utility installations, customer service centres and district offices of the utility companies to ensure that certain minimum standards of service are provided. The year-on-year trend of increasing number of complaints received against the utility companies continued this year. Improvements in standards of performance remained marginal and sometimes regressed. The phenomenon can also be attributed to feedback through sustained consumer and public education activities undertaken by the Commission. The establishment of a Regional Office in Tamale for instance enabled more consumers to access the services of the Commission.

U tility Performance

This year, the electric utilities (ECG & NED) were found to be implementing some of the recommendations of the Commission towards improving physical facilities and service delivery. NED in particular has maintained a steady improvement in reducing distribution losses, achieving 19% in 2008 and thereby exceeding PURC's target of 21%. Efforts are also being made to submit operational and financial reports in an accurate and relatively timely manner. However the situation is different with GWCL. It is disappointing to note that there has been little improvement in the performance of GWCL with regards to the submission of reports to PURC. Further, in spite of the November 2007 tariff increase, revenue collection by the company was below expectations, in many places averaging just 70%. Many of their customer service centres

lack basic facilities such as computers to access customer accounts, money counting machines, cash registers and vehicles. Improved revenue allocation and closer supervision of the district offices by the Management of the utility companies is called for.

Generally, the inadequate level of investment in the utility sector continues to impact negatively on the electricity and water sectors. Challenges resulting from this include power interruptions, breakdown of critical water production equipment as well as the deteriorating quality of raw water. The inadequacy of investment is particularly critical in power transmission and distribution as well as water distribution. Currently, there are no redundant connections in the power transmission grid, indicating that prolonged power supply interruptions should be expected to accompany any major maintenance works on the grid. The negative implications for the economy are obvious.

Naturally, the Commission was glad to observe that the additional generation capacity of over 1000MW was being added to the national power system. Bui Hydro-Electric project is to provide 440MW of this whilst the rest which are thermal plants are being constructed by Government through VRA and private investors whose contribution to the total electricity generation is rising significantly.

With regards to Natural Gas, the West African Gas Pipeline project finally delivered free flow gas to the Aboadze thermal plant and efforts are being made to address existing obstacles militating against continued supply. Notwithstanding this, Ghana's own natural gas from the Jubilee Fields provides a potential for fuelling the plants as well as development of gas based industries.

Collaboration

PURC continued to benefit from tremendous learning opportunities through its membership of the African Forum of Utility Regulators (AFUR) and partnership arrangement with the Public Utilities Regulation, Ohio (PUCO), USA. The Commission

hosted the 5th AFUR Annual General Meeting and Conference which drew record attendance by high level regulatory officials from across the continent. A team from the PUCO also visited Ghana in September, 2008 to further strengthen our collaboration.

C Conclusion

The unsatisfactory quality of service and inefficiencies pertaining in the utility sector are well known. These can be addressed through adequate investment and committed leadership. Equally important is the need to ensure a strong and assertive regulator. This can be achieved only by providing financial security and resources to enable us to implement an effective monitoring regime which addresses all the aspects of utility operations.

4. TECHNICAL OPERATIONS –WATER

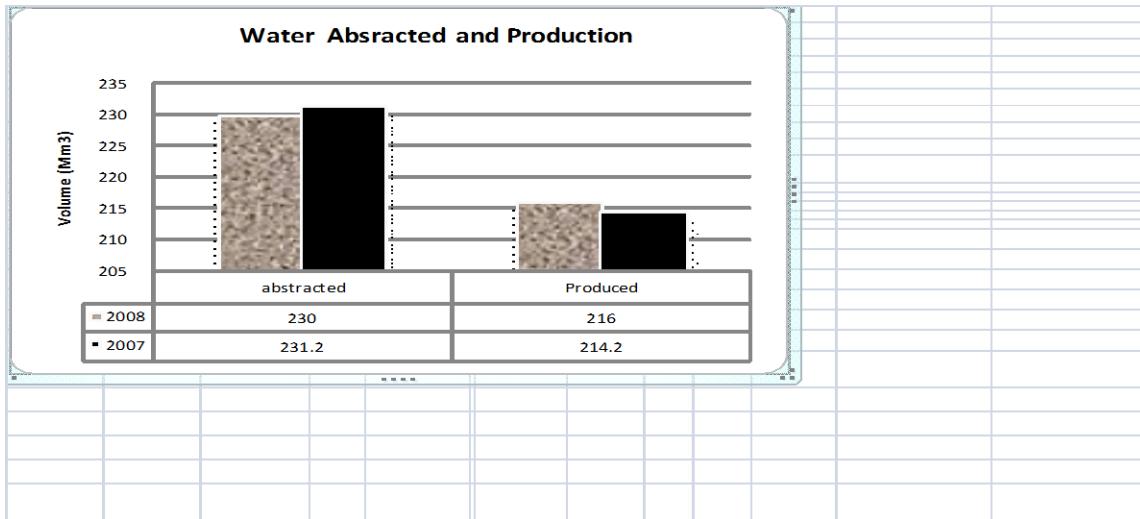
4.1 Introduction

This section of the report analyzes GWCL's activities for year 2008 based on information received directly from Aqua Vitens Rand Limited (AVRL), the Operator acting on and behalf of GWCL with the agreement of GWCL.

4.2 GWCL Water Production

The production figures are mostly based on best estimates. Water production for year 2008 was approximately 216 Mm³ (47,513MG) which is a 2.4% fall from a target of 221.3 Mm³. This was against a water abstraction of approximately 230 Mm³ (50,600MG) representing 6.1% pre-production losses well within the industry target loss of 10%. Comparatively year 2007 achieved production of 214 Million m³ (47,073MG), abstraction of 231 Million m³ (50,813 MG) and losses of 7.4%. The 2008 figures are a 1% and 5% increase over the 2007 and the baseline production figures. The reasons for the low production are power interruptions, aged pump breakdowns, poor filter performance and distribution pipe bursts.

Table 1: GWCL Water Abstraction and Production for 2008



Note that the M in the charts denote 1000 and not Million

4.3 Production Efficiency

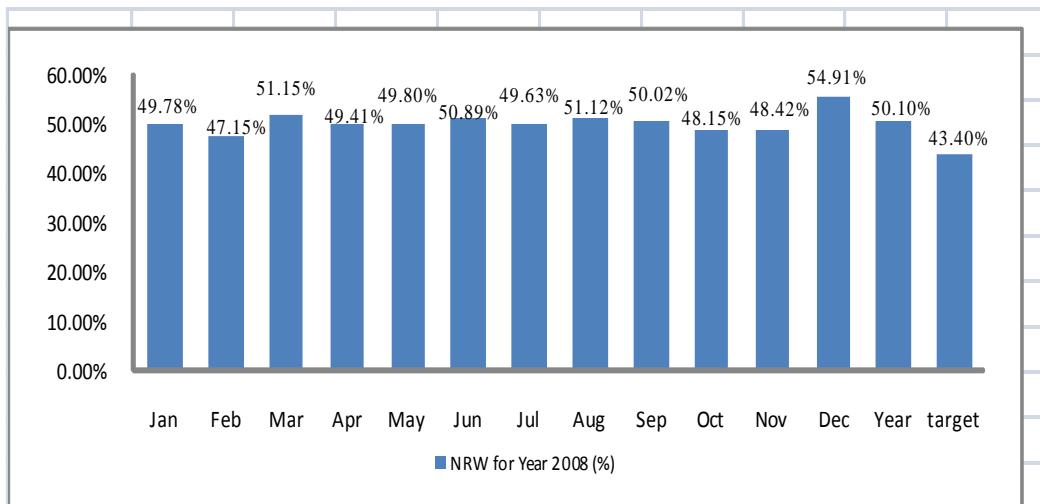
No data was received to allow for any determination of energy consumed in production. With respect to losses, average Non-Revenue Water (NRW) for the year was 50.1% as against a PURC target of 45%. The highest figure of 54.9% was recorded in December, whilst the lowest figure of 47.2% was recorded in February.

PURC supports the company's efforts to reduce NRW, including the deployment of Loss Control teams to check water theft, the ongoing customer mapping exercise, auditing of meter readings, re-calibration exercises and a pilot zonal metering project in the Dansoman district.

However the Commission continues to urge the Management of GWCL to expedite the procurement and installation of bulk meters on all systems to accurately measure water produced and distributed. The same urgency applies to the replacement program for commercial and MDA meters, which has been delayed by late delivery of the meters by the supplier. Adequate metering particularly at bulk points is the one project which will have an immediate and significant impact on the management of NRW.

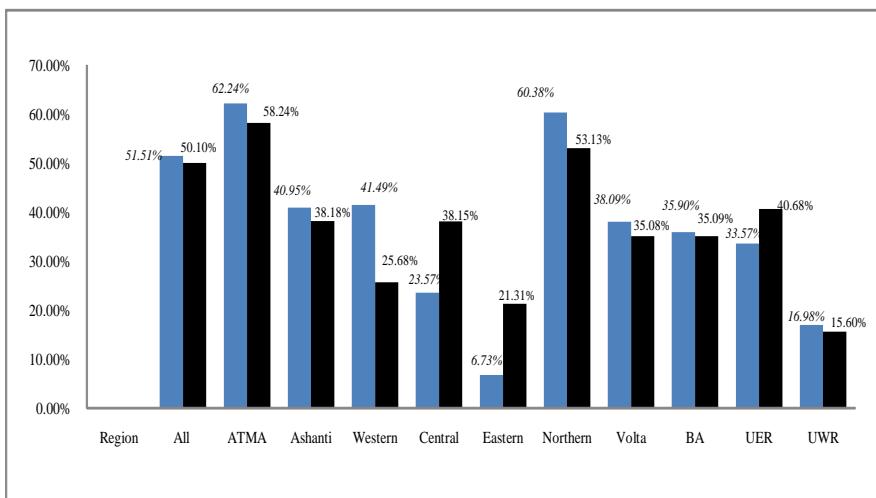
The figure below depicts the overall NRW figures for the months of the year 2008.

Figure 1: Non-Revenue Water Performance for 2008



The figure below shows the NRW figures for 2007 and 2008 on a regional basis. There was drop from 51.51% in 2007 to 50.10% in 2008. All regions except Central, Eastern and Upper East Regions performed better in 2008 than in 2007.

Figure 2: Comparative Non-Revenue Water for 2007 and 2008



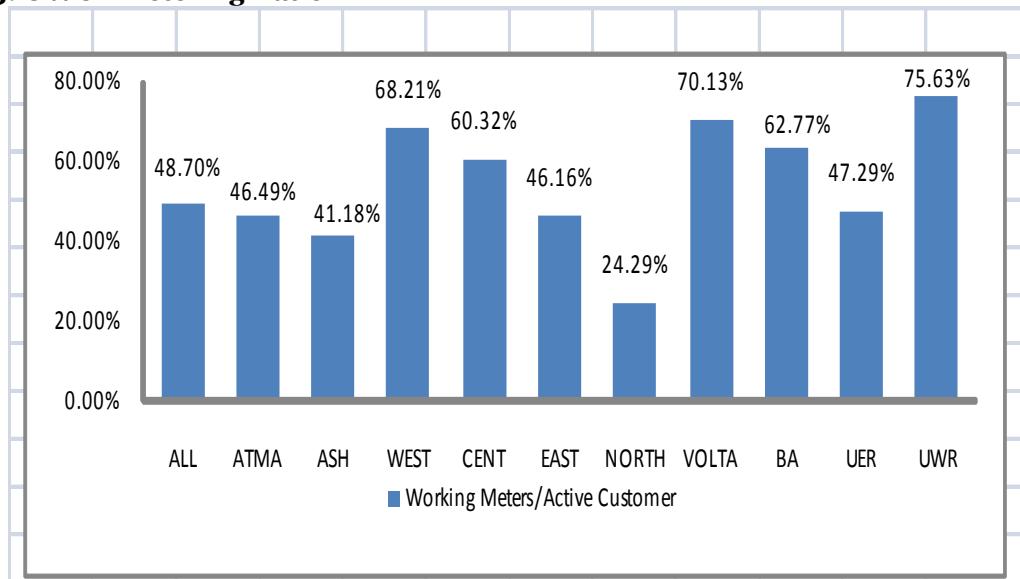
| Non Revenue water for 2007

Non Revenue water for 2008

4.4 Metering

Although GWCL/AVRL have not reported on their metering ratio since May 2008, PURC has analyzed the number of working meters per active customer including standpipes from data presented in the AVRL reports submitted to the Commission. This is depicted in the figure below:

Figure 3: GWCL Metering Ratio



Active metering must be undertaken in all the regions especially in ATMA, Ashanti, Eastern, Upper East and Northern Regions.

4.5 Financial Situation of GWCL

A comprehensive analysis of the GWCL's financial position including its debt turnover position could not be carried out by PURC due to the company's failure to submit audited financial reports. The following data received from the Operator only shows only the financial situation regarding operations from January to December of 2008.

Gross revenue for the period amounted to GH¢ 102,344,000.00 made up of GH¢100,681,000.00 from the core business of water sales, and GH¢1,663,000.00 from other income generating activities. This represents a 12% deficit from a budgeted figure of GH¢116,576,000.00.

The gross expenditure of the company was GH¢87,990,000.00 against a budgeted expenditure of GH¢78,689,000.00. This corresponds to a 12% increase over the expenditure budget.

After rising from 82% in the first quarter, the collection ratio recorded a figure of 95% in the second quarter but progressively fell to 90% in the third quarter and 85% in the last quarter. The breakdown of the expenditure by categories and by departments is presented in Table 2 below.

Profit & Loss

| Year to date (DECEMBER 2008) | | | |
|------------------------------|----------------|------------------|--------------|
| Actual | Budget | Variance (cedis) | Variance (%) |
| 100,681 | 116,337 | (15,656) | -13% |
| 1,663 | 239 | 1,424 | 596% |
| 102,344 | 116,576 | (14,232) | -12% |

(amounts x new GHC 1,000)

| Full year | |
|----------------|---------------|
| Budget 2008 | Actual 2007 |
| 116,337 | 69,202 |
| 239 | 2,038 |
| 116,576 | 71,240 |

REVENUES

Water Sales
Other Income

| | |
|----------------|---------------|
| 116,337 | 69,202 |
| 239 | 2,038 |
| 116,576 | 71,240 |

OPERATING EXPENSES
(breakdown to categories)

| | | |
|--------------------------|-----------------|-----------------|
| Personnel | (24,534) | (19,749) |
| Water Treatment Chemical | (6,469) | (5,496) |
| Electricity | (25,849) | (17,107) |
| Fuel and Lubricant | (2,421) | (1,833) |
| Materials | (2,337) | (1,503) |
| Lab and Analytical | (309) | (22) |
| Hiring of Equipment | (2,380) | (55) |
| Overheads | (5,453) | (7,169) |
| Repair and Maintenance | (7,124) | (3,598) |
| Financial | (344) | (259) |
| Others | (1,468) | (1,017) |
| | (78,689) | (57,809) |

OPERATING EXPENSES
(breakdown to departments)

| | | |
|--------------------------------|-----------------|-----------------|
| Production | (40,671) | (27,030) |
| Transmission | (3,712) | (2,818) |
| Distribution | (8,825) | (6,466) |
| Marketing/Commercial | (9,357) | (7,201) |
| General administration | (14,312) | (13,019) |
| Proposal staff salary increase | - | - |
| Financial | (344) | (259) |
| Others | (1,468) | (1,017) |
| | (78,689) | (57,809) |

INCOME (bfr Depr)

| | | |
|---------------|---------------|-----------------|
| 14,354 | 37,888 | (23,534) |
|---------------|---------------|-----------------|

-62%

| | |
|---------------|---------------|
| 37,888 | 13,431 |
|---------------|---------------|

Revenue and Expenditure

The volume of water billed was 12% (14.8 million m³) below budget. This shortfall was mainly contributed by the regions below:

Table 3: Variance in GWCL Billing for key Regions

| Region | Variance (1,000 m ³) | Variance (%) | Sales Volume (m ³) |
|----------------------|----------------------------------|--------------|--------------------------------|
| Accra East | -2,502 | -10% | 21,436.20 |
| Accra West | -2,547 | -14% | 15,822.60 |
| Tema | -2,087 | -10% | 19,668.50 |
| Kumasi City | -3,765 | -20% | 15,614.30 |
| Sek/Tdi | -1038 | -14% | 6,603.80 |
| Central Rural | -1296 | -24% | 4,190.00 |
| Total | -13,200 | | 83,335.40 |

The shortfall is partly the result of a 3% (6.2 million m³) shortfall in production. The additional shortfall in the volume of water billed caused the non-revenue water percentage to increase from 44.8% in the budget to 50.1% in the Actuals YTD December 2008.

In summary, the water sales variance build-up is as follows:

| | |
|-------------------|----------------------|
| Production | GHC (3.3) million |
| Non-revenue water | (10.8) million |
| Average tariff | <u>(1.6) million</u> |

(15.7) million

Operating Expenditure

As expected, electricity cost contributed the highest proportion of the company's operational expenditure representing 37.28% of the total. However, the Commission will continue to monitor GWCL operations to ensure a reduction in energy consumption through already identified energy conservation programs. Personnel cost followed representing 26.16% of the total operating expenditure while chemical costs constituted 6.68%. By department, the production department registered the highest proportion of the operating expenditure representing 51.69% of total operating expenditure. General administration followed with 18.19% of total operating expenditure.

4.6 Pro Poor Projects

To ensure more equitable distribution of water, substantially more work needs to be done to tackle the water supply needs of Ghana's urban poor, who suffer the greatest deprivation under the current situation. Through a socio economic study PURC found that due to the lack of direct access, most of the urban poor depend on secondary and tertiary producers for supply of water, a situation which causes them to pay much more than they would otherwise have paid for direct access from the utility.

Under the Urban Water Project, PURC constituted a working group (PURC, GWCL/AVRL, and WaterAid) to pilot a pro poor project in three suburbs of Accra, namely Nima, Glefe and Teshie to provide lessons on service provision to the urban poor and help to specifically target the urban poor through regulatory instruments. Having completed the baseline study to gather realistic baseline information as well as a community entry and sensitization exercise, procurement processes are ongoing to allow the construction of supply facilities.

PURC's projects complement other pro-poor pilot projects currently in progress, such as the 'Water 4 Life' project being implemented by AVRL with funding from the Netherlands Government. The overall goal is to reduce the burden for those spending a high proportion of household income on water purchased from secondary and tertiary suppliers. Lessons learnt from these pilot projects will inform the strategy for replicating the successful aspects to increase access efficiently to other areas that are in similar water distress.

The following is the status of GWCL/AVRL pro poor projects

Table 4: Status of Utility Pro-poor Projects

| Project | | No people | Status | Period |
|--------------------------|------------------------|--|--------|--|
| Projects finished | | 19,900 | | |
| 1 | Nsuatre (Brong Ahafo) | - mechanisation of 1 borehole - provision of transmission line - extension of distribution network | 6,400 | - commissioned in November 2008 - borehole is in operation |
| 2 | Central Region | - connecting 11 villages to the new distribution network of the of Cape Coast Water Supply Project , by extension of the pipes and construction of public standpipes | 13,500 | - commissioned in December 2008 |
| Projects on-going | | 17,000 | | |
| 3 | Teshie (Accra) | - construction of 8 Water Kiosks - delivery of 1 water tanker - training of the Water board | 8,000 | - water board and staff trained - water tanker is supplying water to 7 locations - rehabilitation of water kiosks on all 8 locations is in preparation |
| 4 | Navrongo (Upper East) | - redevelopment of 6 boreholes - refurbishment of 2 control panels - extension of distribution network - construction of 5 Water Kiosks | 2,500 | - contractor is reconstructing the kiosks |
| 5 | Bawku (Upper East) | - extension of distribution network - construction of 10 Water Kiosks - refurbishment of 3 control panels | 5,000 | - construction works is finished - due to conflicts only 4 of the 10 kiosks are operating |
| 6 | Zaare (Upper East) | - extension of distribution network - construction of 2 water kiosks - training of foundation - sanitation program by Water Aid | 1,500 | - tender process is ongoing |
| Projects approved | | 13,000 | | |
| 7 | Tuobodum (Brong Ahafo) | - mechanisation of 1 borehole - provision of storage tank and a booster pump - provision of transmission line - additional distribution network | 13,000 | Jan '09 - |

4.7 PURC Water Quality Programmes

Launching of Water Tanker Service Guidelines

The Commission launched its Water Tanker Service Guidelines in March 2008. The guidelines seek to address issues of licensing and registration of water tankers, location of filling points, determination of rates, drinking water quality monitoring and standards for storage and delivery.

The formulation of the guidelines was dictated by the quest for the delivery of safe and good quality drinking water.

Roll-out of Drinking Water Safety Plans

PURC held a workshop on the status of the Drinking Water Safety Plans in July 2008. The workshop was to share findings of a pilot project on the Plans with key water quality staff from the utility from all the ten regions. This was to enable them draw up a program for the roll out of Water Safety Plans in the systems. The programme was also attended by PURC's independent water quality consultant from Adam Smith Institute and the Managing Director of AVRL.

Water Inspector's Manual

PURC's Inspectors' Manual which was commenced in January 2007 was finalized in July 2008. It involved a compilation of a series of documents on Water Inspectorates' role and functions on the audit and enforcement of drinking water quality. Copies of the procedures as they affect the operator were made available to GWCL/AVRL for their perusal before it was finalized.

The manual is an important document which sets out parameters for the technical audit of the water company. These include the auditing of sampling and analysis methods, compliance with the PURC Tankering Guidelines and also the audit of the Drinking Water Safety Plans. Furthermore, the manual provides for the audit of Audit/Inspection

Reports, Consumer Complaints on Drinking Water Quality, as well as Incidents and Emergencies. Finally it would deal with the Inspectorate's role in Communication and Reporting and the operation of an enquiry service .The content is meant to provide PURC with a means of reliably pursuing its duties under the 1997 Act.

4.8 Monitoring of Water Quality

In general the quality of the water produced by most urban systems met the Ghana National Standards requirements for drinking water and was therefore safe for consumption. However, lack of some analytical equipment/reagents adversely affected treatment process monitoring at some systems. It was also noted that good chemical dosing equipment was crucial for effective filter performance. A few breaches were recorded as indicated below.

Raw Water Quality

Raw water quality showed a lot of improvement between January and April 2008. That period also showed some few sources drying up. The quality started deteriorating in May due to the onset of rains. In July however these changes were overcome.

pH

There were breaches of pH caused mainly by borehole systems without lime dosing facilities. These were observed in Effiduase, Axim and Begoro.

Turbidity and Colour

Turbidity and colour values were breached as a result of poor performance of filters especially in Kibi, and Daboase; however media replacement was in progress. Breach of turbidity and colour values from Effiduase , Axim , Daboase , Osino was as a result of high iron content, break down of aeration systems in addition to poor filter performance. A problem with one of the boreholes at Aboso in the Western Region, resulted in constant turbidity of the water. There was no record of turbidity values from the Upper East and Upper West Regions due to lack of measuring instruments. GWCL must ensure adherence to performance standards in a consistent manner.

Residual Chlorine

Records of breaches in residual chlorine values were as a result of the manual application of calcium hypochlorite from January right through July.

Table 5 below shows the Water Quality Indicators (Treated water) for the year 2008.

Table 5: Treated Water Quality Indicators 2008

| REGION | pH | | | Colour (HU) | | | Turbidity (NTU) | | | Residual Chlorine (mg/dl) | | | Bacteriology E-Coli (cfu/100) | | | Taste and Odour (TN) | | |
|----------------|--|-----|-----------|-------------|-----|--------|--|----------|----------|---------------------------|-----|-----------|--|-----|------|----------------------|-----|------|
| | min | max | mode | min | max | mode | min | max | mode | min | max | mode | min | max | mode | min | max | mode |
| GHANA STANDARD | 6.5 | 8.5 | 6.8 - 8.5 | 0 | 15 | 0 - 15 | 0 | 5 | 0 - 5 | 0.2 | 0.5 | 0.2 - 0.5 | 0 | 0 | 0 | nil | nil | nil |
| ATMA | 6.1 | 9 | 6.8 | 0.4 | 8.4 | 2 | 0.3 | 5.6 | 1 | 0 | 8 | 1 | 0 | 1.8 | 0 | nil | nil | nil |
| Ashanti | 5.4 | 10 | 7 | 0 | 256 | 5 | 0 | 84 | 1 | 0 | 2.5 | 0.5 | 0 | 1.8 | 0 | nil | nil | nil |
| Western | 5 | 9.5 | 6.5 | 0 | 53 | 5 | 0 | 20.1 | 4.2 | 0 | 3.5 | 0.5 | 0 | 0.5 | 0 | nil | nil | nil |
| Central | 5.5 | 8.7 | 6.5 | 0 | 12 | 4 | 0 | 6 | 2 | 0 | 1.6 | 0.3 | 0 | 0 | 0 | nil | nil | nil |
| Eastern | 6.2 | 8.2 | 7.4 | 3 | 30 | 5 | 0.2 | 16.2 | 1.62 | 0 | 2 | 1.75 | 0 | 0 | 0 | nil | nil | nil |
| Northern | 6.3 | 8.9 | 7.4 | 0 | 10 | 2 | 0.94 | 10.25 | 4 | 0.1 | 1.7 | 1 | 0 | 0 | 0 | nil | nil | nil |
| Volta | 6.2 | 8.7 | 8.5 | 0 | 38 | 5 | 0 | 19 | 0.4 | 0 | 2.8 | 1.5 | 0 | 0 | 0 | nil | nil | nil |
| B. Ahafo | 5 | 8.9 | 8.2 | 1.3 | 23 | 5 | 2 | 5 | 2 | 0.2 | 2 | 1.6 | 0 | 0 | 0 | nil | nil | nil |
| Upper East | 6.2 | 8.4 | 6.8 | 5 | 8 | 5 | No equip | No equip | No equip | 0 | 5 | 1.1 | 0 | 0 | 0 | nil | nil | nil |
| Upper West | Wa is treated as a distribution system but not surface | | | | | | Wa is treated as a distribution system but not surface | | | | | | Wa is treated as a distribution system but not surface | | | | | |

Compliance Index

Compliance indices fell below the target value of the WHO figure of 0.95 due to shortfalls in the number of samples analyzed. It was mainly caused by transport difficulties, rationing and bad weather condition for distribution system monitoring. PURC has previously cautioned AVRL on this situation. There are signs that AVRL has is working on the transportation challenges. Rationing negatively affected residual chlorine values in the distribution systems.

Table 6 below shows the Water Quality Indicators (Distribution) for the year 2008.

Table 6: Water Quality Indicators in Distribution 2008

| REGION | pH | | | Colour (HU) | | | Turbidity (NTU) | | | Residual Chlorine (mg/dl) | | | Bacteriology E-Coli (cfu/100) | | | Taste and Odour (TN) | | |
|----------------------|-----|-----|-----------|-------------|-----|--------|-----------------|----------|----------|---------------------------|-----|-----------|-------------------------------|-----|------|----------------------|-----|------|
| | min | max | mode | min | max | mode | min | max | mode | min | max | mode | min | max | mode | min | max | mode |
| GHANA STANDARD | 6.5 | 8.5 | 6.8 - 8.5 | 0 | 15 | 0 - 15 | 0 | 5 | 0 - 5 | 0.2 | 0.5 | 0.2 - 0.5 | 0 | 0 | 0 | nil | nil | nil |
| R01 ATMA FINAL | 6 | 9.1 | 7.3 | 0.2 | 11 | 5 | 0.1 | 5 | 0.5 | 0 | 2 | 0.1 | 0 | 8 | 0 | nil | nil | nil |
| R02 Ashanti FINAL | 3.4 | 8 | 6.9 | 0 | 152 | 10 | 0 | 22 | 3 | 0 | 3 | 0.05 | 0 | 0 | 0 | | | |
| R03 Western FINAL | 4.9 | 9 | 7 | 0 | 94 | 5 | 0 | 29.9 | 0 | 0 | 2.5 | 0.1 | 0 | 0 | 0 | | | |
| R04 Central FINAL | 5.7 | 8.8 | 6.5 | 0 | 80 | 4 | 0 | 30 | 0 | 0 | 2 | 0.1 | 0 | 0 | 0 | | | |
| R05 Eastern FINAL | 5.1 | 8.8 | 6.9 | 0 | 141 | 5 | 0 | 83 | 2 | 0 | 2.5 | 0 | 0 | 0 | 0 | | | |
| R06 Northern FINAL | 6.5 | 9.4 | 7.61 | 0 | 53 | 0 | 0.72 | 145 | 1.88 | 0 | 2 | 0 | 0 | 0 | 0 | | | |
| R07 Volta FINAL | 6.3 | 9 | 7.3 | 0 | 30 | 0 | 0 | 6 | 0 | 0 | 2 | 0.1 | 0 | 0 | 0 | | | |
| R08 B. Ahafo FINAL | 6.3 | 8.4 | 7.4 | 0 | 5 | 5 | 1 | 2 | 2 | 0 | 2 | 0 | 0 | 1 | 0 | | | |
| R09 Upper East FINAL | 6.3 | 8.3 | 6.7 | 5 | 8 | 5 | no equip | no equip | no equip | 0 | 2 | 0 | 0 | 0 | 0 | | | |
| R10 Upper West FINAL | 6.3 | 6.9 | 6.5 | 5 | 5 | 5 | no equip | no equip | no equip | 0.2 | 2 | 0.75 | 0 | 0 | 0 | | | |

Drinking Water Safety Plans

Progress was made with the implementation of Drinking Water Safety plans during the year. This risk based approach of quality control is enhancing the effect of sampling and testing of water quality on a daily basis.

Table 7

TARGET ACHIEVED FOR TREATMENT PLANTS January to December 2008

| PLANTS PARAMETER | RO1 ATMA | RO2 ASHAN | RO3 WESTERN | RO4 NORTHERN | RO5 EASTERN | RO6 NORTHERN | RO7 VOLTA | RO8 B. AHAFO | RO9 UPPER WATER WEST |
|--|----------|-----------|-------------|--------------|-------------|--------------|-----------|--------------|-------------------------|
| | | | | | | | | | |
| Total No. of samples as Target 2008 | 6546 | 4501 | 3087 | 5981 | 9437 | 2181 | 2202 | 3653 | 2162 |
| Actual No. of samples taken 2008 | 6290 | 4369 | 2976 | 5625 | 7102 | 2144 | 1570 | 3493 | 1418 |
| % Target achieved (samples) 2008 | 96% | 97% | 96% | 94% | 75% | 98% | 71% | 96% | 65.6 |
| % Compliance pH Minimum | 99% | 71% | 36% | 85% | 76% | 97% | 75% | 99% | 93% |
| % Compliance pH Maximum | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| % Compliance pH Mode | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| % Compliance Colour Minimum | 100% | 80% | 87% | 100% | 76% | 100% | 75% | 96% | 100% |
| % Compliance Colour Maximum | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| % Compliance Colour Mode | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| % Compliance Turbidity Minimum | 100% | 67% | 79% | 100% | 75% | 97% | 50% | 100% | 47% |
| % Compliance Turbidity Maximum | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| % Compliance Turbidity Mode | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| % Compliance Residual Chlorine Minimum | 42% | 39% | 45% | 50% | 56% | 100% | 75% | 97% | 74% |
| % Compliance Residual Chlorine Maximum | 100% | 100% | 100% | 100% | 99% | 100% | 100% | 100% | 100% |
| % Compliance Residual Chlorine Mode | 100% | 100% | 100% | 50% | 88% | 100% | 100% | 100% | 100% |
| % Compliance Turbidity Minimum | 97% | 78% | 89% | 100% | 100% | 100% | 100% | 100% | 100% |
| % Compliance Turbidity Maximum | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| % Compliance Turbidity Mode | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| % Compliance Odour and Taste Minimum | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| % Compliance Odour and Taste Maximum | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |

Table 8

TARGET ACHIEVED FOR DISTRIBUTION NETWORK January to December 2008

| PLANTS | PARAMETER | | | | | | | | | |
|---|------------------|--------------------|--------------------|--------------------|--------------------|---------------------|------------------|---------------------|-----------------------|-----------------------|
| | R01 ATMA | R02 ASHANTI | R03 WESTERN | R04 CENTRAL | R05 EASTERN | R06 NORTHERN | R07 VOLTA | R08 B. AHAFO | R09 UPPER EAST | R10 UPPER WEST |
| Total No. of samples as Target 2008 | 5894 | 3049 | 2346 | 2030 | 1897 | 1173 | 934 | 1112 | 521 | 117 |
| Actual No. of samples taken 2008 | 4281 | 1578 | 2012 | 1719 | 1279 | 700 | 623 | 996 | 456 | 72 |
| % Target achieved (samples) 2008 | 73% | 52% | 86% | 85% | 67% | 60% | 67% | 90% | 87.5 | 61.5 |
| % Compliance pH Minimum | 90% | 45% | 44% | 83% | 58% | 80% | 77% | 100% | 83% | 25% |
| % Compliance pH Maximum | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 88% |
| % Compliance pH Mode | 100% | 100% | 82% | 100% | 100% | 100% | 100% | 100% | 100% | 25% |
| % Compliance Colour Minimum | 100% | 85% | 61% | 96% | 84% | 89% | 97% | 100% | 100% | 100% |
| % Compliance Colour Maximum | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| % Compliance Color Mode | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| % Compliance Turbidity Minimum | 100% | 79% | 80% | 100% | 91% | 74% | 99% | 100% | | |
| % Compliance Turbidity Maximum | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | | |
| % Compliance Turbidity Mode | 100% | 100% | 91% | 100% | 100% | 100% | 100% | 100% | | |
| % Compliance Residual Chlorine minimum | 27% | 17% | 39% | 50% | 56% | 63% | 73% | 36% | 25% | 100% |
| % Compliance Residual Chlorine Maximum | 100% | 100% | 99% | 100% | 81% | 100% | 100% | 99% | 70% | 100% |
| % Compliance Residual Chlorine Mode | 55% | 43% | 96% | 100% | 78% | 100% | 100% | 58% | 70% | 100% |
| % Compliance Bacteriology Minimum | 88% | 15% | 48% | 80% | 100% | 100% | 67% | 98% | 100% | 100% |
| % Compliance Bacteriology Maximum | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| % Compliance Bacteriology Mode | 92% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| % Compliance Odour and Taste Minimum | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| % Compliance Odour and Taste Maximum | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| % Compliance Odour and Taste Mode | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |

4.9 Challenges in Urban Water Production and Quality Control

Raw Water Source/Production

In January, Kibi boreholes dried up and supply was rather obtained from the Kibi surface water plant.

In February water supply situation worsened in about 70% of the systems. This was caused by the growing gap between demand and production, power supply interruptions or low voltages problems and the occasional drying out of some sources.

In April, Konongo dam, Kibi boreholes, and Damongo water sources dried up. Except for Konongo, treatment resumed on May due to the onset of the rains. Yendi source also dried up. Water was therefore supplied by tankers from Tamale. This continued through June with Yendi resuming production in June as a result of adequate raw water in the dam, due to rainfall in the north.

In June due to rainfall the water supply in most systems stabilized. Power interruptions disturbed uninterrupted flow in several systems.

Chemical usage

In January it was noted that the Aluminium Sulphate supplied by Sapalon was found to be crushed lumps as against product specification of granules.

There was a presentation by Sud Chemise on the polyelectrolyte trials at Owabi in March 2008, and also Final cost effective evaluation of Sodium Hypochlorite Generators was completed and submitted to Grantor. Polyelectrolyte use at Owabi continued with good results right through October.

In February, Kpong experienced problems with the newly-installed gas chlorinator due to the absence of a vacuum regulator.

In April there was an initiative to install chlorine dozers especially at the systems where regular breaches have been realized. In October, new chemical dosing equipment on order were delivered and installed. Beneficiary regions were Western, Ashanti, Central and Brong-Ahafo.

Also in November, GWCL questioned the use of polyelectrolyte in Owabi. A renewed request to allow its continued use would be submitted as it did not only reduce cost, but was also easier and safer to dose. To confirm its safety, new lab equipment needed to be bought.

Faulty equipment

Major faulty equipment including laboratory equipment at all Headworks were identified and prioritised, to be replaced with funding from the Urban Water Project.

Water Sampling

Lack of adequate transportation has been identified as a bottleneck in the assurance of water safety. However the recent allocation of vehicles should resolve this situation. During monitoring PURC found the availability of reagents at GWCL regional and headwork laboratories unsatisfactory. Under the new organizational structure adopted by AVRL allows for central purchase of reagents. Regional Water Quality Assurance Managers are now mandated by AVRL to take and test more samples than the required minimum.

Generally, the roll out of the drinking water safety plans under PURC supervision is expected to improve proactive measurement, sampling and testing to prevent drinking water from becoming unsafe.

Incidents in Water supply

Contamination of pipe borne water flowing to taps in La and surrounding areas was reported in **September**. There was a lot of public outcry to the problem. Tests carried out by GWCL/AVRL revealed that the water was not good for human consumption. The cause appeared to be a pipe burst in combination with undue pressure due to the rationing. This caused the ingress of foreign polluted water into the system. The problem was finally resolved in November.

PURC actively followed the progress of the complaint and its handlings. Situations of people illegally digging has become rampant. In the opinion of the PURC serious public education has to be done to educate the public on such matters.

CONSUMER ISSUES

A Call Centre was put in operation on a pilot basis in August 2008. PURC has been monitoring the operation of the call centre. Addressing of consumer complaints through the call centre is progressing well. PURC however feels that the toll free number should be given more publicity. It has also advised the AVRL to take measures to make the toll free line accessible through other networks and not restrict it to one network and landlines alone.

5. TECHNICAL OPERATIONS - ENERGY SECTOR

5.1 Introduction

The Commission conducts monitoring of the electricity generation, transmission and distribution utilities with respect to their financial, operational, and technical performance. Highlights of the year's monitoring include:

- Energy production from hydro increased due to a rise of 8.83 feet in the water level in the Akosombo Dam.
- ECG capital investment rose from \$79.2 Million in 2007 to \$97.8 Million in 2008. By comparison VRA investment fell from \$83.57 million in 2007 to \$39.38 million in 2008.
- The Ghana Grid Company Limited (GRIDCo) which was carved from VRA became functional in August 2008.

5.2 Electricity Generation

There was an increase in electricity generation during the year under review due to the favourable water level of the dam. For most of the year, the six hydro turbines at Akosombo were operated and as a result, generation increased by 21% from the previous year's figure of 7,101 GWH to 8,617 GWH in 2008. Maximum peak generation was 1,366.5MW. The following sections provide the electricity generation details:

5.2.1 Availability and Utilization

Table 9 below compares generation availability and utilization factors between 2008 and 2007. The **availability factor** of a power plant is the ratio of hours within a defined period (daily, monthly, or annually) during which a power generating unit is available to produce power at the rated capacity against the total number of hours for the same period. The **utilization factor** of a power plant is the ratio of the maximum

demand of a system or part of a system to the rated capacity of the system or part of the system under consideration.

The availability factor for TAPCO in 2008 was 48.31% compared to 71.62% in 2007. This was due to the fact that one unit was out of service for most of the year.

Table 9: VRA Generation: Comparison of Availability and Utilization Factors for 2008 and 2007

| Station | Generation Availability Factor (%) | | | Utilisation factor (%) | | |
|--------------------|------------------------------------|--------------|----------------|------------------------|--------------|----------------|
| | 2008 | 2007 | PURC Benchmark | 2008 | 2007 | PURC Benchmark |
| Akosombo GS | 97.78 | 96.51 | 95 | 75.11 | 78.83 | 95 |
| Kpong GS | 97.81 | 90.82 | 95 | 87.98 | 85.68 | 95 |
| TAPCO | 48.31 | 71.62 | 95 | 32.21 | 54.61 | 95 |

Thermal generation went down in 2008 as compared to 2007 and so did availability and utilisation. During the year under review, emergency generation (from diesel plants procured by the government) dropped from 4% to 3%.

5.2.3 Generation Mix

Hydro generation increased significantly in absolute figures from 3,727 GWH in 2007 to 6,188GWh in 2008 or about 66% of the 2007 value. The 2008 figure forms 72% of the mix as opposed to 50% in 2007. There was also significant reduction (34%) in thermal generation from 2,929GWH in 2007 to 1,932GWH in 2008. This reduction in thermal generation is due to two factors. Firstly, the favourable water level in the dam enabled more power to be generated from hydro. Secondly, one of the TAPCO units was out of service during most parts of the year. Both emergency generation and imports account for 3% each. The details of the generation mix are in Table 10 below.

Table 10: Generation Mix for 2008 and 2007

| Sources | Generation Mix | | | | | |
|----------------------|----------------|------------|--------------|------------|----------------------------------|-------------|
| | 2008 | | 2007 | | Difference between 2008 and 2007 | |
| | GWH | % | GWH | % | GWH | % over 2007 |
| Akosombo | 5,250 | 61 | 3,104 | 42 | 2,146 | 69 |
| Kpong | 938 | 11 | 623 | 8 | 315 | 51 |
| Total Hydro | 6,188 | 72 | 3,727 | 50 | 2,461 | 66 |
| TAPCO | 869 | 10 | 1,512 | 21 | (643) | (43) |
| TICO | 1,063 | 12 | 1,417 | 19 | (354) | (25) |
| Total Thermal | 1,932 | 22 | 2,929 | 40 | (997) | (34) |
| Emergency Generation | 237 | 3 | 274 | 4 | (37) | (13) |
| Imports | 260 | 3 | 435 | 6 | (175) | (40) |
| Grand Total | 8,617 | 100 | 7,101 | 100 | 1,516 | 21 |

5.3 Electricity Transmission System Performance

The average transmission system lines in service is still very high- 99.47%. This means that there is no redundancy in the system to take up emergencies.

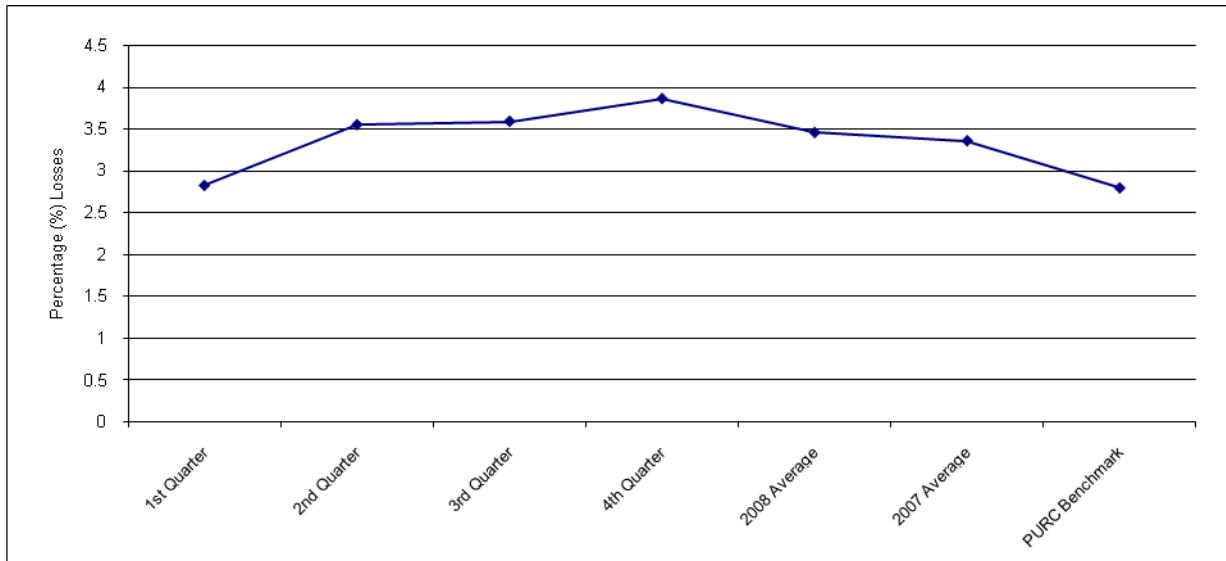
The average transmission system losses of 2008 went up by 3% compared to 2007 system losses.

The transmission system losses in the first quarter was 2.83% and increased to 3.86% in the last quarter. Details are in Figure 4 below.

Table 11: Transmission System Performance for 2008 and 2007

| | 1 st Quarter | 2 nd Quarter | 3rd Quarter | 4th Quarter | 2008 Average | 2007 Average | PURC Benchmark |
|---|-------------------------|-------------------------|-------------|-------------|--------------|--------------|----------------|
| Transmission System Losses (%) | 2.83 | 3.55 | 3.59 | 3.86 | 3.46 | 3.36 | 2.8 |
| Transmission System line in Service (%) | 99.04 | 99.12 | 99.85 | 99.86 | 99.47 | 99.48 | 95 |
| Power Supply availability (%) | 99.02 | 99.06 | 98.87 | 99.6 | 99.14 | 97.12 | 95 |

Figure 4: Transmission Systems Losses for 2008 and 2007



5.4. Electricity Distribution: Supply Availability

Supply availability is the measure of the number of outage hours suffered by a connected customer for the year. The analysis for ECG and NED has been made below:

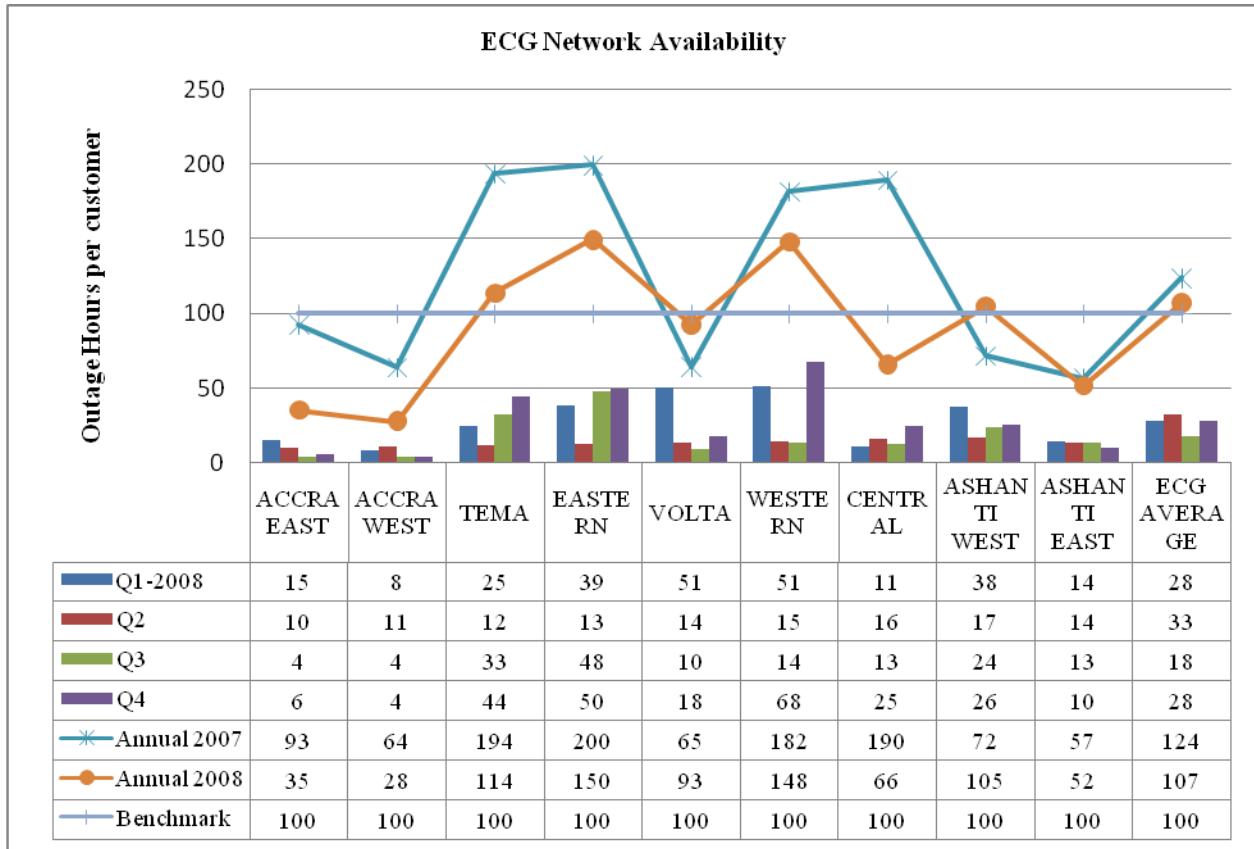
5.4.1 Supply Availability-ECG

Our analysis of the availability figures indicated that most of the outages customers suffered during the year under review were unplanned. Nevertheless there was an improvement of 14% in 2008, with the annual average outages hours per connected customer being 107 hours compared with 2007 which was 124 hours.

On the average, five regions (Accra East, Accra West, Volta, Central and Ashanti East) experienced outage hours below the PURC benchmark of 100 hours per connected customer. Even though the performance of Tema, Eastern and Western had improved,

the values are still high. Figure 5 below shows the quarterly and annual performance of the various regions.

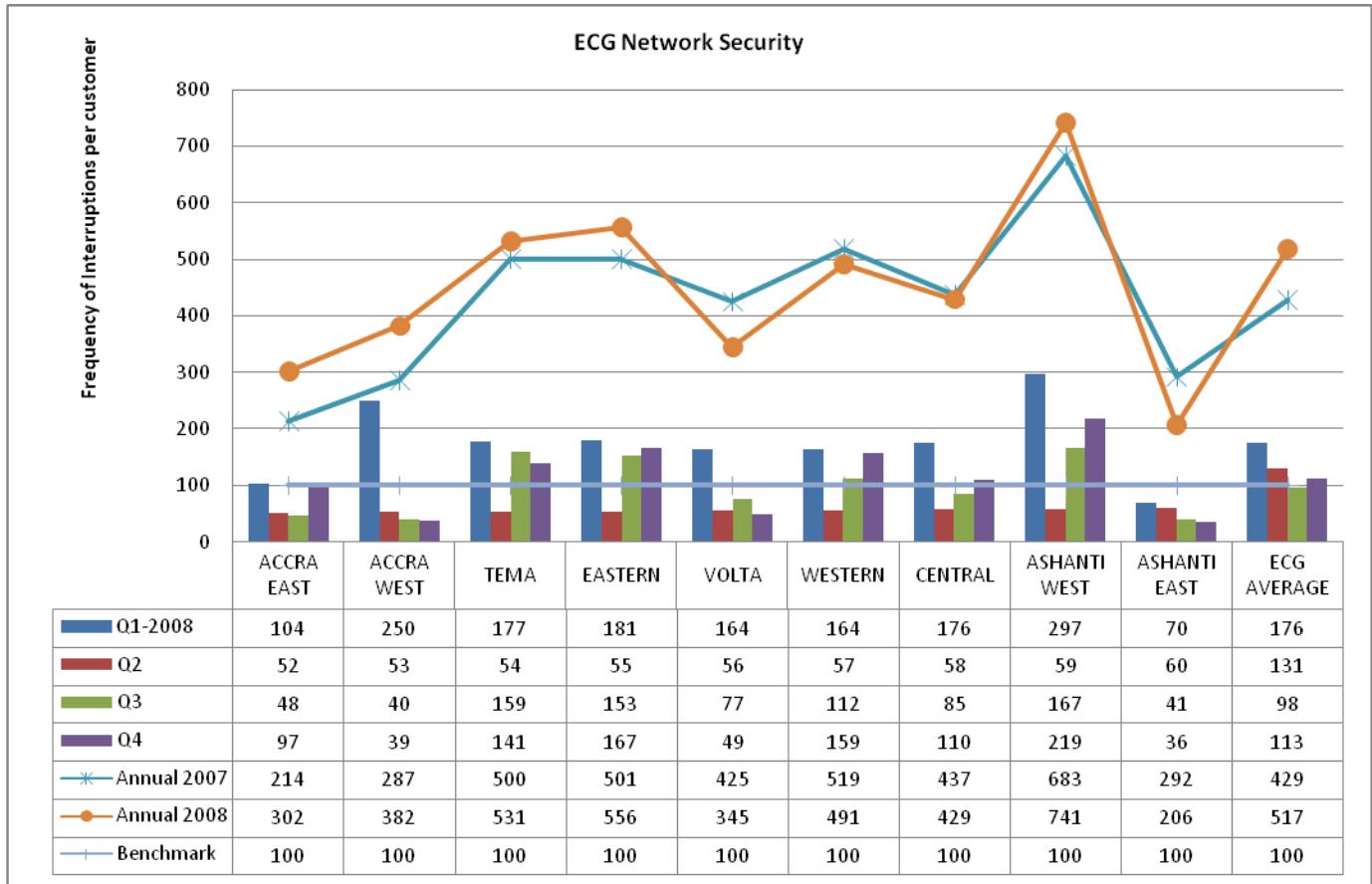
Figure 5: ECG Outage hours per customer per year.



5.4.2 Network Security - ECG

The network security or fault performance is the interruptions or faults per 100km/year of network. The annual average for 2008 was 517 compared with 429 for 2007. Though the performance of outage hours had improved by 14%, the performance in terms of interruptions had deteriorated by 20.5%. Figure 6 below depicts the quarterly and annual values of all the regions.

Figure 6: ECG Frequency of interruptions per customer per year per 100Km.

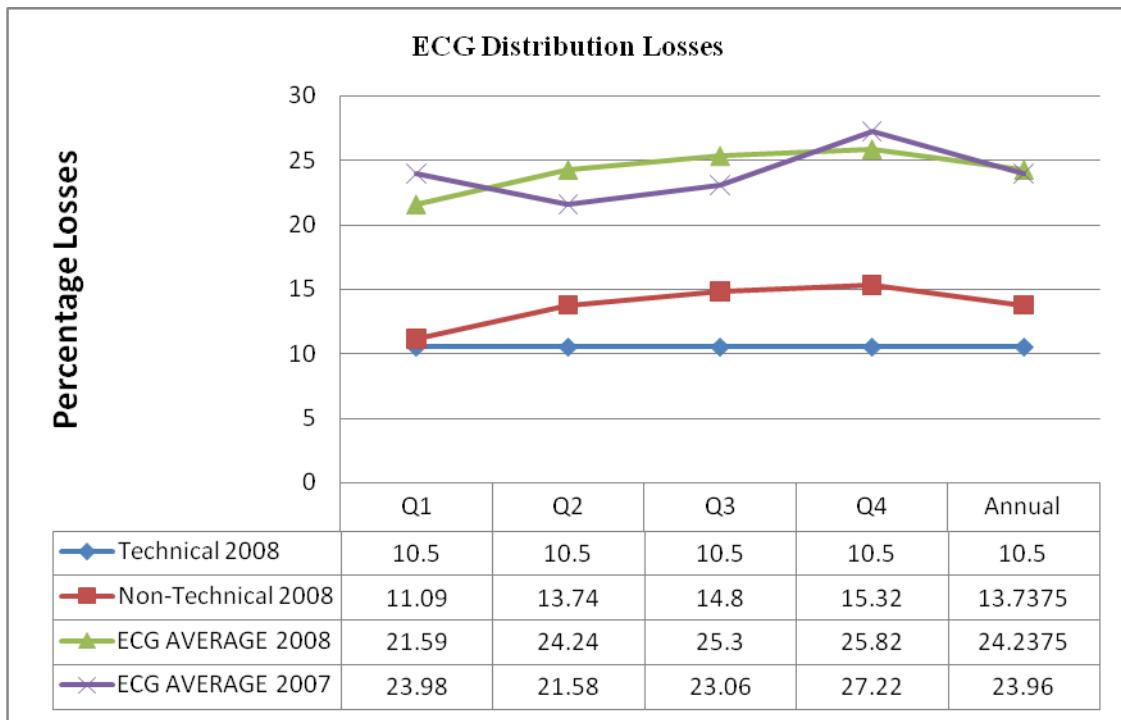


5.4.3 Distribution Losses- ECG

Distribution losses are a combination of technical losses and commercial losses. The technical losses were constant over the year, 10.5% per quarter. The commercial losses started at 11.09% from the first quarter and ended 15.32% in the last quarter, bringing the annual average to 24.24% compared with 23.96% in 2007, a deterioration of 1.2%. This must be a serious concern to ECG, since it represents a loss of revenue to the company.

The trend of the commercial losses from the first quarter to the fourth quarter is alarming (about 4% increases over the period under consideration). The trends for both annual and quarterly values are depicted on Figure 7 below.

Figure 7: ECG Distribution Losses over the period.

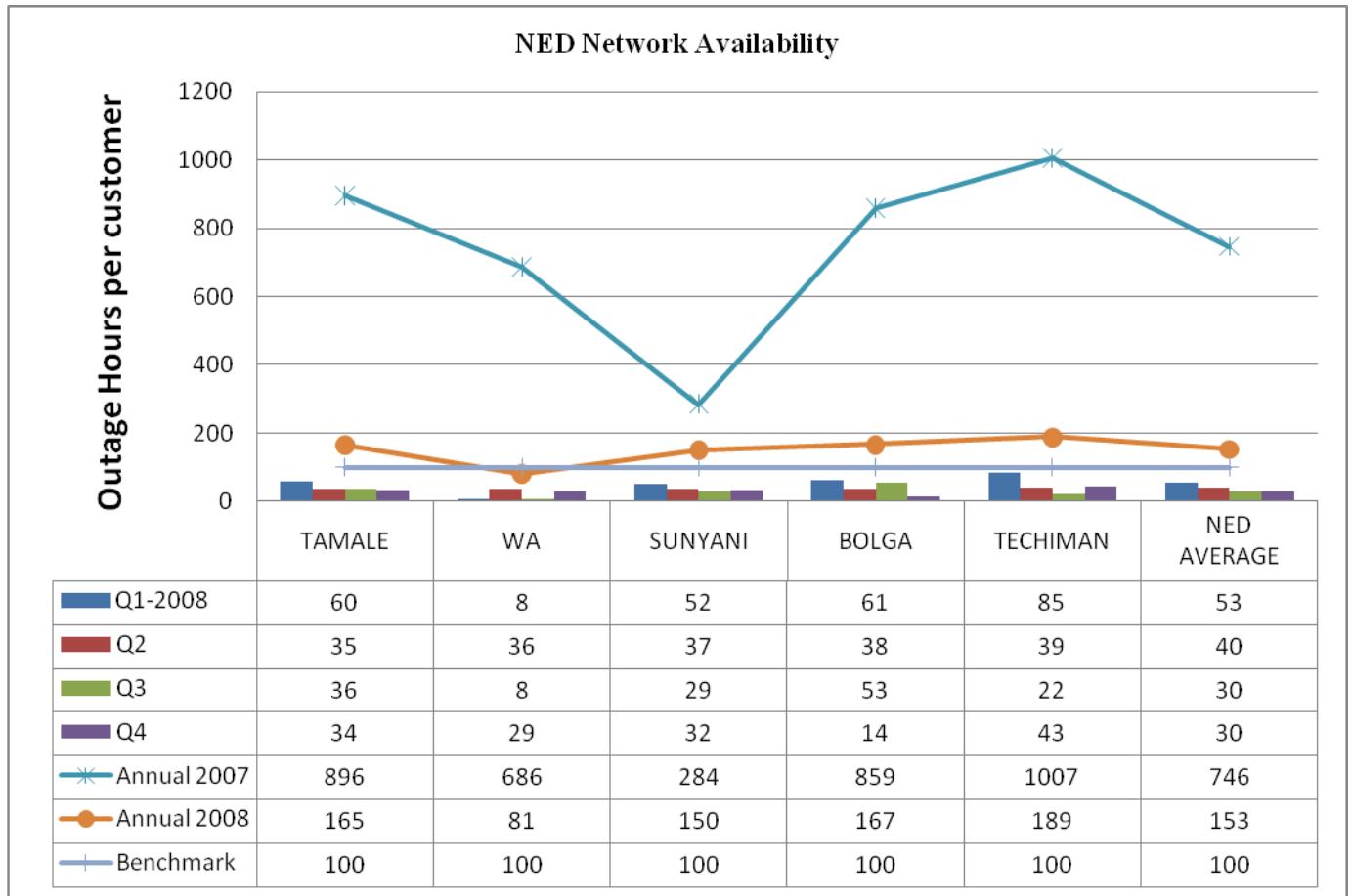


5.4.4 Supply Availability: NED

There was a marked improvement in supply availability for NED in 2008 compared with 2007. Average annual outage hours in 2008 was 153 while 2007 was 746. The improvement was about 80%.

Among NED operational areas, Wa performed very well with 81 hours, well below the PURC Benchmark of 100 hours. The performance for the year is shown on Figure 8 below.

Figure 8: NED Outages Hours per customer per year.

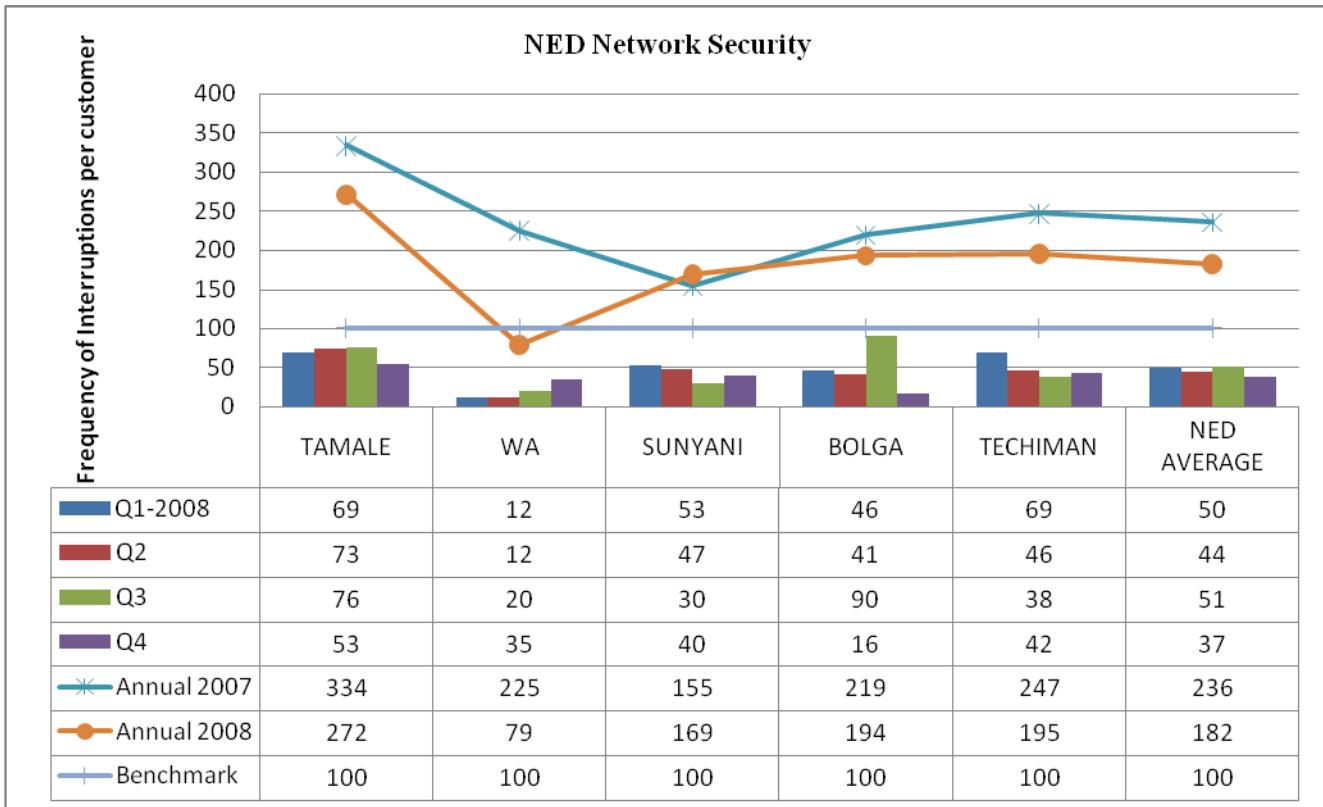


5.4.5 Network Security – NED

There was an improvement in NED network security though not as high as for outage hours. The percentage reduction in network interruption was 23%. Tamale had the highest number of interruptions of 272 whilst Wa recorded 79 interruptions.

The performance of the network of NED in 2008 is shown in Figure 9 below.

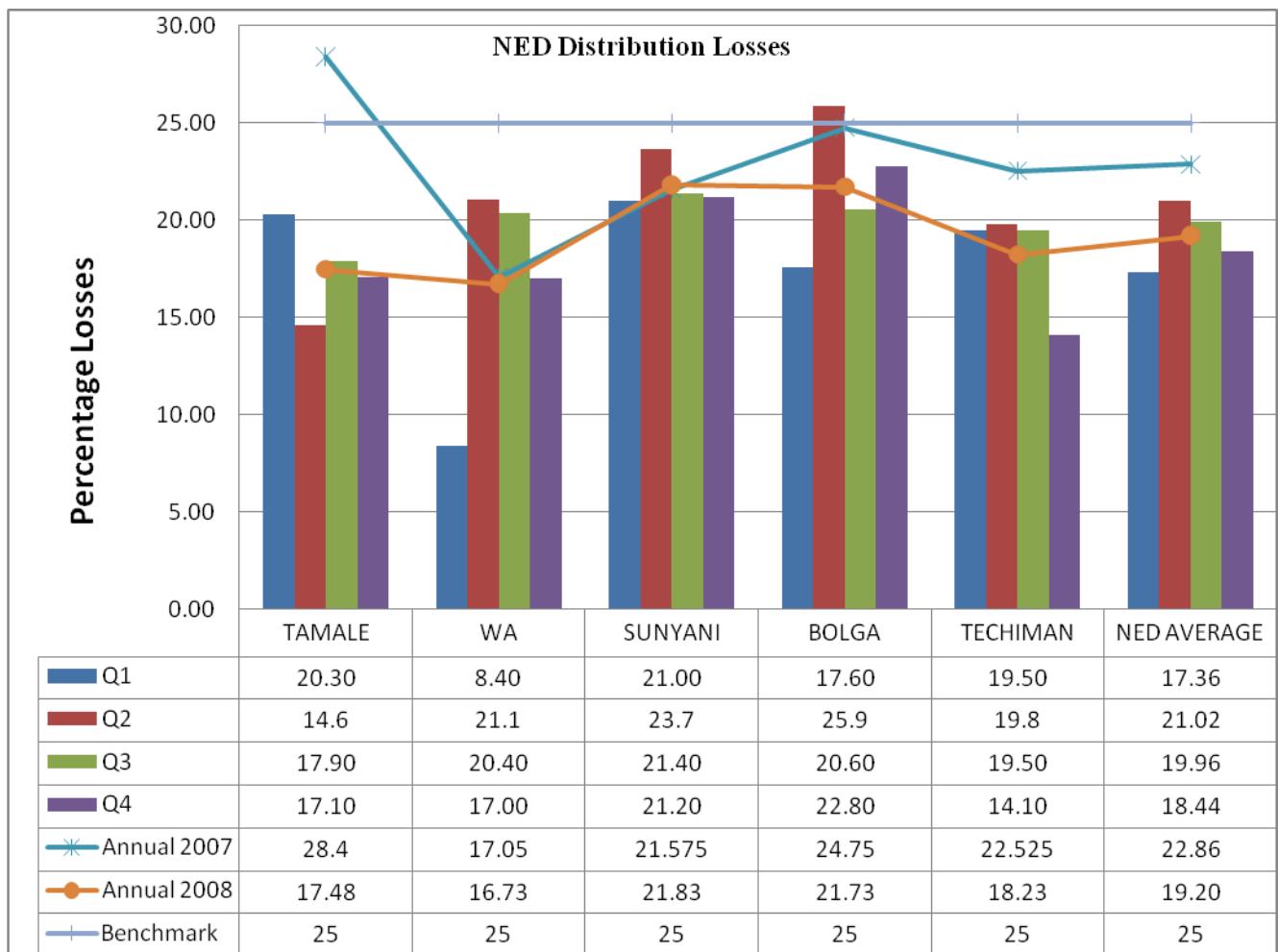
Figure 9: NED Frequency of network interruption per 100Km per customer per year.



5.4.6 Distribution Losses- NED

Over the years, NED has improved on its performance in terms of distribution losses. The annual average for 2008 was 19.2% compared with 22.86% in 2007. With MDAs being large consumers, the collection ratio of the NED is high. The other contributing factor is the use of 33KV feeders to reduce technical losses. The highest loss of 21.83% was recorded in Sunyani and the lowest loss of 16.73% was recorded in Wa. The performances of the various regions are depicted in Figure 10 below.

Figure 10: NED Distribution Losses over the period.



5.5 Natural Gas Regulation

5.5.1 Natural Gas Market

In December 2008, the offshore West African Gas Pipeline was successfully filled with Natural Gas from Nigeria all the way to Takoradi in Ghana. The Regulatory and Metering Station at Aboadze will be ready early 2009 to supply gas at the right pressure to the Takoradi Thermal Plants.

The Master Plan for the Secondary Natural Gas Market was developed during the year. The Master Plan is the configurations for both national and regional pipeline systems for the secondary natural gas transmission and distribution infrastructure for Ghana. The transmission system connects two or more regions, making it an inter-regional pipeline; and the distribution system is confined within a region, thus, an intra-regional network. The proposed secondary network is intended to supply natural gas to both industrial and household customers in the future.

5.5.2 Natural Gas Capacity Needs of PURC

The Natural Gas Unit of the Commission lacks staff. It is planned to recruit a manager for the unit by early 2009. Meanwhile, the Commission has been participating in sector institutional capacity building efforts to prepare it for natural gas regulation. A detailed programme for capacity building in Oil and Gas has been drawn up by the Commission. The Commission is sourcing funds to start the implementation of the programme. The immediate areas to build capacity are Engineering, Legal and Regulatory Economics.

6. CONSUMER SERVICES

6.1 Introduction

In fulfilment of its consumer protection mandate, the Commission pursued the following activities in 2008: complaints handling, consumer education, training workshops, establishment of one Consumer Service Committee and monitoring of utility Customer Service Centres. These were enhanced with the development of new tools such as a weighted assessment schedule for evaluation of utility service centres, a Schools Education Programme and an operational retreat among others.

PURC encourages consumers to first lodge complaints with the service providers and refer them to PURC if dissatisfied with the company's approach. PURC deals with complaints either informally through mediation between the consumer and the utility, or formally by establishing a panel which takes evidence, investigates, and makes recommendations to the Commission. Move to exec sum.

Complaints filed with the Commission in 2008 against all the utility companies increased considerably as compared to 2007. This was partly the effect of sustained consumer education which sensitized consumers on their rights and responsibilities and also due to the establishment of a new PURC Regional Office in the Northern Region which offered more consumers the opportunity to exercise their consumer rights. Additionally, the increase in the number of complaints was an indication of poor quality of service as detailed below. However in terms of services rendered at the Customer Service and District offices of the utilities, the positive impact of our past monitoring activities was evident in 2008, with marked improvements observed during monitoring.

The Commission's decentralization programme was further expanded by the establishment of the first Consumer Service Committee (CSC) in Sekondi. The CSCs are comprised of volunteers and are to serve as local watchdogs and a point of contact for

consumers at the District level. They receive complaints and transmit these to the PURC Regional Offices.

Consumer education continues to be a high priority with the focus now on the youth so as to introduce conservation and utility regulatory issues to the populace from an early age. Collaboration between the Commission and utility companies was further strengthened with a workshop with the ECG and NED on billing and payment systems. This section of the report presents details of consumer service activities for 2008.

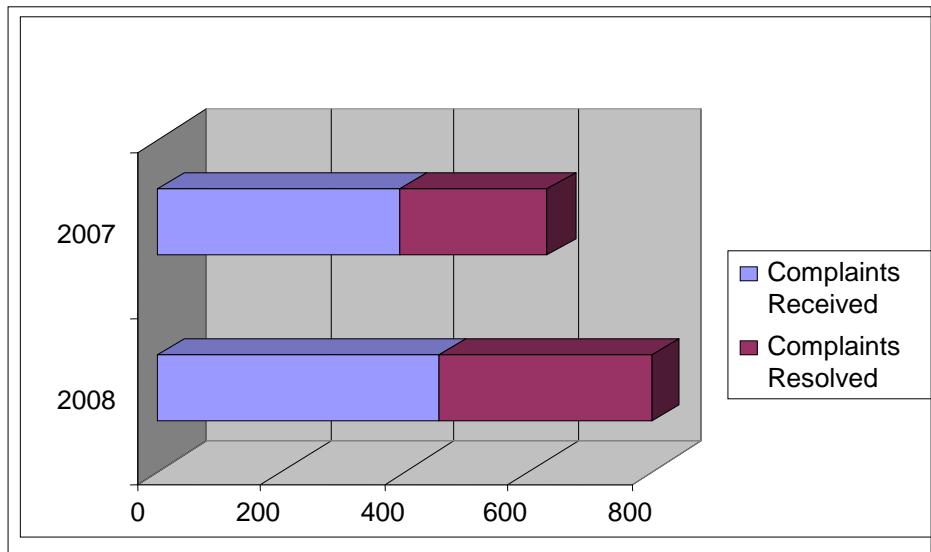
6.2 Consumer Complaints

PURC received a total of 454 complaints against the utility companies during the year with 86 % of these being amicably settled with the Commission's intervention. Comparatively, there was a 29% increase in complaints received over 2007. As with previous years, the number of complaints against ECG was the highest: 58.8% as against 27.9% and 13.2% for GWCL and NED respectively. There was also a significant improvement of 62.5% complaints resolution in 2008 over 2007 as shown below.

Table 12: Comparison of Complaints Management for 2008 and 2007

| Utility | Total Complaints Received | | Resolved | | % of Total Resolved | | % Increase in com-plaints received 2008/2007 |
|---------|---------------------------|------|----------|------|---------------------|------|--|
| | 2008 | 2007 | 2008 | 2007 | 2008 | 2007 | |
| ECG | 267 | 210 | 234 | 134 | 87.6 | 63.8 | 27.1 |
| GWCL | 127 | 97 | 100 | 70 | 78.7 | 72.2 | 25.0 |
| NED | 60 | 35 | 56 | 35 | 93.3 | 100 | 71.4 |
| Total | 454 | 342 | 390 | 239 | 85.9 | 69.9 | 28.6 |

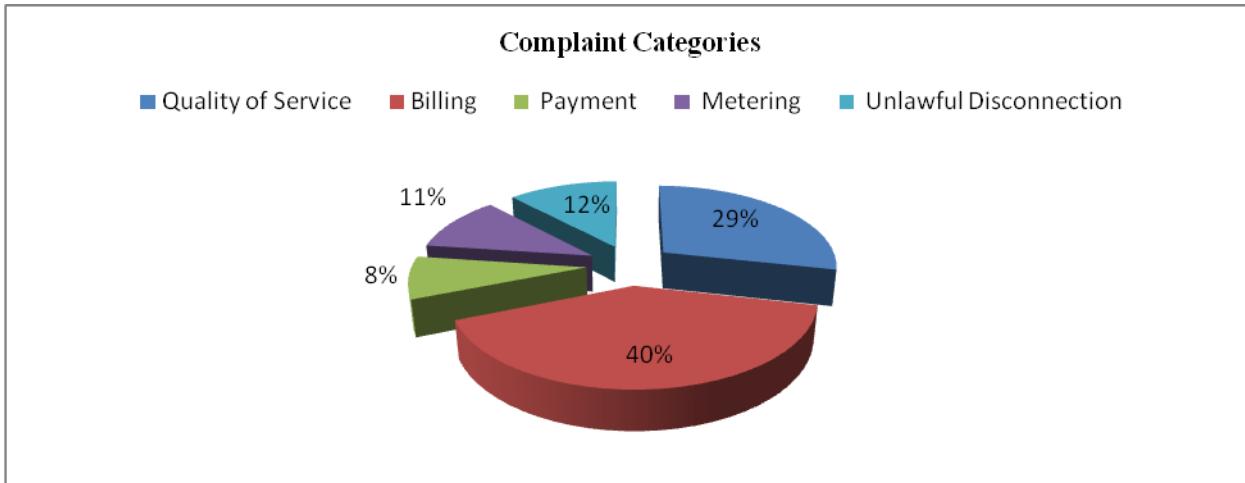
Figure 11: Comparison of 2008 & 2007 Complaints



6.2.1 Complaints against ECG

Some improvement was noted in ECG's performance in complaints resolution. The categories of complaints lodged against ECG in the reporting year included quality of service, billing, payments, metering and unlawful disconnections.

Figure 12: ECG Complaint Categories



Billing was the most reported component of the complaints against ECG as compared to **quality of service** in 2007. Whereas there was power crisis in 2007 culminating in quality of service complaints, in 2008, the implementation of a new PURC approved tariff from November 2007 and a related government subsidy which was fraught with difficulties and challenges from both the utility companies and customers resulted in more billing complaints being filed in 2008. In addition, there was the problem of the quality of pre-payment meters that were installed by ECG in 2008. It was observed that the electro mechanical components failed to synchronize with system fluctuations, resulting in gaps that generate billing disputes. ECG is now replacing the meters with a different brand that is devoid of the above problem. The Commission is in favour of the replacement and has always given protection to customers who have suffered from the above problem.

Table 12: ECG Complaint Management by Operational Region

| Region | Quality of Service | Billing | Payment | Metering | Unlawful Disconnection | Total | Resolved |
|------------|--------------------|---------|---------|----------|------------------------|-------|----------|
| Accra East | 25 | 22 | 9 | 6 | 10 | 72 | 64 |
| Accra West | 32 | 34 | 4 | 7 | 4 | 81 | 72 |
| Tema | 4 | 9 | 1 | 1 | 0 | 15 | 12 |
| Eastern | 2 | 1 | 0 | 0 | 0 | 3 | 2 |
| Volta | 4 | 2 | 0 | 0 | 0 | 6 | 4 |
| Central | 1 | 2 | 0 | 0 | 1 | 4 | 4 |

| | | | | | | | |
|---------|-----------|------------|-----------|-----------|-----------|------------|------------|
| Western | 7 | 7 | 2 | 6 | 10 | 32 | 27 |
| Ashanti | 1 | 31 | 6 | 9 | 7 | 54 | 49 |
| Total | 76 | 108 | 22 | 29 | 32 | 267 | 234 |

6.2.2. Complaints against Ghana Water Company Limited (GWCL)

In 2008, a total of 127 complaints were filed against GWCL with the Commission, 100 of which were satisfactorily resolved by the Commission. The number of complaints received against GWCL was 53% higher than in 2007, again due to a combination of factors including consumer education, the Commission's increased presence in more regions as well as the poor quality of service delivery by GWCL in the reporting year. The highest number of complaints was with respect to quality of service including pipe bursts, leakages, water quality and no flow. Billing complaints came second as a result of the company's continued delay in issuing bills and delivery of un-explained bulk bills to customers.

Figure 13: GWCL Complaint Categories

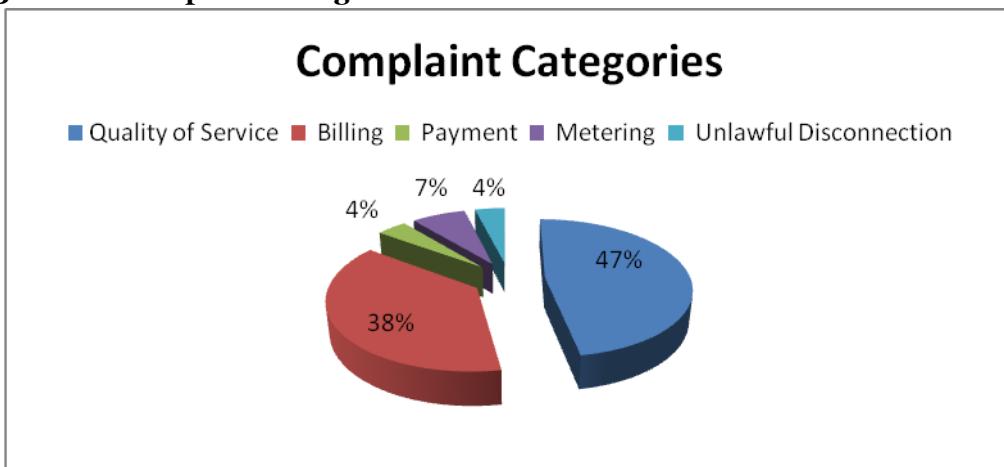


Table 13: GWCL Complaint Management by Operational Region

| Region | Quality of Service | Billing | Payment | Metering | Disconnection | Total | Resolved |
|------------|--------------------|---------|---------|----------|---------------|-------|----------|
| Accra East | 31 | 15 | 1 | - | - | 47 | 36 |
| Accra West | 10 | 10 | - | - | - | 20 | 17 |
| Tema | 2 | 5 | - | 2 | - | 9 | 1 |
| Eastern | 1 | 3 | - | - | - | 4 | 2 |
| Volta | - | - | - | - | 1 | 1 | 2 |

| | | | | | | | |
|--------------|-----------|-----------|----------|----------|----------|------------|------------|
| Central | - | - | - | - | - | - | - |
| Western | 1 | 1 | - | 1 | 1 | 4 | 4 |
| Ashanti | 2 | 5 | 4 | 3 | 2 | 16 | 14 |
| Northern | 12 | 7 | - | 2 | 1 | 22 | 20 |
| Upper East | 1 | 1 | - | 1 | - | 3 | 3 |
| Upper West | - | 1 | - | - | - | 1 | 1 |
| Total | 60 | 48 | 5 | 9 | 5 | 127 | 100 |

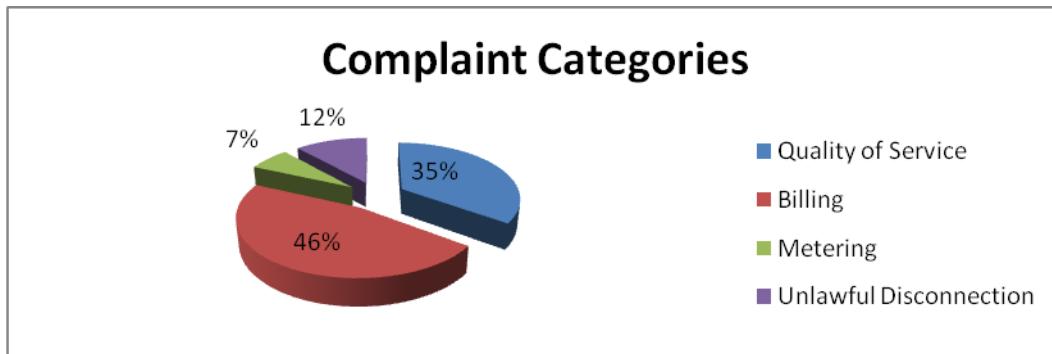
6.2.3. Complaints against VRA/NED

The VRA/NED had filed against them, compared to 35 in 2007. Most of these (56) were resolved. As with ECG, billing was the issue most complained about against NED in the reporting year, for similar reasons namely a lack of understanding of the PURC approved tariff from November 2007 and the two-phase subsidy announced by the government.

Table 14: NED Complaint Management by Operational Region

| Region | Quality of service | Billing | Metering | Unlawful Disconnection | Resolved | Total |
|--------------|--------------------|-----------|----------|------------------------|-----------|-----------|
| Northern | 16 | 23 | 4 | 6 | 45 | 49 |
| Upper East | 3 | 3 | - | 1 | 7 | 7 |
| Upper West | 2 | 2 | - | - | 4 | 4 |
| Total | 21 | 28 | 4 | 7 | 56 | 60 |

Figure 14: NED Complaint Categories



6.3. Stakeholder Education

The approval of an upward adjustment of utility tariffs in November 2007 by the Commission plus the subsequent announcement of government subsidy generated some confusion in the understanding of the tariff regime by consumers. The Commission's Consumer Service Department was inundated with telephone calls, written complaints and personal walk-ins seeking explanation on the tariff and subsidy. Accordingly, the Commission engaged consumers through various fora including radio talk shows for the purpose of education. Education was also done among identifiable groups such as Dressmakers, Beauticians, Corn Millers and Water Tanker Associations.

6.3.1 “Catch Them Young” Schools Education Programme

An interesting public education programme undertaken in 2008 was the Schools Education programme, dubbed “Catch Them Young”. The programme, a continuation of a successful pilot in 2004 targeted students on the basis of creating a new generation of consumers who are informed, responsible and sensitive to the judicious use of utility services. The programme enlists the students as peer educators to spread the message on the practice of good conservation habits. It gives young people the opportunity to learn about the role and functions of the PURC and to know their rights and responsibilities as consumers and future customers of the utilities.

Twenty schools from four regions, comprising about 6,000 students and 100 teachers participated in the programme. The open forum segment generated a lot of interest among the students and teachers. PURC is challenged by the success of the yearly programme and plans to extend it to more schools and perhaps organize a competition among schools at the regional and national levels.



Sections of students in rapt attention to the message and eagerly asking questions

6.3.2 Workshops with Utility Companies

In February 2008 and May 2008, the CSD held successful workshops with Aqua Vitens Rand Limited, the GWCL operator and ECG and VRA/NED respectively. These stakeholder interactions were for utilities to enlighten Commission staff and discuss their operations, particularly the billing processes and the implementation of the November 2007 approved tariff and government subsidy.

6.4 Monitoring of Customer Service Centres and District Offices

Table 15: Results of Monitoring of customer services

During the year PURC Consumer Services monitored seventy-four utility Customer Service Centres and District Offices in most of the regions to enforce certain minimum standards of performance. Though the number of stations monitored dropped from 108 in 2007 to 73 in the reporting year due to unavailability of funds, there was better scientific basis for assessment of the centres through

| Benchmark | Elements (What to Look Out for) | Weight % |
|-------------------------------------|---|-----------|
| <i>Location</i> | <i>Accessibility, convenience</i> | <i>10</i> |
| <i>Ambience</i> | <i>General environment, working space</i> | <i>5</i> |
| <i>Comfort</i> | <i>Seats, ventilation, water dispensers, wash room,</i> | <i>8</i> |
| <i>Education</i> | <i>(a) educational posters, brochures, newsletters, community education, Display of Charges; Customer Surveys</i> | <i>15</i> |
| <i>Complaints/Faults Management</i> | <i>(a) Records (customer ID, date, nature, action, status) (b) Faults: (time of receipt, action, time rectified)</i> | <i>20</i> |
| <i>New Connections</i> | <i>Drops 1wk, 4 poles 2wks, >4 poles 4wks, records, interview applicants.</i> | <i>8</i> |
| <i>Metering Policy</i> | <i>Customer population, ratio metered, availability, separate and pre-payment meters</i> | <i>5</i> |
| <i>Facilities</i> | <i>Computers, counting machines, cash registers, vehicles, use of suggestion boxes, dedicated telephone lines/ toll free line</i> | <i>10</i> |
| <i>Staff Disposition</i> | <i>Availability, effectiveness, relationship</i> | <i>12</i> |

the use of weighted benchmarks that were developed based on previous experience and customer sensitivities. The weighted benchmarks also provide a framework for comparing centres in the same utility company.

| | | |
|-----------------------------|--|-----|
| | <i>with customers</i> | |
| <i>Revenue Mobilization</i> | <i>Collection points, bonded cashiers, collection ratio; promotion of payment options, incentives for advance payers</i> | 7 |
| TOTAL | | 100 |

6.4.1. General Observations

Overall, there have been marked improvements at most of the centres compared to 2007. Efforts have been made to implement most of the Commission's recommendations towards improving physical facilities and service delivery at the centres, with ECG appearing to be the pace-setter. The transformation of most VRA/NED centres monitored in 2008, particularly in Upper West and Brong Ahafo also attest to the impact of the Commission's strategy of using monitoring as a tool for enforcing standards of performance. The GWCL centres visited have also made modest improvements with the Wa Regional Office in Upper West being the most significant.

With respect to new service connections, PURC requires that applicants should be connected within one to two weeks in most cases. From monitoring it has been observed that the utilities' ability to comply with this policy is seriously undermined by the lack of materials at the Districts. Most centres now require applicants to purchase their own materials with technical support from the company, which tends to prolong the time-frame for connection. In the case of GWCL, delays in connection are also sometimes due to non-availability of personnel. This has resulted in some customers rejecting the network due to poor service quality. In Abuakwa, the Paramount Distilleries Company which used to be a major customer has invested in its own mechanized borehole. In parts of Tarkwa, a private supplier has lured some GWCL customers with water supply from piped bore hole(s). Whilst such developments fill an important gap in supply, they raise regulatory considerations which are being debated by the Commission.

Consumer education is often overlooked at the customer service centres and is done in an ad hoc manner, which could be due to the lack of proper planning at the District level. Some Districts however undertake one-on-one consumer education whilst some make use of local radio stations for education. Others employ public address systems mounted on operational vehicles to engage consumers during disconnection exercises. Most of the centres however display educational materials such as energy conservation tips and the PURC approved scheduled of charges. Below are the summaries from PURC's monitoring activities across the country.

6.4.2 ECG Customer Service Centres & District Offices¹

Staffing

ECG Customer Service Staff showed a good grasp of company policies and handled customer issues satisfactorily and professionally. On-the-spot interviews with some customers corroborated our observations in this regard. However it was noted that some centres have inadequate staff thus affecting the efficiency of service delivery: Ayigya, Kwabere and Asokwa are some of the centres in dire need of extra staffing, even including drivers. The majority of the ECG centres visited were strategically located, convenient and accessible to consumers. However this was not the case with some centres such as Akatsi, Denu, Essiama, Effiduase(Ashanti), Teshie and Breman Asikuma some of which are located at the outskirts of the town and require customers to travel at a cost to access their services. This does not engender good customer service and moreover, is likely to affect the utility's revenue mobilisation. Some offices present an attractive environment such as most in the Western region, although the Half Assin, Takoradi Centre and Komenda offices require improvement. Of the four centres in the Volta region only Denu presented a customer friendly ambience as most were suffering from the pollution effects of road and building construction. Generally it was observed

¹ Thirty-one ECG centres were monitored in 2008 including locations in Awoshie, Korle Bu, Teshie and Nungua Ada Foah, Prampram,Tema North and South, in Greater Accra/Tema. Denu, Keta, Sogakope and Akatsi in the Volta region, Takoradi, Sekondi, Half Assini, Essiama, Tarkwa and Agona Nkwanta in Western, Kommenda, Apam, Winneba, Agona Swedru in Central region and Manhyia, Ayigya, Asokwa, Kwabre, Mampong, Effiduase and Konongo in the Ashanti region.

that ECG now places a high premium on customer comfort by providing comfortable seats, wash rooms, sometimes television sets, air conditioners or ceiling fans. However there remain a few centres which may have been overlooked, such as in Agona Nkwanta and Half Assini as in the picture below.



A bench at ECG Customer Service Centre with the cover peeling off

With respect to facilities, most centres monitored were equipped with computers, money counting machines, cash registers and a reasonable number of operational vehicles. Also there were dedicated phone lines for communication with consumers at the centres. However, the facilities in some of the District centres need to be improved for effective service delivery, as in the case of Agona Nkwanta, Komenda, Dunkwa, Manhyia and Asokwa.

Complaints and Faults Management

Complaints management in almost all the ECG centres had improved appreciably compared with previous PURC findings. Most complaints are disposed of in good time: reported faults that can easily be traced are attended to within 24 hours while those that cannot be tracked understandably take longer time. Consumer complaints on billing, disconnection and quality of service are resolved between a day to a week.

Revenue Mobilisation

There appears to be aggressive revenue mobilization at most ECG centres and they are able to meet 70-100 % of their targets. Nevertheless, centres like Teshie and Abura Dunkwa seem to be grappling with revenue mobilization. This situation must be

addressed to boost the company's overall collection ratio. With respect to metering, ECG is gradually replacing credit meters with pre-payment meters; however, there are a number of bottlenecks with the pre-payment metering system resulting in poor quality of service to customers.

Table 16: Regional Performances of ECG Centres Monitored

| CRITERIA | BENCH-MARK | GT.AC C | ASH ANTI | WEST ERN | CENTR AL | VOLT A | TEMA |
|--------------------------------|------------|---------|----------|----------|----------|--------|------|
| Location | 10 | 7.7 | 7.4 | 6.7 | 5.6 | 7.5 | 7.7 |
| Ambience | 5 | 4 | 3.8 | 4 | 3 | 3.2 | 4 |
| Customer Comfort | 8 | 6.2 | 5.3 | 5.3 | 5 | 6.2 | 5 |
| Consumer Education | 15 | 12.7 | 12 | 6.5 | 7.3 | 11.5 | 8.2 |
| Complaints & Faults Management | 20 | 16.5 | 17.1 | 14.2 | 12.6 | 15.7 | 14.5 |
| New Connections | 8 | 5.7 | 6 | 5.3 | 4.6 | 6 | 6 |
| Metering Policy | 5 | 3.7 | 5 | 3.7 | 5 | 4 | 3.7 |
| Facilities | 10 | 7.7 | 8 | 6.2 | 6 | 7.5 | 7.5 |
| Staff Disposition | 12 | 9.5 | 8.3 | 7.3 | 7.1 | 9.5 | 8.2 |
| Revenue Mobilization | 7 | 5 | 4.5 | 5.5 | 4.1 | 4.7 | 5.2 |
| TOTAL | 100 | 78.7 | 77.4 | 64.7 | 60.3 | 75.8 | 70 |

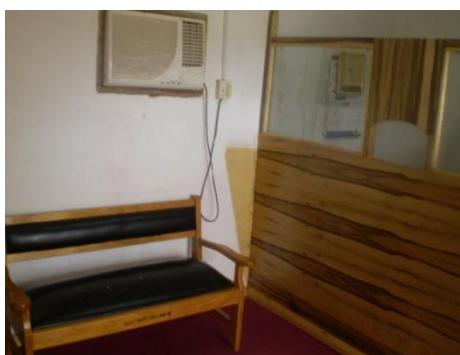
6.4.3 VRA/NED Customer Service Centres²

Generally, there has been some transformation of the NED service centres. Most of those in Upper West and Brong Ahafo in particular, have implemented several of the recommendations made by PURC in 2007. However, centres in the Northern Region remain a pale shadow of their counterparts in the Upper West and Brong Ahafo regions.

Staffing

Customers commended NED staff for a diligent and businesslike approach towards work in the face of poor quality of power supply. For the most part, the NED centres visited were conveniently located, with the exception of Salaga in the Northern region. PURC is pleased to note that centres in the Brong Ahafo region that were hitherto accommodated in containers have now acquired their own office space. Some centres in the Upper West region have also been relocated to improve upon accessibility and convenience to customers.

However, with the exception of Sunyani and Yendi the general outlook of the NED centres visited did not meet the required standard, particularly those in Brong Ahafo and Northern regions. Most had a haphazard arrangement over-crowded with materials and equipment, as in the Nandom revenue office. Nevertheless reasonable efforts had been made for customer comfort such as the provision of comfortable seating. Some centres had police security for the safety of staff and customers.



Air conditioned, carpeted floor and padded bench for customer comfort at Jirapa centre, Nadowli District



Police protection at NED customer service

² PURC monitored twenty one VRA/NED centres in the Northern, Upper West and parts of Brong Ahafo Regions during 2008 including Salaga, Kete-Krachi, Bimbila, Zabzugu, Saboba, Yendi, Sunyani, Mim, Hwidiem, Dormaa, Bechem, Duayaw Nkwanta, Tepa, Drobo and Wa, Bole, Lawra, Jirapa, Nadowli and Nandom.

Most of the NED centres monitored lack critical facilities such as computers, money counting machines and cash registers. For instance the area offices in the Regional capitals have some computers but none of the District centres has a computer. Another major operational constraint at the NED centres is the sharing of vehicles among two or more centres. Further, although some of the centres have dedicated telephone lines and communication facilities, in some centres these are malfunctioning.

Complaint and Fault Management

Generally, NED centres in Brong Ahafo and Upper West regions operate an effective complaints system. However, this is not the case in the Northern region. The response time to faults in most of the centres was fair but could be improved with allocation of vehicles for specific centres.

Revenue Mobilization & Metering

As part of a revenue mobilization drive the NED centres have cash paying points supported by bonded cashiers. The majority of NED customers are residential, and the centres have a collection ratio of about 80-90 %. Almost all domestic consumers of VRA/NED centres visited are metered with the exception of a few three-phase customers. These pose a big challenge to NED as those categories of customers continue to challenge the flat rates charged them. Most are small scale industries such as Corn Millers who are often distressed and are forced out of business due to high utility bills. Consumers are eligible for separate meters on condition that their consumption is above three hundred (300) units and the account is not indebted. The Commission is prevailing on the NED to provide meters for those small scale industry operators.

Table 17: Regional Performance of VRA/NED Centres Monitored

| CRITERIA | BENCH-MARK | BRONG AHAFO | NORTHERN | UPPER WEST |
|---|------------|-------------|----------|------------|
| Location | 10 | 6.3 | 4.5 | 7.2 |
| Ambience | 5 | 2.9 | 2.2 | 3.2 |
| Customer comfort | 8 | 4.4 | 3.3 | 5.7 |
| Consumer education | 15 | 8.1 | 3.3 | 8.7 |
| Complaints & Faults management | 20 | 10.1 | 7.8 | 12.3 |

| | | | | |
|-----------------------------|------------|-----------|-------------|-------------|
| New Connections | 8 | 5.3 | 4.8 | 3.3 |
| Metering Policy | 5 | 3.3 | 3.2 | 3.7 |
| Facilities | 10 | 5.9 | 4.5 | 6 |
| Staff disposition | 12 | | | |
| | | 7.1 | 6.3 | 9.3 |
| Revenue mobilization | 7 | 4.6 | 4.3 | 4.8 |
| TOTAL | 100 | 58 | 44.2 | 64.2 |

6.4.4 GWCL Customer Service Centres³

Staffing

Generally customer service staff at the GWCL centres monitored exhibited commitment and were fairly abreast with the company's policies and procedures. However some customers stated that the staff on some occasions “**do not listen to our pleas**”. It is a matter of concern that some GWCL centres fall far below the standards expected for customer service centres with some even lacking seating for customers. In terms of convenience, the Axim District office, Ketu and Sunyani centres are isolated and costly to access by customers. The Abuakwa District, Brekum and Elmina offices for instance are housed in dilapidated buildings with congested and hazardous working spaces. With the exception of Takoradi, Sekondi and Wa, most of the centres have no computers to access customer accounts. There are no money counting machines or cash registers at the centres. Most centres have limited vehicles to cover wide operational areas. Dedicated telephone lines are rare at GWCL centres. In terms of Complaint and Fault Management however most of the GWCL centres visited have good and comprehensive complaints and faults management systems.

Revenue Mobilization & Metering Policy

Revenue mobilization at most GWCL centres is not encouraging. There are few collection points spread over wide areas of operation. Most GWCL centres collect about 70% with a few centres reaching 90% of their revenue targets. Large numbers of the

³ In 2008, twenty two (22) GWCL centres were monitored. These were Bortianor, La Palm Wine Junction, Ada, Kpong/Akuse, Ashiaman, Prampram and Tema West in Greater Accra/Tema, Elimina and Cape Coast in Central, Sunyani, Brekum and Dormaa in Brong Ahafo regions, Wa in Upper West, Sogakope, Ketu and Keta in the Volta, Abuakwa and Konongo in Ashanti region and Sekondi, Takoradi, Tarkwa and Axim in the Western region. The findings of the centres are summed up below.

customer population are billed on flat rates and some unmetered customers complained that their estimates are increased arbitrary without justification. A new metering policy in place is to provide every new customer with a meter.

Table 18: Regional Performance of GWCL Centres Monitored

| CRITERIA | BENCH-MARK | GT.ACC | BRONG AHAFO | WESTERN | CENTRAL | VOLTA | UPPER WEST |
|--------------------------------|------------|--------|-------------|---------|---------|-------|------------|
| Location | 10 | 8 | 7.7 | 5.8 | 5 | 6 | 9 |
| Ambience | 5 | 4 | 3 | 3.5 | 2 | 3.3 | 4 |
| Customer Comfort | 8 | 7 | 3.7 | 4.3 | 6 | 5 | 6 |
| Consumer Education | 15 | 10 | 8 | 5.5 | 7 | 6.3 | 12 |
| Complaints & Faults management | 20 | 15 | 12 | 13 | 11 | 15 | 18 |
| New Service Connections | 8 | 7 | 4.3 | 5.5 | 6 | 5.3 | 5 |
| Metering Policy | 5 | 3 | 3 | 3.5 | 3.2 | 3.3 | 4 |
| Facilities | 10 | 6 | 5.3 | 6.3 | 6 | 5.6 | 9 |
| Staff Disposition | 12 | 9 | 5.7 | 6.3 | 5.5 | 8.3 | 9 |
| Revenue Mobilization | 7 | 5 | 4.7 | 5.5 | 3.5 | 5.6 | 6 |
| TOTAL | 100 | 74 | 57.4 | 59 | 55 | 63.7 | 82 |

6.5 Community Monitoring

In a new approach to enforcement of standards, the PURC regional offices conducted monitoring exercises in randomly selected areas of their jurisdiction to ascertain levels of utility provision in terms of supply, reliability and general customer satisfaction. In Ashanti region, communities such as Aboabo, Ayigya, Kwadaso Agric were randomly monitored. Nine communities in the Northern region including Jakarayilli, Nyohini, Kalandan, Dungu, Vittin Estates, Kalpohin Estates, Moshei Zongo, Changli and Lamashegu also benefited from the random monitoring exercises. Findings of the exercise were dispatched to the utilities for prompt action to mitigate the problems. The exercises also afforded Commission staff the opportunity to interact with customers, opinion leaders and the youth to educate them on their rights and obligations.

7. HUMAN RESOURCE AND ADMINISTRATION

The PURC Secretariat is made up of five departments headed by the Executive Secretary. The departments are: Energy, Water, Regulatory Economics & Research, Consumer Services, Legal Services and Finance & Administration. The staff complement of the Secretariat stands at 49.

| STAFF COMPLEMENT BY DEPARTMENT | |
|---------------------------------------|-----------|
| Executive Secretary's Office | 2 |
| Energy Sector | 2 |
| Natural Gas | 0 |
| Water Sector | 5 |
| Regulatory Economics & Research | 1 |
| Consumer Services | 6 |
| Regional Offices | 12 |
| Legal Services | 3 |
| Public Relations | 1 |
| HR & Administration | 13 |
| Finance | 3 |
| Internal Audit | 1 |
| Total | 49 |

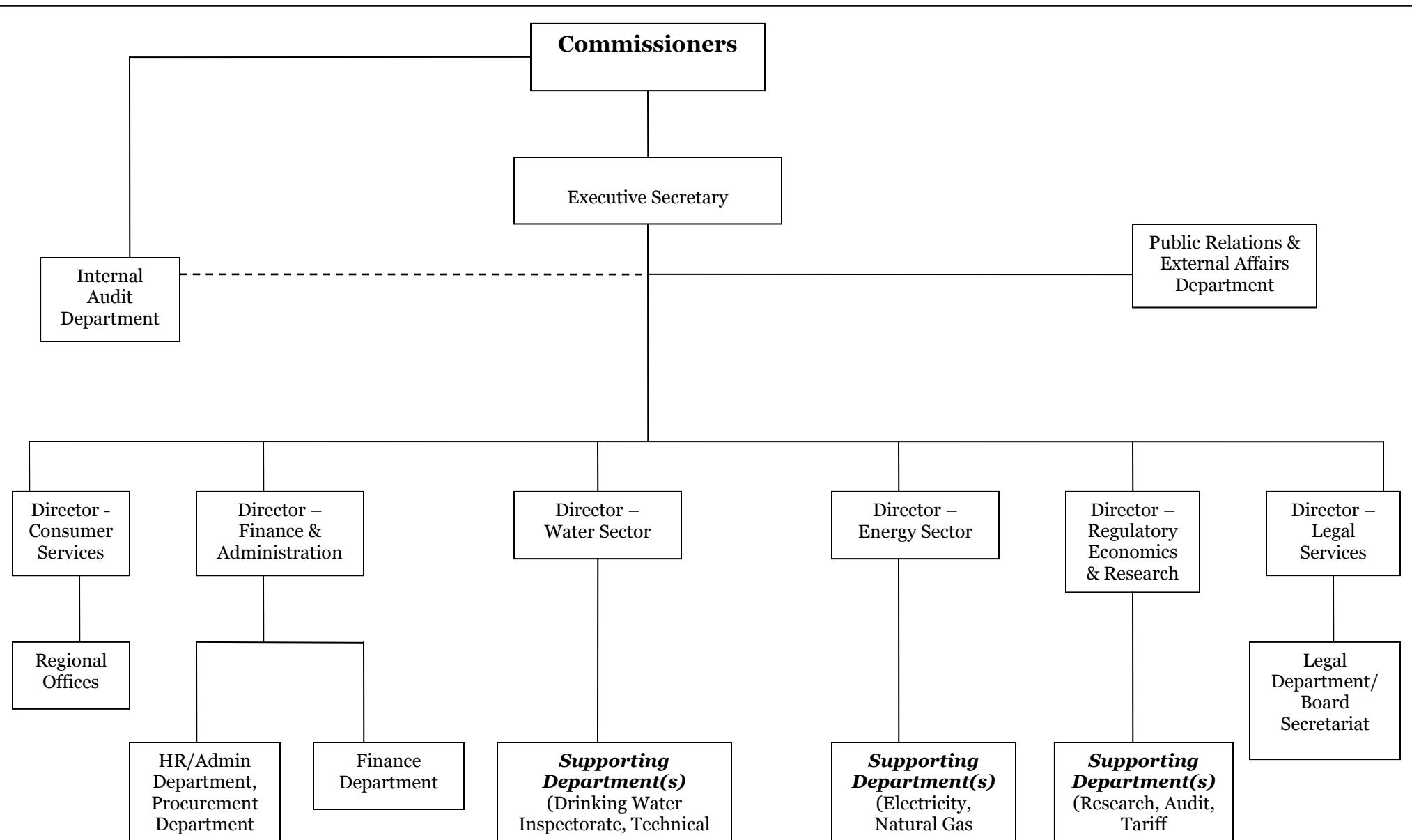
A department for Regulatory Economics and Research was carved out of the Energy Department to focus on the economic aspects of tariff setting, for both water and electricity. One new staff was recruited for the Energy Directorate during the period under review. Two members of staff resigned from the Commission during the period under review.

The Government's inability to implement the recommendations of the Consultant engaged in 2006 to carry out a job evaluation and review PURC staff remuneration greatly hampered our ability to attract and retain a high calibre of staff with requisite core competencies.

It is hoped that during the next financial year the Government will accelerate the implementation of a regulatory charge to alleviate the funding challenge that has impeded our recruitment drive.

Four National Service personnel posted to PURC in 2007 completed their service in July 2008. Due to budgetary constraints and acute shortage of office space, the Commission was unable to engage any service personnel for the period 2008/2009. However in line with the Government's initiative to reduce graduate unemployment, three post-national service interns from 2005 and 2006 are still with the Commission, one of whom was given permanent employment within the period under review whilst the other two await financial clearance from the Office of the President for permanent employment.

The Commission faced a lot of financial constraints during the period under review thus hindering the execution of most of its planned programmes. There has not been any improvement in the office accommodation situation. This continues to be a major challenge in our recruitment drive Lack of adequate number of vehicles new office equipment. It is hoped that the Government would take the necessary steps to address this precarious situation that the Commission finds itself in.



7.2 Financial Performance for 2008

The Commission in 2008 budgeted for an amount of ¢ 2,953,126 for Government Subvention. However, this was subjected to ceilings which reduced the amount to ¢1,136,132 representing about 38.47% of the budget which was highly inadequate to meet the needs of the Commission. The breakdown was as follows:

| | PURC PROPOSED BUDGETED GH¢ | GOG APPROVED BUDGET GH¢ | ACTUAL EXPENDITURE GH¢ |
|-----------------------------|---|--|---------------------------------------|
| Personnel Emoluments | 675,698 | 559,605 | 551,445 |
| Administration | 620,208 | 310,077 | 979,758 |
| Service | 564,200 | 208,450 | 1,018,177 |
| Investment | 150,000 | 58,000 | 61,107 |
| | ----- | ----- | ----- |
| | 2,953,126 | 1,136,132 | 2,428,487 |
| | ===== | ===== | ===== |

Income received from Donor agencies and Utility Companies which was not budgeted for amounted to GH¢277,337. Funds received from the Donor Agencies and the Utility Companies were to support the Commission's regulatory activities. The breakdown is as follows

| | AMOUNT |
|----------------------------------|------------------|
| | GH¢ |
| Donor Agencies | 723,854 |
| Utility Companies/ Others | 277,337 |
| | ----- |
| | 1,000,191 |
| | ===== |

Total revenue received by the Commission for the financial year ended 31st December, 2008 therefore totalled GH¢2,333,709. The breakdown is as follows:

| | <u>ACTUAL</u> GH¢ |
|----------------------------------|----------------------|
| Government Subvention | 1,189,970 |
| HIPC Funds | 142,548 |
| Donor Agencies | 1,000,191 |
| Utility Companies/ Others | 277,337 |
| | ----- |
| | 2,333,709 |
| | ===== |

SUMMARY OF FINANCIAL OPERATING RESULTS

REVENUE

| | 2008 GH¢ | 2007 GH¢ |
|------------------------------|--------------------|--------------------|
| Government Subvention | 1,332,518 | 1,028,212 |
| Donor Agencies | 723,854 | 783,925 |
| Other Income | 277,337 | 132,738 |
| | ----- | ----- |
| | 2,333,709 | 1,944,875 |
| | ===== | ===== |

EXPENDITURE

| | 2008 GH¢ | 2007 GH¢ |
|-----------------------------|--------------------|--------------------|
| Personnel Emoluments | 551,445 | 512,840 |
| Administration | 797,758 | 497,227 |
| Service | 1,018,177 | 865,576 |
| Investment | 61,107 | 79,235 |
| | ----- | ----- |
| | 2,428,487 | 1,954,818 |
| | ===== | ===== |

Budgetary allocation from Government increased by GH¢207,936 from GH¢928,156 in year 2007 to GH¢1,136,132 in year 2008. Additionally, a total of GH¢1,000,191 was received from Donor Agencies in the year under review. This amount showed an increase of GH¢84,528 over GH¢916,663 received in 2007.

From the above it is clear that the Commission did not receive adequate funding and financial support to enable the Commission carry out its planned programmes and activities for the year. Consequently, a number of the planned programmes and activities had to be shelved, making the year one of the most difficult in terms of funding for the Commission.

The expanding responsibilities of the Commission including regulation of Natural Gas and the increasingly important requirement for effective monitoring of the utilities' activities make the funding issue of PURC critical.

Funding Challenges

Inadequate funding remains a grave concern ten years after the establishment of the Commission. The main source of funding is from Government's Central Budget. Unfortunately, the subvention or budgets approved annually fall far short of the Commission's requirements for effective operations. Indeed, from 1998 to 2000, PURC received about 45.7% of its budgetary requirement, and from 2001 to 2002 dropped to 28.5%. This has been the fluctuating trend. In 2008, the Commission received 38.47% of its budgetary requirements.

Persistent efforts to obtain Government approval for the universal practice of instituting a Regulatory Charge on the Utilities' revenue have, so far, proved unsuccessful. This poses a severe constraint on the Commission's ability to recruit and maintain a high calibre of staff and has caused continual postponement of vital regulatory functions such as operational and technical audits into utility operations and consumer education.

The Commission will continue to explore avenues for securing independent sources of funding. This will not only relieve central Government of the burden, but also give full meaning to the Commission's statutory independence as provided for in Section 4 of Act 538 of 1997.