
Zambia
Foreword

This is the sixth year of assessing the performance of the urban water and sanitation services and reporting on the progress being made in the implementation of the National Water Policy principles as they relate to Water Supply and Sanitation. Indeed the hard work and efforts of all who are engaged is beginning to pay off particularly in areas where Commercial Water Utilities have been established. The quality of service standards, governance and focus on the core business has improved significantly. The benchmarking and publication of performance of the Commercial Utilities has induced healthy comparative competition among them which is enhancing service delivery standards.

There still remain major challenges in infrastructure investment and establishment of workable institutional arrangements in the much smaller towns of Luapula and Eastern Provinces. While institutional arrangements for better management of Water and Sanitation Services has made tremendous leaps, mobilizing resources for investment has lagged behind. The recognition of this by the Ministry of Local Government and Housing, demonstrated with the initiating of discussion for a national programme, is welcome though it is slow and late. Workable approaches need to be used that will give confidence to the services of financing but also allow for quick roll out of the infrastructure development program. Accountability with value for money must be the hallmark of any national investment program if it is to be sustained.

The other major challenge the sector is facing is the little attention given to sanitation in the sector. The recent discussions around improved sanitation needs to be encouraged and promoted, the impediments discussed and solutions sought. Policy and enforcement mechanisms need to be critically thought through if we are to post any significant process in improving coverage and quality of sanitation services. Leaving sanitation as an individual household responsibility without enforcement will mean continued malaise.

Osward M Chanda
Director-NWASCO
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1 Summary of CU performance for the year 2006/7 and trends in the last three years

The indicators highlighted in this sector report are based on the minimum service levels which each service provider agrees on with the regulator. In addition, other indicators have been included to provide the reader with a broader view of the Commercial Utilities’ (CU) performance.

This chapter presents a synopsis of the performance of the service providers in the year 2006/07. It is an extract from Chapter 7 which contains a more detailed analysis.

1.1 NATIONAL URBAN WATER SUPPLY COVERAGE

The three main types of providers supplying water and sanitation services in urban areas are Commercial Utilities (CUs), Local Authorities, (LAs) and Private Schemes (PS). Urban water supply and sanitation service provision has been transferred to a large extent to CUs with the aim of increasing efficiency in operation and customer services. Table 1 depicts the national urban water supply coverage which has increased by 1% from the previous year.

<table>
<thead>
<tr>
<th></th>
<th>2005/6</th>
<th>2006/7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Urban Population</td>
<td>4,903,529</td>
<td>5,046,420</td>
</tr>
<tr>
<td>Total Urban Population Serviced</td>
<td>3,270,745</td>
<td>3,428,572</td>
</tr>
<tr>
<td>National Urban Water coverage</td>
<td>67%</td>
<td>68%</td>
</tr>
</tbody>
</table>

Ten CUs are responsible for service provision for 92% of the urban population; the remaining areas are still serviced by thirteen Local Authorities (7%) and six private providers* (1%) as shown in Chart A below.

Safe and clean water is critical

Table 1: National Urban Water Supply Coverage

*See Chapter 7.3 for definition
1.2 OVERVIEW OF GENERAL CU PERFORMANCE

In assessing the performance of the CUs it is important to note that the CUs operate under varied conditions (see Table 2). The CUs have been in operation from a period ranging between one and fifteen years and differ considerably in size. Some are accessing external support while others depend entirely on revenue generated from water sales.

During the reporting period, the sector showed fluctuating performance in several indicators. Most key performance indicators improved though very slightly. Adherence to good corporate governance principles and resulting good WSS management is evidenced in the sector, by the slow movement towards meeting the benchmarks.

However, notable achievements in the period were:

- Collection efficiency and thus O+M cost coverage increased dramatically largely as a result of Government’s commitment to paying water bills.
- Metering ratio continued to improve in most CUs though only NWSC maintained the benchmark
- Six CUs met the acceptable benchmark for Hours of Supply while only two remained below the sector average

The following are still challenges for the sector:

- Reduced water service coverage as a result of poor service levels in some cases and rapid development unmatched by service extension in others.
- There is need to shift the focus to sanitation, which is still very low, in order not to reverse the achievements already made in water supply.
- High average water losses (Unaccounted for Water) contribute to loss of potential revenue

Table 2: Overview of CUs

<table>
<thead>
<tr>
<th>Commercial Utility</th>
<th>Abbreviation</th>
<th>Start of operations</th>
<th>No. of connections</th>
<th>No. of towns serviced</th>
<th>External Support *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nkana WSC</td>
<td>NWSC</td>
<td>2000</td>
<td>75,364</td>
<td>7</td>
<td>ADB/DTF</td>
</tr>
<tr>
<td>Lusaka WSC</td>
<td>LWSC</td>
<td>1989</td>
<td>48,676</td>
<td>1</td>
<td>ADB/WB</td>
</tr>
<tr>
<td>Katubu WSC</td>
<td>KWSC</td>
<td>2000</td>
<td>35,135</td>
<td>3</td>
<td>DTF</td>
</tr>
<tr>
<td>Southern WSC</td>
<td>SWSC</td>
<td>2000</td>
<td>24,461</td>
<td>17</td>
<td>Germany</td>
</tr>
<tr>
<td>Mulonga WSC</td>
<td>MWSC</td>
<td>2000</td>
<td>21,083</td>
<td>3</td>
<td>DTF</td>
</tr>
<tr>
<td>Lukanga WSC</td>
<td>LGWSC</td>
<td>2006</td>
<td>10,610</td>
<td>6</td>
<td>ADB</td>
</tr>
<tr>
<td>Chambeshi WSC</td>
<td>CHWSC</td>
<td>2003</td>
<td>9,480</td>
<td>12</td>
<td>Ireland</td>
</tr>
<tr>
<td>Chipata WSC</td>
<td>CWSC</td>
<td>1992</td>
<td>5,522</td>
<td>1</td>
<td>Germany</td>
</tr>
<tr>
<td>North Western WSC</td>
<td>NWWSC</td>
<td>2000</td>
<td>5,587</td>
<td>7</td>
<td>Germany</td>
</tr>
<tr>
<td>Western WSC</td>
<td>WWSC</td>
<td>2000</td>
<td>7,409</td>
<td>6</td>
<td>DTF</td>
</tr>
</tbody>
</table>

* during the past seven years to varying degrees
Overview of Key Performance Indicators

Table 3 shows the position of each CU with regard to the main performance indicators. The green shaded field indicates that the benchmark set by NWASCO has been achieved. The arrows next to each field show the trend for the reporting period compared to 2005/06.

<table>
<thead>
<tr>
<th>Table 3: Overview of Key Performance Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>NWSC</td>
</tr>
<tr>
<td>LWSC</td>
</tr>
<tr>
<td>KWSC</td>
</tr>
<tr>
<td>SWSC</td>
</tr>
<tr>
<td>LGWSC</td>
</tr>
<tr>
<td>MWSC</td>
</tr>
<tr>
<td>WWSC</td>
</tr>
<tr>
<td>NWWSC</td>
</tr>
<tr>
<td>CHWSC</td>
</tr>
<tr>
<td>CWS</td>
</tr>
<tr>
<td>Av.</td>
</tr>
</tbody>
</table>

- **Worse than the relevant average and benchmark not achieved**
- **Better than the relevant average but benchmark not achieved**
- **At least “acceptable” benchmark achieved**

* no benchmark defined
** different benchmarks depending on size of company, therefore no comparison to average
*** new CU therefore no comparison to previous tear
# The water quality compliance indicator calculation has been revised in accordance to the new water quality guideline that incorporates the compliance to the required number of samples
1.3 CU PERFORMANCE RANKING

CUs are ranked according to indicators and respective weightings shown in Table 4. The higher the weighting, the more critical the indicator is to the quality of service and financial viability of the CU.

Table 4: Performance Indicators- Weighting Factors

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Weighting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Quality</td>
<td>20 points</td>
</tr>
<tr>
<td>Collection efficiency</td>
<td>20 points</td>
</tr>
<tr>
<td>Metering ratio</td>
<td>15 points</td>
</tr>
<tr>
<td>Hours of supply</td>
<td>15 points</td>
</tr>
<tr>
<td>O+M cost coverage by collection</td>
<td>15 points</td>
</tr>
<tr>
<td>UFW</td>
<td>10 points</td>
</tr>
<tr>
<td>Staff per 1000 connections</td>
<td>10 points</td>
</tr>
<tr>
<td>Regulators perception</td>
<td>10 points</td>
</tr>
<tr>
<td>Sanitation coverage</td>
<td>05 points</td>
</tr>
<tr>
<td>Water coverage</td>
<td>05 points</td>
</tr>
</tbody>
</table>

In order to provide readers with the performance ranking trends, the ranking for the previous two years has been reflected in table 5 below.

Table 5: Ranking of CUs

<table>
<thead>
<tr>
<th>Commercial Utility</th>
<th>Performance Ranking 2006/7</th>
<th>Performance Ranking 2005/6</th>
<th>Performance Ranking 2004/5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nkana WSC</td>
<td>1</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>North Western WSC</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Chipata WSC</td>
<td>3</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Southern WSC</td>
<td>4</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Kafubu WSC</td>
<td>5</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>Lusaka WSC</td>
<td>6</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>Mulonga WSC</td>
<td>7</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Western WSC</td>
<td>8</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>Lukanga WSC</td>
<td>9</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Chambeshi WSC</td>
<td>10</td>
<td>9</td>
<td>10</td>
</tr>
</tbody>
</table>

Congratulations Nkana for turning the tables by moving back to the first position from the previous fourth position (after the merger with AHC-MMS which ranked 4th in the 2004/5 report) to reclaim first position!! To add to its merit, NWSC is the only CU without a red shaded indicator on the overview Table 3.

It is interesting to note that apart from the previous year when NWSC ranked fourth, the top three positions have been maintained by the same CUs over three years.

Kafubu Water is commended for making steady progress and now standing 5th on the performance ranking. MWSC is cautioned for the drop.
1.4 COMMENTS AND RECOMMENDATIONS FOR EACH CU

Chambeshi WSC

- New management refocused the CU for better service delivery
- Increased number of professional staff
- Did not achieve a single benchmark
- Poor staff efficiency, need to reorient the staff inherited from LA and increase number of connections
- Need to improve customer care
- Strive to attain the acceptable benchmark

Kafubu WSC

- New management provided impetus for improved operations
- Strengthened internal control system that resulted in reduction of costs
- Used in-house capacities to undertake projects that led to major cost savings
- Embarked on a metering program using own resources
- Highest water coverage
- Water quality in the southern part of Ndola remained poor
- Second highest UfW that needs to be urgently reduced
- Continue improving the metering ratio and install bulk meters
- Improve on collections from the low-cost areas

Chipata WSC

- Commended for maintaining 24 hours water supply
- Increased number of qualified staff
- Reduced metering ratio
- Neglect in maintenance by management led to increased UfW
- Management infightings contributed to lowered performance
- Need to create a culture of objectivity in managing the company
Summary of CU performance for the year 2006/7 and trends in the last three years

Lusaka WSC
- Improved metering ratio
- Improved service levels in Chelstone
- Introduced sanitation surcharge for improving and extending services
- UfW high and must be reduced to acceptable levels
- Metering ratio is still low especially as one of the oldest CUs
- In respect of the age, size and area of operation of the CU, performance is constantly below par
- Devote attention to extending services to new development areas
- Improve customer care
- Management must be open to change

Mulonga WSC
- Continued managing costs
- Commended for dedicating 10% of collections towards metering
- Improved service delivery as a result of decentralised operations
- Maintained good staff efficiency
- Second highest water coverage
- Third highest UfW that must be brought down
- Low collection from low cost areas
- Had stability in management

Nkana WSC
- Retained a result oriented culture (rewarding system) that reflects in the overall good performance after the merger
- One of the two CUs meeting the benchmark for water quality
- Continued to reduce on UfW
- Reached the acceptable benchmark for staff efficiency
- Maintained high performance standards and focus on above average targets

Environment friendly practices

Water for many purposes

Treatment of wastewater
Summary of CU performance for the year 2006/7 and trends in the last three years

Southern WSC
- Relatively stable and focused management
- Maintained good collection levels
- General improvement in water quality though still not meeting the benchmark
- Most of the commercial losses were curbed
- Hours of supply reduced
- Attend to service level issues especially in Livingstone

North Western WSC
- Maintained overall good performance
- UfW reduced considerably
- Maintained 100% metering
- One of two CUs meeting the benchmark for water quality
- Continued to slacken in collections
- Staff turnover still high
- Improved customer care
- Take advantage of new development areas to increase coverage

Western WSC
- Implemented a door-to-door collection policy
- Serious management problems resulting in deteriorated general performance
- The Board’s poor corporate management policies led to NWASCO ceasing to recognise it
- Reduced the approved tariffs which resulted in even lower cost coverage
- WWSC lamentably decreased active customers by 28%
- Management increased senior management salaries to a level that could not be covered by revenues
- Poor recruitment and procurement practices
- Poor financial management and weak internal control

Lukanga WSC
- Newly established utility started operating in January 2007
- Indicators are generally poor because of the poor service levels in the areas that have been taken over from the Local Authorities
- With ADB support, it is hoped that the CU will quickly stabilise and improve
The institutional set up in the urban and peri-urban water sector is well advanced with eight of the nine provinces having fully established water companies to manage water and sanitation services. The commercial utilities operate in fairly similar environments except for the number of customers and the distances between the operational units. However, the performance of these commercial utilities is at different levels.

The political will to support good performance of CUs has been good which is demonstrated by the lack of interference from politicians in the operations of the CUs. Tariff adjustments were posted for some water utilities in an election year which was necessary and there was no political outcry. The payment for services by government institutions has been in varying degrees.

CUs have been able to disconnect public institutions for non-payment without much interference from politicians. Thus a lot of progress being made in disentangling professional management of water services from political interference. Good managers have been able to collect substantial government debt.

From an analysis of these commercial utilities, good performance has neither been a factor of the size of the utility nor how long the water company has been operational. It has become very clear to the regulator after the seven years of monitoring the performance of commercial water utilities, that good management is core to high performance results. This implies a good team of managers focused on the business and the leadership provided by the Chief Executive Officer to the management team cannot be replaced by anything else for a high performing water utility.
The support of a good Board of Directors is complementary to a good Chief Executive Officer, which makes the work of the management easier. It definitely requires careful thought in selecting who should sit on the board, so that individuals bring professional value and expertise to the water utilities.

Boards should look for a person with focus on the core business and with a clear understanding of the CU, its strengths, weaknesses, capacities and should be able to state the required strategic interventions.

The CEO should realise that he/she would need to achieve results through the staff and hence requires to carefully choose the people to work with and continually invest in their skills and attitude improvement. There is need for objectivity on the part of the Boards in recruiting the CEO but also the CEO with the senior managers equally needs objectivity and professionalism in the recruiting of the staff at all levels. A reference check must not be left to be a routine exercise but one that should be actively undertaken. This would help in avoiding recruiting non-performing staff. The probation period should be used to make an early assessment of the individual’s performance.

A good CEO will motivate and reward his staff for improved performance, possibly through the implementation of a performance monitoring and rewarding system within the institution.
3 Service provision to the poor – Meeting the challenge

As water takes increasing attention in the development agenda, it has become clear that more effort and resources would be needed to meet present and future challenges. Zambia needs to reach an additional three (3) million people by 2015 (Baseline Study 2004/5) in urban areas if the country is to meet the Millennium Development Goal (MDG) targets on water supply. This would require coordinated efforts and resources from all actors in the sector.

Whilst much effort is made on water supply, no significant efforts have been placed on sanitation as it is regarded as a household issue. A number of demonstration projects have been carried out but these have not been replicated on a large scale due to various reasons – financial, technological or cultural. Although there is not so much financial incentive for the CUs in sanitation for peri-urban areas, most of them have expressed interest in getting involved. Lusaka Water and Sewerage Company introduced a sanitation charge on water bills, which would go towards improvement of sanitation in the peri-urban areas. Other CUs such as Northwestern and Southern Water and sewerage companies have carried out sanitation demonstration projects in the peri-urban areas with varying results. These efforts though isolated are welcome as they will contribute towards a national approach which should result in better sanitation for the low-income urban areas.

Sanitation is dignity and must be managed well by all

3.1 Devolution Trust Fund-Support to Commercial Utilities

The Devolution Trust Fund (DTF) commenced full scale financing of CUs to implement peri-urban water supply projects in November 2006 after the completion of the pilot phase from 2003. Financing agreements were concluded with the Government of the republic of Zambia and KfW and DANIDA for support to the DTF for onward disbursement to the CUs. The first disbursement of the committed funds was done in September 2006 totaling ZMK5.5Billion. The DTF disbursed the funds to the CUs under the first Call for proposals for the implementation of water supply projects in nine (9) peri-urban areas with a population of about 137,000. All the projects were completed by May 2007 and are operational.
Service provision to the poor—Meeting the challenge

### 3.2 The Sanitation Challenge

Sanitation poses a major challenge particularly as it relates to meeting the MDG targets. It requires concerted efforts from all actors in the sector if meaningful achievements are to be reached. Some policy changes are needed to accelerate sanitation coverage. The DTF intends to work with management of CUs to find ways of addressing sanitation problems in the low-income urban areas. Hence a better concept for feasible sanitation approaches is being developed which would facilitate implementation of demonstration projects. Four CUs have been selected to participate in the demonstration phase, which will last for 18 months commencing June 2007. As a starting point for the projects, a scooping study was conducted in five areas to assess the existing situation and further elaborate technical options and approaches to be followed. A comprehensive evaluation will be done by the end of 2008.

### Table 6: DTF Funded Pilot Projects in 2006/7

<table>
<thead>
<tr>
<th>CU</th>
<th>Project Area and Implementation Progress</th>
<th>Amount (ZMK)</th>
<th>Population</th>
<th>Outputs</th>
</tr>
</thead>
<tbody>
<tr>
<td>CWSC</td>
<td>Chiparamba Completed</td>
<td>232,757,967</td>
<td>1,850</td>
<td>Construction of borehole &amp; pump house, elevated tank, supply &amp; laying 2km of distribution line and 1 water kiosk</td>
</tr>
<tr>
<td>KWSC</td>
<td>Chipulukus Phase II - Ndola Completed</td>
<td>429,735,500</td>
<td>27,900</td>
<td>Rehabilitation of sanitation network, construction of 14 kiosks and installation of 300 water meters</td>
</tr>
<tr>
<td>LWSC</td>
<td>Kanyama New Site &amp; Service Lusaka Completed</td>
<td>1,040,400,832</td>
<td>44,000</td>
<td>Laying of 8km of new water distribution network, construction of 18 water kiosks</td>
</tr>
<tr>
<td>MWSC</td>
<td>Kasompe - Chingola Completed</td>
<td>554,284,118</td>
<td>9,700</td>
<td>Construction of 4km of network, 4 water kiosks, and 100 individual metered connections</td>
</tr>
<tr>
<td>NWSC</td>
<td>Kawama - Kitwe Completed</td>
<td>339,187,143</td>
<td>4,370</td>
<td>Construction of 3km of network and 5 water kiosks</td>
</tr>
<tr>
<td>NWSC</td>
<td>Mulenga - Kitwe Completed</td>
<td>528,096,220</td>
<td>21,500</td>
<td>Construction of 4km of network and 9 water kiosks</td>
</tr>
<tr>
<td>NWWSC</td>
<td>Chiyeke - Chavuma Completed</td>
<td>466,474,392</td>
<td>6,100</td>
<td>Construction of 5km of network and 2 water kiosks</td>
</tr>
<tr>
<td>SWSC</td>
<td>Sinazeze Completed</td>
<td>178,951,000</td>
<td>3,000</td>
<td>Construction of borehole &amp; pump house, elevated tank, supply &amp; laying 3km of distribution line and 2 water</td>
</tr>
<tr>
<td>WWSC</td>
<td>Senanga Under implementation</td>
<td>429,735,500</td>
<td>18,700</td>
<td>Construction of 6km of network and 11 water kiosks</td>
</tr>
</tbody>
</table>

**Total** 4,199,622,672 137,120

The second Call for proposals was issued in November 2006 to all the CUs and 8 projects were approved for funding by the DTF. The total project cost is about ZMK 7 Billion and would serve an additional 90,000 people.
4 NWASCO

4.1 INTERNAL DEVELOPMENTS

4.1.1 The Strategic Plan

NWASCO completed a Strategic Plan covering the period 2007-2009, which seeks to realise NWASCO’s vision of sound and sustainable water supply and sanitation services for all.

The strategic plan is aimed at addressing the following:

1. Efficient and sustainable management of water supply and sanitation services for all.
2. Increased access and affordability to good water supply and sanitation services and;
3. Efficient, effective and fair regulation of Unaccounted for Water which has been finalised and is awaiting the final approval of the Zambia Bureau of Standards before publication.

4.1.2 The Performance Monitoring and Rewarding System (PMRS)

Performance and striving for excellence has greatly been enhanced in NWASCO with the introduction of the Performance Monitoring and Rewarding System (PMRS) in 2006. Outstanding performance and teamwork is rewarded quarterly based on quality and timely achievement of targets. Focus and motivation of staff which is at its highest has led to improved institutional delivery. Poor performance is reprimanded.

4.1.3 Formulation of Standard on Management of Unaccounted for Water

NWASCO facilitated the committee that developed the draft Standard on Management of Unaccounted for Water which has been finalised and is awaiting the final approval of the Zambia Bureau of Standards before publication.

4.1.4 NWASCO Information System

Timely and accurate information is key in monitoring service provision and making of regulatory decisions. The NIS was modified to incorporate the accounting and water quality guidelines and to disaggregate the data for better accuracy. The CUs were retrained on using the system as a result of the modification and so were the new staff in charge of the NIS. The quality of data is continuously improving.

4.1.5 HIV/AIDS policy

Realising that HIV/AIDS is a reality and inevitably impacts on employee performance, NWASCO implemented an internal HIV/AIDS policy and also embarked on a programme of increasing HIV/AIDS awareness among the service providers by encouraging them to formulate HIV/AIDS policies within their institutions. Seven out of the ten utilities have implemented the policies.
4.2 REGULATING PROVIDERS

4.2.1 The Desk Officer Concept

In order to adequately and consistently assess the performance of service providers NWASCO introduced the concept of “Desk Officer” by virtue of which professional employees are assigned specific providers to oversee. The CUs, in turn, have a dedicated contact person within NWASCO. As a result of this approach, the quality and flow of information, following up of directives and other issues has significantly improved. NWASCO staff better appreciates and understand other aspects of regulation.

4.2.2 Special Regulatory Supervision (SRS)

SRS is a special regulatory tool developed and introduced to ensure compliance with the Minimum Service Levels, the laws, guidelines and other directives issued by NWASCO. It is carried out by closely monitoring the performance and decision making process of a company whose performance is deteriorating.

SWSC, which was on SRS since 2005 improved performance and was reverted to normal supervision. CHWSC however continues to be on SRS.

WWSC on the other hand was placed under SRS in November 2006 following its poor management, weak Board and non-compliance to corporate governance principles which led to poor service delivery. NWASCO ceased to recognise the Board due to consistent poor decision-making.

4.3 NEW COMPOSITION OF WATER UTILITY BOARDS

Good corporate governance entails adherence to principles that promote the interests of the company and respect the roles of the different actors. The Boards in the water companies remained unchanged for a long time, some since establishment in 1999. Some Board decisions seemed to conflict with good corporate governance principles. A critical analysis of the Boards clearly revealed a need for change in both the composition (to allow for broader representation) and the individuals sitting on the Boards.

In January 2007, a directive was issued by the Minister of Local Government and Housing to all Local Authorities with shareholding in CUs to address board composition. The new structure ensures a balance between public and private representation, as well as, gender mainstreaming. The composition includes two appointees by the Minister responsible for Local Government and Housing. The Boards will have ten directors.
4.4 TARIFF ADJUSTMENT APPROVALS

NWASCO once again was faced with the challenge of tariff adjustment requests within an election year. The first such request was in 2001 when tariff adjustments were given to five water companies. The 2006 approvals were particularly challenging as the Kwacha had appreciated and the people were calling for price reductions in goods and services in general. A lot of awareness had to be conducted especially that the appreciated Kwacha only affected chemicals which account for 5 to 10% of the total operation and maintenance cost of water provision. Further, the cost of petroleum had been increasing considerably.

NWASCO approved the application for tariff adjustments for, LWSC, WWSC, NWWSC, MWSC, SWSC and KWSC. Tariff adjustments for LWSC and NWWSC were for a three year period that would only seek a no objection from NWASCO at the end of each year. A no objection is given upon attainment of agreed targets.

NWSC was granted its request to harmonise the tariffs of the former Asset Holding Company Mining Municipal Services (AHC-MMS) serviced areas to that of the NWSC serviced areas. This followed consideration of the impact of the tariff and the projected cost coverage.

4.5 WATER TARIFF ASSESSMENT

Following the 2006 water tariff adjustments\(^1\), a number of complaints were received from consumers and various Non-governmental Organisations, particularly those involved in poverty reduction and human rights, on the inability of the poor to afford water, a basic human right, particularly for the medium and low income groups.

While NWASCO is committed to complying with Government’s policy of full cost recovery and sustainability of service delivery, it is also within its ambit to ensure that the commodity is accessible and affordable. It is against this background that NWASCO conducted a Tariff Impact Survey to validate the numerous complaints.

The survey, conducted in the first quarter of 2007, assessed the impact of the new water tariffs on different income groups. The survey was concentrated in five districts namely Solwezi, Kitwe, Lusaka, Mongu and Livingstone which received the highest complaints.

Five key objectives were drawn as follows:-

- To assess the impact of the current water tariffs.
- To establish the competing needs with water where money is spent.
- To ascertain the knowledge of consumers about the cost of providing water.
- Establish consumer’s knowledge on water conservation.
- To ascertain amount of water that different consumer categories consume.

\(^1\) There was no increment in tariff for the poor who received water from kiosks.
A sample of 1000 customers was collected from the districts on whose basis the following conclusions were made.

Generally, people had very wrong perceptions of water as an economic good and therefore, preferred to spend on luxuries such as alcohol, air time and cigarettes than on water which is a basic need. It was further found that the costs that go into water production and distribution were not appreciated by most people and as a consequence they had diminutive or no value at all for its conservation. It was further established that water was still relatively cheap but that water use habits were very poor with no conservation sense among consumers.

A lot of effort is therefore needed from the various actors in the sector, to sensitize the masses to bring about a change of perception.

4.6 WATER BILLS FOR GOVERNMENT INSTITUTIONS

One major challenge faced by Commercial Utilities is the non-payment of bills by government departments. However, Government released a sum of K20 billion to liquidate part of these outstanding debts. The Government accordingly made an undertaking to pay its water bills promptly. In addition, the Ministry of Finance and National Planning (MoNFP) has since directed all Government institutions to ensure prompt payment of current water bills and has directed the various service providers to disconnect defaulting institutions.

4.7 MONITORING SERVICE PROVIDERS

NWASCO undertakes planned visits to ensure compliance with the regulatory tools and legislation. Spot checks are carried out to verify compliance with given directives and follow-up on other issues that may arise. Thirty detailed inspection visits and sixteen spot checks were undertaken. In general, inspections showed improved service delivery by most CUs while under Local Authorities, the service continued to deteriorate. Issues of non-compliance with license conditions were communicated as directives to the affected providers. 94% of issued directives were complied with.

Inspections are used for directing the providers and also serve as a podium for consulting on issues when NWASCO inspectors are on the ground.
4.8 LICENSING

Luwingu and Mbala District Councils failed to provide adequate water and sanitation services, and were consequently directed to join ChWSC. NWASCO granted ChWSC’s request to amend their licence to include the two districts.

A Provisional Licence was granted to the newly formed LGWSC to supply water and sanitation services in Central Province towns. Subsequently, NWSC as statutory manager since November 2004, ceased to operate services in Kabwe.

4.9 PUBLICITY

Awareness creation and educating the public about WSS issues and challenges remains a key role of NWASCO. This is designed to educate and change people’s attitude. Several media were used to attain this goal including print and electronic. Nine radio and seven television programmes were broadcast. A 30 minute documentary on the pro-poor basket fund operations and achievements was also broadcast. Additionally, quarterly media fora were held.

In an effort to increase coverage of WSS issues and promote accurate reporting on the sector by the media, NWASCO introduced Media Awards and rewarded four deserving journalists from both print and electronic during the year. Sixty three WSS related media reports were carried by various media during the year.
4.10 SUPPORT TO PROVIDERS

In an effort to enhance consultation between the regulator and the regulated, NWASCO held a number of meetings which included quarterly CU Chief Executive Officers forum, Local Authorities bi-annual consultative meetings and Human Resource Managers’ workshops. These meetings have been appreciated by the regulated, who feel they participate in the regulatory tools development process and the sector leadership provided by NWASCO.

4.11 CAPACITY BUILDING

Nwasco coordinated the CUs to access the TEVET Fund, which is a Government initiative through the Ministry of Science, Technology and Vocational Training aimed at capacity building in various sectors of the Zambian economy. Consequently, a total of 207 employees from ChWSC, WWSC and SWSCs were successfully trained in the technical field. The Copperbelt CUs after realising the benefits of the training jointly funded a similar programme for 30 of their employees.

Similarly, NWASCO facilitated the nominations of four CU professional staff to participate in a post graduate technical training in Italy.

4.12 EXTERNAL RELATIONS

Nwasco hosted a four day forum of water regulators to share knowledge and experiences. Participating countries were Kenya, Rwanda, Mozambique, Tanzania, Algeria and Germany. The participants appreciated the meeting and decided that it should become an annual event.

Sharing of knowledge and experiences continued throughout the year with other regulatory agencies from water and other sectors through visits to NWASCO, participation in international conferences and workshops. Regulators from the Gambia and Kenya visited during the year. The website has also proven to be a popular source of information on NWASCO to many.
5 Watch Groups (WGs) - Involving the consumers in regulation

The concept of involving consumers in monitoring service provision through Water Watch Groups (WWGs) proved successful and gained recognition with both consumers and service providers appreciating their role in better service delivery. Emanating from these accomplishments, the Energy Regulation Board and the Communications Authority of Zambia, signed a Memorandum of Understanding (MOU) to collaborate with NWASCO in expanding the WWG concept to include energy and communications. Consequently the Consumer Watch Groups were established.

There are currently seven Consumer Watch Groups, in Lusaka, Mongu, Mufulira, Chingola, Ndola, Luanshya and Kitwe.

5.1 CONSUMER COMPLAINTS

Table 7: Consumer Complaints per Provider

<table>
<thead>
<tr>
<th>Provider</th>
<th>Total Customer complaints 2005/6</th>
<th>Total Customer complaints 2006/7</th>
<th>Complaints per 100 Connections 2005/6</th>
<th>Complaints per 100 connections 2006/7</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHWSC</td>
<td>211</td>
<td>3761</td>
<td>2.5</td>
<td>40</td>
</tr>
<tr>
<td>CWSC</td>
<td>925</td>
<td>494</td>
<td>18.0</td>
<td>9</td>
</tr>
<tr>
<td>KWSC</td>
<td>2,721</td>
<td>5,066</td>
<td>7.5</td>
<td>14</td>
</tr>
<tr>
<td>LGWSC</td>
<td>N/A</td>
<td>5,469</td>
<td>N/A</td>
<td>52</td>
</tr>
<tr>
<td>LWSC</td>
<td>10,252</td>
<td>30,023</td>
<td>22.0</td>
<td>62</td>
</tr>
<tr>
<td>MWSC</td>
<td>3,770</td>
<td>2,025</td>
<td>18.0</td>
<td>10</td>
</tr>
<tr>
<td>NWSC</td>
<td>12,669</td>
<td>13,470</td>
<td>17.0</td>
<td>18</td>
</tr>
<tr>
<td>NWWSC</td>
<td>1,072</td>
<td>1,669</td>
<td>24.0</td>
<td>30</td>
</tr>
<tr>
<td>SWSC</td>
<td>5,464</td>
<td>8,047</td>
<td>23.0</td>
<td>33</td>
</tr>
<tr>
<td>WWSC</td>
<td>1,768</td>
<td>1,571</td>
<td>27.0</td>
<td>30</td>
</tr>
<tr>
<td>TOTAL COMPLAINTS</td>
<td>38,852</td>
<td>71,595</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The total number of complaints received increased significantly. Most of the complaints were however resolved within a reasonable timeframe. CU's should work towards reducing their complaints per 100 connections. LWSC recorded the highest consumer complaints per 100 connections reflecting a significant increase from the previous years figure.

The number of complaints received directly from consumers through the Watch Groups totalled 464. These are complaints that have been presented but not resolved by the service providers. 108 of these ended up with NWASCO.

Most of the Complaints received related to:
- Poor water quality
- Erratic water supply
- Sewer blockages
- Delayed connections
- Erroneous billing

5.2 SHARING THE WATCH GROUP CONCEPT

The Watch Group concept continues to attract interest and numerous enquiries came through from countries within the sub-Saharan region and other parts of the world. Members of WWGs have been invited to present at various local and international fora.
6 Drinking Water Quality

6.1 INTRODUCTION

Provision of safe and clean water has consistently been a major challenge in some areas such as the Copperbelt. This can be attributed to either pollution of water sources from mining activities or cross-contamination in places where water treatment and distribution infrastructure are run down such as in Luapula and Northern provinces. The pressure of increasing economic and industrial activities in some parts of the country such as North-Western Province, poses yet another threat to water quality. This demands increased surveillance and cooperation with other institutions tasked with environmental management and protection.

While we often take water for granted, it is a precious and scarce resource. Water intended for human consumption must be free from toxic substances that may be hazardous to health. To provide wholesome water at a reasonable cost, a good raw water source and well functioning treatment facilities are cardinal. This may be expensive in cases where the water source is polluted, and may require highly sophisticated equipment, which is expensive to acquire and maintain.

6.2 MINE POLLUTION OF WATER SOURCE

In November 2006 Konkola Copper Mines (KCM) discharged Copper Tailings containing manganese, cobalt and other minerals into the Kafue River, which is the source of raw water for NWSC and MWSC. As a result, the operations of the two water utilities were seriously affected during the period of high concentration and had to shut down for over fourteen days, resulting in loss of revenue. The cost of water treatment increased as additional treatment chemicals were used for over two months as the pollutants in the river take too long to clear away. This cost was eventually passed on to consumers. Customers were forced to look for alternative water sources, an exercise that required a lot of energy and time.
Drinking Water Quality

NWASCO on learning of the water source contamination, instructed the immediate shut down of affected water works and demanded KCM to provide water bowsers for the consumers. Further, NWASCO requested the Ministers of Health and Mines and Environmental Council of Zambia to take action against KCM. With this action, the service providers were encouraged to make demands for compensation from KCM. The affected water utilities were directed to take regular water quality samples to monitor the degree of contamination before resuming operations.

6.3 CONTROL MEASURES

In response to the KCM pollution, the formation of Environmental Emergency Preparedness Team is underway under ECZ to look into issues of pollution before, during and after.

However, the following are some of the control measures to prevent pollution of water bodies.

- Need for ECZ to be proactive by frequently monitoring discharge points from industries.
- Need for stiffer punishment for companies not complying with effluent standards.
- Need for concerted efforts from Politicians, Regulators and Mine owners to protect human health and aquatic life.

Providers are required to carry out regular testing for good water quality.
The three main types of providers supplying water and sanitation services in urban areas are Commercial Utilities (CUs), Local Authorities (LAs) and Private Schemes (PS).

7.1 COMMERCIAL UTILITIES (CUS) PERFORMANCE COMPARISON

This section highlights the comparative performance of the CUs and shows the trends in the sub-sector. The comparison induces competition by benchmarking among water utilities leading to increased efficiency and enhanced performance. By benchmarking each utility is motivated to improve its own previous performance as well as to outperform the other CUs. Benchmarking is also used by NWASCO to set absolute sector targets to be achieved by the CUs in a progressive manner. The comparative data will also allow the consumers to compare the quality of service they are getting with other areas and to continue demanding for a better service provision.

7.1.1 Total Population in Service Areas of the CUs

Out of a total urban population of about 5.4 million, 4.6 million live in the service areas of the nine CUs (87%). A small minority of the urban population is serviced by private providers (about 1%) and the remaining part lives in the service areas of Local Authorities (12%).

According to Chart 1, the average coverage decreased. This was largely due to the new CU, LGWSC coming in with a very low coverage and also due to rapid population growth rate that is not matched by service. Two CUs experienced a significant drop in coverage: In NWWSC this was caused by the increased economic activity in the province as a result of the new mines and consequent heavy influx of people. KWSC carried out a database clean-up.
Comparative performance of providers

Still only four CUs met the acceptable benchmark for coverage.

<table>
<thead>
<tr>
<th>Benchmark for service coverage in densely populated towns</th>
<th>Good</th>
<th>&gt;90%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Acceptable</td>
<td>80 – 90 %</td>
</tr>
<tr>
<td></td>
<td>Unacceptable</td>
<td>&lt;80%</td>
</tr>
</tbody>
</table>

In sparsely populated towns where it is not economical to extend the pipe network to the periphery, a lower service coverage is acceptable, as reflected in the table below.

<table>
<thead>
<tr>
<th>Benchmark for service coverage in low density town areas:</th>
<th>Good</th>
<th>&gt;80%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Acceptable</td>
<td>70 – 80 %</td>
</tr>
<tr>
<td></td>
<td>Unacceptable</td>
<td>&lt;70%</td>
</tr>
</tbody>
</table>

7.1.3 Sanitation Coverage (by sewer network)

Chart 2 shows sanitation coverage by sewer network among the CUs. Decentralised sanitation facilities are not included in this comparison.

Generally, there was no remarkable change in the sanitation coverage. The higher coverage reported by NWWSC in the previous year included those with rundown connection networks which have now been excluded to depict the actual situation on the ground. The WWSC main sewer trunk line collapsed, leading to sewage overflow in the affected areas. Some customers were taken off the service and resorted to using pit latrines.

Coverage must be for ALL
7.1.4 Clustering of Companies

Providers have been clustered as shown in Table 8, based on the water production volumes and population size in the serviced areas. This is necessary since some of the benchmarks vary considerably according to the size of the provider. Therefore the performance of a CU should be compared to another CU similar in size.

Table 8: Clustering of CUs

<table>
<thead>
<tr>
<th>Cluster</th>
<th>CU</th>
<th>Water Production (Million m³)</th>
<th>No. of Employees</th>
<th>Total Population in Service Area</th>
<th>No. of connections</th>
<th>No. of towns</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>NWSC</td>
<td>113.6</td>
<td>625</td>
<td>1,030,438</td>
<td>75,364</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>LWSC</td>
<td>78.9</td>
<td>627</td>
<td>1,627,585</td>
<td>48,676</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>KWSC</td>
<td>49.8</td>
<td>294</td>
<td>461,760</td>
<td>35,130</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>SWSC</td>
<td>17.8</td>
<td>255</td>
<td>302,232</td>
<td>24,461</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>LGWSC</td>
<td>15</td>
<td>188</td>
<td>301,236</td>
<td>10,610</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>MWSC</td>
<td>21.4</td>
<td>177</td>
<td>232,960</td>
<td>21,083</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>ChWSC</td>
<td>8.5</td>
<td>182</td>
<td>257,016</td>
<td>9,480</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>WWSC</td>
<td>5.6</td>
<td>93</td>
<td>143,445</td>
<td>7,409</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>NWWSC</td>
<td>3.2</td>
<td>68</td>
<td>194,473</td>
<td>5,587</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>CWSC</td>
<td>2.5</td>
<td>66</td>
<td>90,000</td>
<td>5,522</td>
<td>1</td>
</tr>
</tbody>
</table>

Cluster 1 which covers about 62% of the urban population has a major influence on the overall performance of the sector.

7.1.5 Household Connections

The total number of connections increased by 13% (243,322) mainly as a result of the entrance of LGWSC and the inclusion of Mbala and Luwingu under ChWSC. On average, the rate of new connections remained low. However, NWWSC as a small CU from cluster 3, commendably increased connections by 26%. LWSC from cluster 1, increased connections by 5%.
7.1.6 Water Production

On average there was a slight increase in water production again due to LGWSC. Interestingly, in Chart 3, WWSC experienced a slight increase in water production despite the fact that it had reduced household connections (population legally served) leading to a higher production per capita.

The general per capita production shown in Chart 4 slightly increased. WWSC’s high per capita production is attributed to a low metering ratio, which in turn leads to higher and undue consumption by unmetered consumers. In spite of an increased population, CHWSC decreased its water production and accordingly per capita production. This can largely be attributed to dilapidated infrastructure.
7.1.7 Unaccounted for Water (UfW)

Unaccounted for Water is the difference between the quantity of water produced and the quantity of water billed. UfW consists of the technical losses (e.g. due to leakage) and commercial losses (illegal connections, unbilled customers, wastage on un-metered customers premises).

UfW is still unacceptably high and well above the benchmark of 25%. It remains a serious source of concern. UfW affects CUs negatively and the costs are passed on to the customer. UfW figures are still estimates where metering is less than 100%.

The low metering is the major contributing factor to the high UfW. As long as no significant metering is implemented there will be not much improvement in UfW.

Chart 5 shows that some utilities were able to realise a slight decrease in UfW. CHWSC installed bulk meters and embarked on a maintenance program. KWSC implemented a metering program. SWSC sealed most of their leakages and replaced the main trunk. On the other hand, CWSC’s UfW seriously increased as a result of relaxed network management emanating from management problems within the company. WWSC’s high UfW is attributed to commercial losses from a low number of metered connections and unauthorised connections (People opt to get water from their neighbours).

| Benchmark for UfW |  
|-------------------|---|
| Good              | <20% |
| Acceptable        | 20 – 25 % |
| Unacceptable      | >25% |
Comparative performance of providers

If the high water losses (UfW) are translated into monetary terms, as shown in Table 9, one can get an understanding of the magnitude of the problem and the amount of revenues lost. This should serve as an incentive for each CU to come up with a strategy to realise some of this revenue.

Table 9: Lost revenues due to UfW in 2006/2006

<table>
<thead>
<tr>
<th></th>
<th>Metering Ratio</th>
<th>Total Billing (in mil K)</th>
<th>UfW (in %)</th>
<th>UFW (in mil K)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chambeshi WSC</td>
<td>3%</td>
<td>2,826</td>
<td>54.0%</td>
<td>3,318</td>
</tr>
<tr>
<td>Chipata WSC</td>
<td>97%</td>
<td>3,812</td>
<td>30.7%</td>
<td>1,689</td>
</tr>
<tr>
<td>Kafubu WSC</td>
<td>11%</td>
<td>28,887</td>
<td>58.1%</td>
<td>39,981</td>
</tr>
<tr>
<td>LGWSC</td>
<td>1%</td>
<td>5,058</td>
<td>61.3%</td>
<td>8,025</td>
</tr>
<tr>
<td>Lusaka WSC</td>
<td>45%</td>
<td>65,569</td>
<td>51.3%</td>
<td>69,122</td>
</tr>
<tr>
<td>Mulonga WSC</td>
<td>22%</td>
<td>10,627</td>
<td>56.1%</td>
<td>13,607</td>
</tr>
<tr>
<td>Nkana WSC</td>
<td>43%</td>
<td>67,726</td>
<td>35.2%</td>
<td>36,869</td>
</tr>
<tr>
<td>North Western WSC</td>
<td>100%</td>
<td>5,070</td>
<td>36.5%</td>
<td>2,913</td>
</tr>
<tr>
<td>Southern WSC</td>
<td>76%</td>
<td>12,150</td>
<td>43.4%</td>
<td>9,334</td>
</tr>
<tr>
<td>Western WSC</td>
<td>21%</td>
<td>2,568</td>
<td>42.6%</td>
<td>1,907</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td>186,766</td>
</tr>
</tbody>
</table>

Total revenues lost continue to increase due to poor maintenance of infrastructure and low metering ratios of customers. Efforts in reducing UfW will be rewarded during tariff negotiation.

7.1.8 Metering Ratio

Chart 6 shows the metering ratio defined as the metered connections compared to the total connections. Metering is a precondition for charging consumers according to their consumption and thereby ensuring an equitable distribution of costs. It is an important tool for controlling consumption and UfW.

There was no change in the average metering ratio of 39% which is quite low. The apparent unchanged average is mostly an effect of the addition of LGWSC with a very low ratio. Nevertheless, Mulonga instituted a deliberate policy that devoted 10% of their collections to metering hence the increase. LWSC set-up a metering program and also introduced pre-paid water meters in Libala on a pilot basis thus increasing the ratio. KWSC intensified efforts to improve its metering, however, the ratio is still quite low.
7.1.9 Water quality

Water quality is a very important indicator due to the health impact it has on the consumers. The calculation for water quality has therefore been revised to reflect the compliance level in the number of samples conducted in addition to the percentage of the results meeting the water quality standard. This has been done in accordance to the new water quality guideline that has been issued by NWASCO.

With the revised computation of water quality compliance, the indicator shows a slump in the water quality indicator. There has generally been an improvement in the overall water quality compliance, though only four utilities complied with the required number of sample to be conducted in all the three major parameters of water quality, hence the deterioration in the water quality indicator by most of the CUs.

**Table 10: Water Quality Analysis**

<table>
<thead>
<tr>
<th>Name of CU</th>
<th>Bacteriological</th>
<th>Chlorine Residual</th>
<th>Physio-chemical</th>
<th>Overall Water Quality Compliance 2005/6 (%)</th>
<th>Overall Water Quality Compliance 2006/7 (%)</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHWSC</td>
<td>10</td>
<td>6</td>
<td>19</td>
<td></td>
<td>60</td>
<td>10</td>
</tr>
<tr>
<td>CWSC</td>
<td>Tests not done</td>
<td>96</td>
<td>96</td>
<td></td>
<td>95</td>
<td>58</td>
</tr>
<tr>
<td>KWSC</td>
<td>92</td>
<td>93</td>
<td>95</td>
<td></td>
<td>60</td>
<td>93</td>
</tr>
<tr>
<td>LGWSC</td>
<td>47</td>
<td>88</td>
<td>88</td>
<td></td>
<td></td>
<td>71</td>
</tr>
<tr>
<td>LWSC</td>
<td>78</td>
<td>68</td>
<td>99</td>
<td></td>
<td>81</td>
<td>80</td>
</tr>
<tr>
<td>MWSC</td>
<td>10</td>
<td>5</td>
<td>10</td>
<td></td>
<td>90</td>
<td>8</td>
</tr>
<tr>
<td>NWSC</td>
<td>89</td>
<td>38</td>
<td>86</td>
<td></td>
<td>91</td>
<td>70</td>
</tr>
<tr>
<td>NWWSC</td>
<td>23</td>
<td>99</td>
<td>98</td>
<td></td>
<td>95</td>
<td>69</td>
</tr>
<tr>
<td>SWSC</td>
<td>96</td>
<td>96</td>
<td>90</td>
<td></td>
<td>80</td>
<td>94</td>
</tr>
<tr>
<td>WWSC</td>
<td>13</td>
<td>5</td>
<td>23</td>
<td></td>
<td>49</td>
<td>13</td>
</tr>
</tbody>
</table>

Inadequate samples analysed
Inadequate bacteriological samples analysed
Adequate Samples done
Inadequate bacteriological samples analysed
Adequate Samples done, chlorine residual slightly below required
Inadequate samples analysed
Adequate Samples done
Inadequate bacteriological samples analysed
Adequate Samples done
Inadequate samples analysed
7.1.10 Hours of Supply

Chart 7 shows the average range of supply hours by the CUs per day.

On the whole, the hours of supply improved. The CUs are heading more and more towards the good benchmark despite power rationing in the country particularly the towns in rural setting, coupled with limited water storage capacity. Four CUs were below the acceptable benchmark.

| Benchmark for hours of supply in large and medium towns (>100,000) | Good | 20-24 hours |
| Benchmark for hours of supply in smaller towns (>100,000) | Acceptable | 16-20 hours |
| Benchmark for hours of supply in smaller towns (>100,000) | Unacceptable | <16 hours |

During the reporting period, major water supply interruptions were in

- WWSC, CHWSC, CWSC and NWWSC due to ZESCO power outages
- NWSC and MWSC operations were interrupted for over two weeks due to pollution of the raw water source by KCM mining activities
- CHWSC, particularly Luwingu, Mpika and Mbala due to equipment failure.
- SWSC due to a partial drought which affected; Choma and Kalomo towns as a result of Muzuma dam and B Williams dams drying up completely respectively.

Water must be supplied within acceptable hours
7.1.11 Collection Efficiency

Chart 8: Collection Efficiency

There was a general increase in collections, to a large extent attributed to Government dismantling outstanding debts. Five CUs met the acceptable benchmark. Poor service provided by CHWSC resulted in low willingness to pay by customers. MWSC, despite a slight increase, needs to concert efforts.

Benchmark for collection efficiency

<table>
<thead>
<tr>
<th>Benchmark for collection efficiency</th>
<th>Very Good</th>
<th>&gt;95%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>90-95%</td>
<td></td>
</tr>
<tr>
<td>Acceptable</td>
<td>85-90%</td>
<td></td>
</tr>
<tr>
<td>Unacceptable</td>
<td>&lt;85%</td>
<td></td>
</tr>
</tbody>
</table>

Chart 9 gives a more accurate picture of the collection efficiency since it eliminates distortions which might occur during one financial year.

Chart 9: Collection Efficiency over three years (2005-2007)

Only three CUs met the acceptable sector benchmark over three years.

Collection efficiency is essential to company performance.
7.1.12 Staff Efficiency

Staff efficiency can be measured as "staff per 1000 connections" (Chart 10). The lower the number of staff per 1000 connection the more efficient the company is. Two other indicators ie billing per staff and collection per staff have been analysed in order to adequately compare the staff efficiencies (see Chart 11and Table 11).

---

**Staff per 1000 connections:**
The number of employees attributed to servicing 1000 connections

**Billing/Staff/Month:**
The total billing attributed to one member of staff per month

---

Staff efficiency must be good.
LWSC in Cluster 1, LGWSC in Cluster 2, CHWSC and WWSC from Cluster 3 did not meet the benchmark. LWSC is due to overstaffing.

| Benchmark for staff per 1000 connections large companies (Cluster 1) | Good  | <5  |
| Benchmark for staff per 1000 connections medium & small companies with up to 5 towns (Cluster 2 & 3) | Good  | <7  |
| Benchmark for staff per 1000 connections medium & small companies with more than 5 towns (Cluster 2 & 3) | Good  | <9  |

Billing per staff per month generally increased mainly due to tariff increments for six CUs. The increased UfW in CWSC’s caused the billing to reduce. Management should urgently meter the new customers and improve network management.

Due to close monitoring of costs, in particular personnel costs, the average personnel costs only marginally increased. SWSC and WWSC increased salaries for unionised and senior management respectively. LWSC’s costs remain high because of bloated workforce and high salaries.
7.1.14 Water Production Cost

One of the sector objectives is to provide water to everyone at reasonable cost. The production costs are an indicator that measures the efficiency and economic performance of a CU. The production cost of water has a bearing on the tariff that the customer will eventually pay. NWASCO closely analyses production costs in order to prevent unjustified costs being passed on to the consumers.

![Chlorine is an essential chemical](image)

7.1.15 Cost of Operation

In the water industry the major cost categories associated with production are personnel, chemical, energy and administration costs as shown in Table 12. CUs should generally focus on these areas in order to maintain reasonable production cost. It should be noted that the production costs are distorted for most of the CUs as they are not carrying out adequate maintenance works. The initial focus is to meet personnel, chemical, repair works and part of energy costs.
Comparative performance of providers

The companies do not encounter the same environmental and business conditions and therefore it is natural for their cost structures to differ to some extent.

CHWSC employed qualified senior management staff resulting in increased personnel costs. WWSC increased salaries for management by 40% without a corresponding increase in service delivery. NWWSC is in a very staff competitive environment and therefore tries to retain qualified staff by paying comparative market salaries.

CWSC received a donation of chemicals which has not been included in the calculation. KWSC improved its internal control system resulting in a visible decrease in chemical costs. The supplier to SWSC increased the costs of chemicals by 16%. WWSC just began treating water.

### Table 12: Cost of Operation

<table>
<thead>
<tr>
<th></th>
<th>Personnel Cost (in mil K)</th>
<th>Chemicals Cost (in mil K)</th>
<th>Energy Cost (in mil K)</th>
<th>Other Cost (in mil K)</th>
<th>Total Cost (in mil K)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2005/6</td>
<td>2006/7</td>
<td>% change</td>
<td>2005/6</td>
<td>2006/7</td>
</tr>
<tr>
<td>CHWSC</td>
<td>983</td>
<td>1,313</td>
<td>34%</td>
<td>95</td>
<td>95</td>
</tr>
<tr>
<td>CWSC</td>
<td>2,175</td>
<td>2,427</td>
<td>12%</td>
<td>110</td>
<td>91</td>
</tr>
<tr>
<td>KWSC</td>
<td>8,372</td>
<td>9,027</td>
<td>8%</td>
<td>1,469</td>
<td>1,154</td>
</tr>
<tr>
<td>LGWSC</td>
<td>0</td>
<td>2,101</td>
<td></td>
<td>0</td>
<td>469</td>
</tr>
<tr>
<td>LWSC</td>
<td>25,648</td>
<td>30,939</td>
<td>21%</td>
<td>1,929</td>
<td>1,648</td>
</tr>
<tr>
<td>MWSC</td>
<td>1,996</td>
<td>2,364</td>
<td>18%</td>
<td>465</td>
<td>518</td>
</tr>
<tr>
<td>NWSC</td>
<td>23,683</td>
<td>24,145</td>
<td>2%</td>
<td>4,845</td>
<td>4,733</td>
</tr>
<tr>
<td>NWWSC</td>
<td>2,218</td>
<td>2,900</td>
<td>31%</td>
<td>83</td>
<td>95</td>
</tr>
<tr>
<td>SWSC</td>
<td>5,259</td>
<td>6,368</td>
<td>21%</td>
<td>670</td>
<td>831</td>
</tr>
<tr>
<td>WWSC</td>
<td>1,419</td>
<td>2,058</td>
<td>45%</td>
<td>53</td>
<td>69</td>
</tr>
</tbody>
</table>

Red- negative trend
Green- positive trend
7.1.16 Cost Structure

The small CUs lack economies of scale and therefore they continue to have a higher proportion of personnel costs. NWSC, WWSC and CWSC are operating unhealthily with the bulk of costs attributed to personnel. LWSC in cluster 1 remains with the highest ratio of personnel costs. LGWSC and MWSC have high proportion of energy costs due to equipment inefficiencies; hence need to put in place measures to curb this cost.

7.1.17 Average Tariff and Unit Operation Cost

It is the policy of the Zambian Government that the water tariffs should reflect the cost of producing the water. NWASCO therefore ensures that only justified costs are passed on to the customer.

In an ideal situation, the tariff should at least be equal to the unit operation costs for a CU to avoid an accumulation of debts and to be higher (by about 50%) to be financially viable.

There is a positive trend which indicates that the average tariff is able to cover the unit operation costs. Apart from CWSC, NWSC and WWSC, the
unit operation costs remained relatively unchanged. There was a general increase in the average tariffs.

WWSC to its own detriment reduced the tariff contrary to that approved by NWASCO. With an already low tariff, this placed the CU in an even more precarious position to cover operational costs. Such a decision is unacceptable and is not in the interest of the economic viability of the utility.

Note however that the average tariff in Chart 14 is calculated by comparing the quantity of water billed and the amount (K) billed. Therefore the variations do not necessarily reflect the change in the actual tariff during the period but rather variations in billing money as a consequence of consumption brackets.

Table 13 portrays a more realistic picture in terms of actual tariff when comparing water bills charged by each CU at different consumption levels.

<table>
<thead>
<tr>
<th></th>
<th>Water Bill of 6 M3 (low consumption) (in K)</th>
<th>Water Bill of 30 M3 (Medium consumption) (in K)</th>
<th>Water Bill of 60 M3 (High consumption) (in K)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CWSC</td>
<td>10000</td>
<td>35,200</td>
<td>98,500</td>
</tr>
<tr>
<td>KWSC</td>
<td>6,000</td>
<td>32,400</td>
<td>68,400</td>
</tr>
<tr>
<td>LGWSC</td>
<td>3,900</td>
<td>22,200</td>
<td>46,200</td>
</tr>
<tr>
<td>LWSC</td>
<td>6,000</td>
<td>34,800</td>
<td>79,800</td>
</tr>
<tr>
<td>MWSC</td>
<td>6,000</td>
<td>34,800</td>
<td>76,800</td>
</tr>
<tr>
<td>NWSC</td>
<td>6,000</td>
<td>34,400</td>
<td>73,400</td>
</tr>
<tr>
<td>NWWSC</td>
<td>7,800</td>
<td>52,200</td>
<td>127,200</td>
</tr>
<tr>
<td>CHWSC</td>
<td>4,200</td>
<td>35,400</td>
<td>80,400</td>
</tr>
<tr>
<td>SWSC</td>
<td>6,000</td>
<td>34,000</td>
<td>77,000</td>
</tr>
<tr>
<td>WWSC</td>
<td>6,000</td>
<td>35,850</td>
<td>80,850</td>
</tr>
<tr>
<td>Average</td>
<td><strong>6,190</strong></td>
<td><strong>35,125</strong></td>
<td><strong>80,855</strong></td>
</tr>
<tr>
<td>Average bill (US$)</td>
<td>1.55</td>
<td>8.78</td>
<td>20.21</td>
</tr>
<tr>
<td>Average tariff (US$/m3)</td>
<td>0.26</td>
<td>0.29</td>
<td>0.34</td>
</tr>
</tbody>
</table>

* For the first 10m3 consumed
7.1.18 Operational Cost Coverage by Collection

The cost coverage by collection increased dramatically for almost all the CUs mainly as an effect of the Government releasing about ZMK20 billion towards dismantling long outstanding debts. Five CUs are above the acceptable benchmark.

This situation indicates the ability of the CUs to cover costs when they collect from Government which forms about 15% to 30% of the customer base in most utilities. It is desirable to see increased commitment by Government institutions to settling their water bills timely.

As expected of newly established CUs, CHWSC and LGWSC are far below the average collections.

The sector average increased and shows that all CUs should be able to cover at least 100% of the O&M costs. This was enhanced with the tariff adjustments in six CUs in the period under review. The CUs below cost coverage should contain costs as much as possible and implement cost recovery strategies.
7.1.19 Human Resource Development

The number of personnel with only basic education is still very high in the sector. LGWSC is a typical reflection of the lack of skilled personnel at formation and the general background of a CU. The CUs, however are commended for investing in skills training for staff. SWSC and KWSC have the lowest components of skilled manpower, and need to make serious advancements in increasing this. NWWSC experienced particularly high staff turnover especially at the higher qualified level. High staff turnover in the sector has become a serious concern as depicted by the shrinking skilled manpower in all CUs. The CUs need to develop appropriate incentives to retain qualified staff.

7.1.20 Submission of Annual report.

As part of the license condition, all service providers are required to submit an annual report timely and with accurate data. In order to make it easier and for consistency sake, NWASCO has developed an information system that allows the CU to enter the annual data and export the information to NWASCO. The information in this sector report is based on the said submitted information.

**table 14: Quality of Submitted Information**

<table>
<thead>
<tr>
<th>Utility</th>
<th>Quality of Submitted Information in the Nwasco Information System</th>
<th>The Annual Report</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chipata WSC</td>
<td>Good</td>
<td>Timely</td>
<td></td>
</tr>
<tr>
<td>Katubu WSC</td>
<td>Poor</td>
<td>Timely</td>
<td>Exceedingly late, incomplete, *inaccurate data</td>
</tr>
<tr>
<td>Lusaka WSC</td>
<td>Poor</td>
<td>Exceedingly late, incomplete, inaccurate data*</td>
<td></td>
</tr>
<tr>
<td>Lukanga WSC</td>
<td>Fair</td>
<td>Late</td>
<td></td>
</tr>
<tr>
<td>Mulonga WSC</td>
<td>Good</td>
<td>Late</td>
<td></td>
</tr>
<tr>
<td>Nkana WSC</td>
<td>Very Good</td>
<td>Timely</td>
<td></td>
</tr>
<tr>
<td>North Western WSC</td>
<td>Good</td>
<td>Late</td>
<td></td>
</tr>
<tr>
<td>Southern WSC</td>
<td>Good</td>
<td>Timely</td>
<td></td>
</tr>
<tr>
<td>Western WSC</td>
<td>Good</td>
<td>Timely</td>
<td></td>
</tr>
<tr>
<td>Chambeshi WSC</td>
<td>Poor</td>
<td>Exceedingly late, incomplete, inaccurate data*</td>
<td></td>
</tr>
</tbody>
</table>

The modified NIS required the CUs to submit much more disaggregated data than before. The CUs are now required to submit data by areas (peri-urban, low-cost, medium-cost and high-cost). This increased quantity of information contributed to the delay by most CUs in submission.

*All submitted data is checked for accuracy and completeness. Where the data is found to be such, verifications are done with the CU, as well as with data collected during inspections. The data presented in this report are therefore complete and accurate.
7.2 PERFORMANCE OF LOCAL AUTHORITIES (LAs)

Whereas there has been general performance improvement in CU serviced areas, there has been a remarkable decline in the performance of LAs. The areas serviced by LAs continue to experience major challenges in service delivery ranging from low service coverage, poor hours of supply, deterioration of infrastructure due to poor maintenance and inadequate skilled man power.

During the period under review the LAs in Central Province formed a CU, Lukanga Water and Sewerage Company. As a result of this, the proportion of the urban population serviced by LAs reduced from 13% to 7%. In the Eastern province the process of further commercialisation has reached an advanced stage. It is hoped that a provincial CU will be formed during the next reporting year.

NWASCO has continued to hold consultative meetings with the LAs and other stakeholders on commercialisation and how to improve service delivery in LA serviced areas.

With the performance improvements recorded in CUs, most of the challenges faced by LAs could be addressed with commercialisation; hence the need to hasten the process in the remaining LA serviced areas.

7.2.1 Coverage

The service coverage further declined and an increasing number of people have resorted to unsafe water sources such as shallow wells, rivers or lakes. The coverage has also been affected by the movement of Central Province LAs (with a relatively higher service coverage) to form a CU. It is worth mentioning that Nyimba resumed supply following the district connection to the national power grid and release of funds for rehabilitation works by Ministry of Local Government and Housing.

![Chart 18: Water Supply Coverage (LAs)](chart.png)
7.2.2 Hours of supply

Most LAs are still below the acceptable benchmark as far as hours of supply are concerned. The newly licensed Mambwe and Nyimba district council, which finally got connected to Zesco power supply, had acceptable supply durations, although the overall picture is almost stagnant. The situation is particularly worse in Luapula province; Chiyengi was unable to resuscitate water supply. This current scenario is further exacerbated by low voltage or power surges.

7.2.3 Collection Efficiency

There was a huge drop on the collection efficiency, threatening the sustainability of water supply. This can be explained again by the fact that the more efficient LAs formed a CU during the reporting year and the continued poor service delivery, which affects negatively, the willingness to pay.
7.3 PRIVATE SCHEMES

There are currently 6 licensed private schemes:

- Chilanga Cement
- Kaleya Small Holding
- KCM-Nampundwe
- Maamba Collieries
- Zesco
- Zambia Sugar

Private Schemes are schemes run by companies which have a different core business (e.g. sugar, electricity production) and provide WSS service to their employees who live on the company’s premises – mostly free of charge as a fringe benefit. These are also licensed by NWASCO as per the provisions of the WSS Act.

<table>
<thead>
<tr>
<th>Name</th>
<th>Population Served</th>
<th>Coverage %</th>
<th>Hours of supply</th>
<th>Number of tests done</th>
<th>% of tests which meet STD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chilanga Cement</td>
<td>3,308</td>
<td>100</td>
<td>24</td>
<td>720</td>
<td>52</td>
</tr>
<tr>
<td>Kaleya Small Holders</td>
<td>3,674</td>
<td>96</td>
<td>24</td>
<td>624</td>
<td>87</td>
</tr>
<tr>
<td>KCM - Nampundwe</td>
<td>4,649</td>
<td>100</td>
<td>24</td>
<td>96</td>
<td>38</td>
</tr>
<tr>
<td>Zesco</td>
<td>18,610</td>
<td>100</td>
<td>19</td>
<td>504</td>
<td>88</td>
</tr>
<tr>
<td>Maamba Collieries Limited</td>
<td>23,989</td>
<td>100</td>
<td>9</td>
<td>484</td>
<td>76</td>
</tr>
<tr>
<td>Zambia Sugar Plc</td>
<td>16,198</td>
<td>100</td>
<td>24</td>
<td>988</td>
<td>73</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>70,428</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

7.3.1 Coverage

Because of the limited and more or less defined category that private schemes supply water and sanitation services to, the coverage is almost at 100%. There was a slight improvement in coverage by Kaleya small holders resulting from drilling of more boreholes.

7.3.2 Hours of supply

Yet again Maamba Collieries continues to lag behind the acceptable benchmark as far as supply hours are concerned. The financial constraint that the company is currently going through, coupled with dilapidated infrastructure are contributing factors.

Kaleya Small Holders made a significant leap to attain 24 hours of supply after their quest of boosting supply by the drilling of boreholes. Zesco also made a notable improvement towards attaining the utmost benchmark.
7.3.3 Water Quality

During the last reporting year water quality has essentially been the point of focus for private schemes due to an increased interaction between NWASCO and this category of providers. This led to an increased sampling frequency and exploring technical initiatives to improve water quality. More effort however is required in dosing techniques.

Nonetheless, the compliance levels have shown a general decrease, Zambia Sugar, Chilanga Cement and Kaleya Small Holders are commended for their dedicated efforts in ensuring that water supplied is of acceptable quality. In most cases, it’s the amount of chlorine that exceeds that stipulated upper limit, hence lowering the overall compliance percentage. Kaleya Small Holders recently employed an Environmental Health Technician to enhance this aspect of service provision.

KCM – Nampundwe division urgently needs to sort out the persistent microbiological contamination and consistently conduct chlorine residual tests. Zesco is urged to at all times ensure adequate stocks of testing reagents and also resume microbiological analysis.
FEEDBACK FORM ON SECTOR REPORT

In intending to serve you better and have a Sector Report that would meet all your expectations, kindly help us answer the questions below. Then tear off the question card and send it to The Director, NWASCO at the address behind the card.

i. What is your general perception about the sector report? (Kindly tick)

- [ ] Excellent
- [ ] Very Good
- [ ] Good
- [ ] Average
- [ ] Poor

ii. How did you like the layout of the Sector Report?

- [ ] Excellent
- [ ] Very Good
- [ ] Good
- [ ] Average
- [ ] Poor

iii. Is the information adequate to have a good assessment of Commercial Utilities’ performance?

- [ ] Yes
- [ ] It’s Average
- [ ] No
- [ ] It’s Poor
- [ ] Needs work

iv. Did you find the information you were looking for?

- [ ] Yes
- [ ] No
- [ ] Somewhat

v. Do you have any suggestions on what should be included in future reports? Kindly explain.

.....................................................................................................................................................
.....................................................................................................................................................
.....................................................................................................................................................
.....................................................................................................................................................
.....................................................................................................................................................
The National Water Supply and Sanitation Council
164 Mulombwa Close, Fairview
P.O Box 34358
LUSAKA