The National Water supply and Sanitation Council prepares this performance comparison report annually to fulfil its mandate to disseminate information to all stakeholders on matters relating to water supply and sanitation services.

The performance comparisons also provide valuable data for determining the present position and assessing future water supply and sanitation needs in the sector. This ensures an appropriate focus and targeting of support to improve service delivery.

This report is also intended to initiate self evaluation of the Commercial Utilities (CUs) based on their performance indicators in recent years in relation to other service providers in order to improve the performance.

Generally, in the reporting period 2003/4, there has been a steady improvement in the quality of service delivery. The hours of supply have stabilized and efforts by the water providers to supply safe water have been evident. The water supplied is disinfected, although in a few places on the Copperbelt and in some districts around the country, suspended solids still remain a problem due to run-down infrastructure.

During the reporting period, we have also seen an increase in number of complaints on poor service standard, this is healthy and allows the regulator to gauge the consumer sensitivity to the quality of service. Such demand for better services makes the providers strive to improve their service delivery. With increased service levels and rising cost recovery, the focus of regulation is shifting towards increased coverage of non-served population, particularly the poor.

In ensuring that the quality of information is checked from the source, the regulator has developed a robust information system (NIS), which allows the service providers to enter the information on-site and has features to counter check the data for accuracy. The information system became fully operational in the current reporting period and the quality of information is evident in this report. It is hoped that a clearer picture of the sector development will be reflected with this system in use.

The mobilization of resources for investment still remains a challenge for the urban sector. Concerted efforts to develop a strategy and funding mechanism to ensure access for the urban poor living in the peri-urban and the low-income areas has been developed, a baseline study is currently in process to capture the needs nationwide. Financial commitments from various cooperating partners such as Germany and Denmark have been made for the low cost technology approach of using kiosks to serve the urban poor.

In contrast the strategy development for mobilizing resources for the conventional systems of the urban setting remains largely unattended at the national level. A formalized sector wide approach would be the best option at the moment to address the backlog of investments in the sector.

Osward M Chanda
Director-NWASCO
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1 Summary of CU performance for the year 2003/4 and trends in the last three years

This chapter gives a synopsis of the performance of the service providers in the year 2003/04. It is an extract of Chapter 7 where the data is analysed in detail.

Urban water supply and sanitation service provision have been transferred to a large extent to Commercial Utilities (CUs) with the aim of increasing efficiency in operation and customer services. Meanwhile ten CUs are responsible for service provision for 84% of the urban population; the remaining areas are still serviced either by Local Authorities (15%) or private providers (1%).

The indicators highlighted are based on the minimum service levels which are agreed with each service provider. In addition, further indicators have been included to provide the reader with a broader view of the CUs’ performance. It is also important to note that the CUs do not only differ considerably in terms of size but they are also operating under varied conditions with some accessing external support while others depend entirely on the revenues from water sales (see Table 1). The time span during which they have been operational varies between one and 14 years.

Table 1: Overview of CUs

<table>
<thead>
<tr>
<th>Commercial Utility</th>
<th>Start of operation</th>
<th>No. of connections</th>
<th>No. of towns serviced</th>
<th>External Support*</th>
</tr>
</thead>
<tbody>
<tr>
<td>AHC-MMS Ltd (management contract)</td>
<td>2000</td>
<td>50,142</td>
<td>5</td>
<td>Worldbank</td>
</tr>
<tr>
<td>Chambeshi (CHWSC)</td>
<td>2003</td>
<td>7,353</td>
<td>10</td>
<td>Ireland</td>
</tr>
<tr>
<td>Chipata (CWSC)</td>
<td>1992</td>
<td>5,279</td>
<td>1</td>
<td>Germany</td>
</tr>
<tr>
<td>Kafuba (KWSC)</td>
<td>2000</td>
<td>36,844</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Lusaka (LWSC)</td>
<td>1989</td>
<td>37,252</td>
<td>1</td>
<td>ADB</td>
</tr>
<tr>
<td>Mulonga (MWSC)</td>
<td>2000</td>
<td>20,635</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Nkana (NWSC)</td>
<td>2000</td>
<td>31,191</td>
<td>3</td>
<td>ADB</td>
</tr>
<tr>
<td>North Western (NWWSC)</td>
<td>2000</td>
<td>3,992</td>
<td>7</td>
<td>Germany</td>
</tr>
<tr>
<td>Southern (SWSC)</td>
<td>2000</td>
<td>20,041</td>
<td>11</td>
<td>Germany</td>
</tr>
<tr>
<td>Western (WWSC)</td>
<td>2000</td>
<td>6,607</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

*during the past five years to varying degrees
1.1 Overview of general performance

It is important that the CUs achieve cost recovery for the sustainability of the water supply and sanitation sector. The performance trends of CUs continued to show improvements in the level of service provision during the reporting period. In the last four years, the CUs have gradually moved towards covering their O&M costs but none of them has so far fully reached this target. However, the following achievements where made in the sector:

- Government showed their commitment to paying their debt by settling most of their outstanding water bills (mainly through debt swap involving Government, ZESCO and water providers).
- 70% of CUs reported an improvement in their collection efficiency and, as a result, the cost coverage based on collection also went up.

The following challenges, however, remain outstanding:

- The average water losses (UfW) still remained high at 50%.
- Water quality, during the reporting period, deteriorated in some areas under the CUs resulting in an increased number of customer complaints.
- The service coverage for both water supply and sanitation continue to show no significant improvement.
- No major investments are going towards extending sanitation coverage.
- Increased personnel costs continue to threaten sustainability.
- Schemes run by Local Authorities continue to deteriorate mainly due to lack of capacity and resources.
- Water quality is still a concern in water supply and sanitation schemes operated by private providers.

Table 2 shows the position of each CU in regard to the main performance indicators whereby the fields shaded red indicate unacceptable results and yellow stands for above average, but still insufficient. The green shaded field indicates that the benchmark set by NWASCO has been achieved and a green arrow indicates a positive trend. The arrows next to each field show the trend for the reporting period compared to 2002/2003.
Table 2: Overview of key performance indicators

<table>
<thead>
<tr>
<th></th>
<th>UFW [%]</th>
<th>Trend</th>
<th>Water Service Coverage [%]</th>
<th>Trend</th>
<th>Sanitation Coverage * [%]</th>
<th>Trend</th>
<th>Hours of Supply</th>
<th>Trend</th>
<th>Staff per 1,000 connections</th>
<th>Trend</th>
<th>Collection Efficiency [%]</th>
<th>Trend</th>
<th>O&amp;M Cost coverage * [%]</th>
<th>Trend</th>
<th>Trend</th>
</tr>
</thead>
<tbody>
<tr>
<td>AHC-MMS</td>
<td>40</td>
<td>↑</td>
<td>92</td>
<td>↓</td>
<td>84</td>
<td>↑</td>
<td>17</td>
<td>→</td>
<td>7</td>
<td>→</td>
<td>71</td>
<td>↓</td>
<td>59</td>
<td>↑</td>
<td>4</td>
</tr>
<tr>
<td>LWSC</td>
<td>52</td>
<td>↑</td>
<td>80</td>
<td>↑</td>
<td>11</td>
<td>→</td>
<td>16</td>
<td>→</td>
<td>14</td>
<td>↑</td>
<td>80</td>
<td>↑</td>
<td>76</td>
<td>→</td>
<td>2</td>
</tr>
<tr>
<td>KWSC</td>
<td>58</td>
<td>↑</td>
<td>90</td>
<td>↑</td>
<td>78</td>
<td>↑</td>
<td>16</td>
<td>↑</td>
<td>7</td>
<td>↑</td>
<td>52</td>
<td>↑</td>
<td>63</td>
<td>↑</td>
<td>3</td>
</tr>
<tr>
<td>NWSC</td>
<td>50</td>
<td>→</td>
<td>79</td>
<td>↓</td>
<td>59</td>
<td>↑</td>
<td>18</td>
<td>↑</td>
<td>10</td>
<td>↑</td>
<td>63</td>
<td>↑</td>
<td>68</td>
<td>↑</td>
<td>4</td>
</tr>
<tr>
<td>SWSC</td>
<td>51</td>
<td>↓</td>
<td>41</td>
<td>↓</td>
<td>24</td>
<td>↓</td>
<td>16</td>
<td>↑</td>
<td>13</td>
<td>→</td>
<td>49</td>
<td>↑</td>
<td>54</td>
<td>↓</td>
<td>2</td>
</tr>
<tr>
<td>MWSC</td>
<td>59</td>
<td>↓</td>
<td>90</td>
<td>↓</td>
<td>89</td>
<td>↑</td>
<td>17</td>
<td>↑</td>
<td>8</td>
<td>→</td>
<td>52</td>
<td>↑</td>
<td>52</td>
<td>↑</td>
<td>4</td>
</tr>
<tr>
<td>WWSCE</td>
<td>40</td>
<td>↑</td>
<td>27</td>
<td>↓</td>
<td>12</td>
<td>→</td>
<td>14</td>
<td>→</td>
<td>97</td>
<td>↓</td>
<td>94</td>
<td>↑</td>
<td>64</td>
<td>↓</td>
<td>2</td>
</tr>
<tr>
<td>NWWSC</td>
<td>40</td>
<td>↑</td>
<td>27</td>
<td>↓</td>
<td>12</td>
<td>→</td>
<td>14</td>
<td>→</td>
<td>97</td>
<td>↓</td>
<td>94</td>
<td>↑</td>
<td>64</td>
<td>↓</td>
<td>2</td>
</tr>
<tr>
<td>CHWSC</td>
<td>60</td>
<td>***</td>
<td>46</td>
<td>***</td>
<td>12</td>
<td>***</td>
<td>8</td>
<td>***</td>
<td>19</td>
<td>***</td>
<td>71</td>
<td>***</td>
<td>38</td>
<td>***</td>
<td>3</td>
</tr>
<tr>
<td>CWSC</td>
<td>32</td>
<td>↓</td>
<td>57</td>
<td>↑</td>
<td>23</td>
<td>↑</td>
<td>24</td>
<td>→</td>
<td>11</td>
<td>↑</td>
<td>78</td>
<td>↑</td>
<td>84</td>
<td>↑</td>
<td>2</td>
</tr>
<tr>
<td>Average</td>
<td>50 (w)</td>
<td>↑</td>
<td>72 (w)</td>
<td>↓</td>
<td>37 (w)</td>
<td>↑</td>
<td>16 (s)</td>
<td>↑</td>
<td>**</td>
<td>↑</td>
<td>68 (w)</td>
<td>↑</td>
<td>65 (w)</td>
<td>↑</td>
<td>2</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**

(w): weighted average  
(s): simple average

*: no benchmark defined  
**: different benchmarks depending on size of company, therefore no comparison to average  
***: new CU therefore no comparison to previous year

↑: positive trend  
→: same as last year  
↓: negative trend
1.2 Comments and Recommendations for each CU

AHC-MMS
- Reported an acceptable water supply coverage rate and staff efficiency.
- The collection efficiency is far below the sector benchmark and has further decreased during the reporting period. Efforts need to be increased to collect revenue in particular from domestic customers.
- Despite some improvements in bringing down the UfW the current level is still unacceptable compared to the benchmark.
- The level of service deteriorated with respect to water quality supplied to some towns.
- Highest personnel costs per staff in the sector. This is of particular concern considering the high proportion of contracted out services (35%). Ultimately these costs are passed on to the consumers.

Chambeshi WSC
- The CU was newly established in September 2003.
- The performance is poor on most indicators which is still characteristic for the local authorities’ serviced areas.
- The challenge for the company is to make the transition to commercial operation (viable organisational structure, medium term strategic business plan and appropriate management tools) to significantly improve the performance.
- There is urgent need to review the tariffs so that the necessary improvements can be funded.

Chipata WSC
- The reported water supply coverage is unacceptably low particularly considering the high standard of the infrastructure. It seems that the service coverage could not keep up with the population growth in the service area.
- The performance level with respect to the service level provided to customers like hours of supply, water quality and water pressure was good.
- UfW is still the best in the sector but with a negative tendency. Measures have to be put in place to prevent the good infrastructure from deteriorating.
- The personnel costs are excessively high and need to be brought under control urgently. The number of staff should be revised since it is too high given the framework conditions.
- Highest average tariff among the CUs but due to the poor collection, the operational costs are still not fully covered. Therefore, collection needs to be raised to, at least, an acceptable level of 85%.
Summary of CU performance for the year 2003/4 and trends in the last three years

Kafubu WSC
• Has one of the highest levels of UfW mainly due to the very poor metering ratio. Efforts should be made to quickly install water meters.
• The collection level of 52% is unacceptable and prevents the company from covering their operational costs. At an acceptable collection rate of 85% all the operational costs could be met.
• A sharp increase in the number of personnel compared to the previous year, and salary increases have resulted in high average personnel staff costs. The current personnel structure and salary levels should be reviewed in order to control the personnel costs.

Lusaka WSC
• One major challenge is to extend coverage to new and unserved areas since the current coverage rate is not satisfactory. The improved coverage would increase the customer base and the revenue situation.
• An improvement was made on the level of UfW but it needs to be brought down further in order to reach the sector benchmark. A comprehensive metering program should be implemented.
• The collection efficiency increased significantly during the reporting period but efforts have to be kept up to eventually meet the sector benchmark.
• The personnel related costs need to be brought down as the current staff efficiency is not acceptable and the average personnel costs are high.

Mulonga WSC
• The CU with the highest increase in UfW. This is not acceptable and a strict metering program should be put in place.
• The collection ratio is very low. An aggressive debt collection and disconnection policy needs to be developed to improve the collections to acceptable levels.

Nkana WSC
• UfW remained unacceptable. There is need to increase the metering ratio in order to bring down UfW.
• The collection rate is still poor. An aggressive debt collection and disconnection policy needs to be developed to improve the collections to acceptable levels.
• Cost coverage is a major concern.

• Staff efficiency as well as average personnel costs are better than the sector average.
North Western WSC

- NWWSC managed to considerably reduce UfW through the implementation of a metering program.
- The collection ratio continues to be excellent and the best in the sector.
- Cost coverage is still very low resulting partly from high personnel costs per staff. The company needs to bring down the personnel related costs and increase their customer base in particular since current WSS coverage is the lowest among the CUs.

Southern WSC

- The general performance has been very poor.
- Lowest collection rate among the CUs which is completely unacceptable.
- The personnel cost increased considerably during the period and staff efficiency continues to be unacceptable. As a result, the cost coverage dropped to an unacceptable from an acceptable level the previous year despite the good customer base. Urgent need to review personnel and salary structure.
- Significant improvement on metering ratio and hours of supply mainly as a result of the ongoing rehabilitation project with financial support from the German government. Nevertheless, the installation of meters has to be accompanied by effective reading, billing and collection.
- Urgent need to develop and implement an aggressive debt collection and disconnection policy.

Western WSC

- Unacceptable results for UfW; there is need to increase the metering ratio in order to bring down UfW.
- Cost coverage remained poor. Efforts should be undertaken to increase the customer base.
- Poor staff efficiency which shows the need to review the organisational structure with a view to make it more efficient.
2 Status of implementation of the sector policy

Zambia has been implementing Water Sector Reforms based on the National Water Policy of 1994 and its seven sector principles. This has resulted in the establishment of a new Water Sector Institutional framework that aims to enhance performance efficiency and accountability. The following make up the cornerstones of the Zambia Water Sector Reforms:

With the separation of Water Resources Management (WRM) from Water Supply and Sanitation (WSS) two ministries have become key players in the sector. The Ministry of Energy and Water Development (MEWD) as lead Ministry for the entire sector is responsible for the overall sector policy and WRM. The Ministry of Local Government and Housing (MLGH) is responsible for policy making and resource mobilization for both Rural and Urban Water Supply and Sanitation. Decentralization in the water sector has gone ahead of the decentralization policy of GRZ with the devolving of WSS functions to the Local Authorities and the private sector. At the same time the separation of policy making (Central Government) from service provision (CUs, private providers and some Local Authorities) is ensured.

The legislative framework for the Water Sector allows for commercialization of service provision by encouraging Local Authorities to form water companies (Commercial Utilities) either as joint ventures or as single local authority which are large enough to generate economies of scale in service provision. Presently approximately 84% of the urban and peri-urban population falls under the service areas of one of the ten water companies. Projects are ongoing or discussed with the aim of creating Commercial Utilities (CUs) among the remaining 22 Local Authorities. Further allowed under the new legal framework is Private Sector Participation (PSP). Currently, there is a five year Management Contract with Saur International for the former mine townships on the Copperbelt. Studies are underway for increased private participation in the sector, targeting Lusaka and the Copperbelt.

Government through MLGH funded the CUs a total of K1.708 billion and the Local Authorities a total of K1.286 billion as support to the sector in the rehabilitation of the water supply and sanitation infrastructure as well as the ongoing retrenchment exercise (see Chapter 6.2).

However, the criteria of funding to these service providers do not seem to be clear and the impact of these resources is not tangible. These funds are released with no strategic plan accompanying the use of these resources and no proper monitoring of the application of the fund is in place.

![Chart B: GRZ Funding to CUs in 2004](chart_image)

* CPWSC is central province water and sewerage company which is under formation.
Since the beginning of the establishment of the majority of the CUs in 2000, there has been a rapid increase in the involvement of professionals and skilled personnel in WSS service provision and a decline in the unskilled staff operating the services, which has resulted in the overall improvement of urban WSS services provision. The service providers, with some initial support through NWASCO from GTZ, have embarked on training of personnel in the CUs. The human resource situation in the 24 Local Authorities running water supply and sanitation services is largely unsatisfactory; no training has taken place.

The separation of policy making, regulation and service provision led to the establishment of an autonomous regulator, the National Water Supply and Sanitation Council (N WASCO) reporting to MEWD, while service providers report through the Local Authorities to the MLGH. NWASCO has since developed all major regulatory tools and guidelines. Water Watch Groups (WWG) in Lusaka, Kasama, Chingola and Kitwe have also been established in order to ensure adequate consumer representation at service area level and provide for a feedback mechanism from consumers. This increases the effectiveness of regulation. NWASCO, since its establishment, has used various means to create awareness and invoke participation among the decision makers and consumers, thereby, demanding for better services from the providers.

Furthermore, NWASCO has established the Devolution Trust Fund (DTF), according to the provisions of the Water Supply and Sanitation Act, 1997, as a financing tool to assist the service providers extend the provision of services to the urban poor. The regulatory system sets the guidelines and incentives to ensure that the individual commercial utilities’ plans reflect national policy. Funding has been sourced from the Danish (DANIDA) and German (KfW) governments for a baseline study to capture the situation and needs of the low income urban areas. The study will further refine the strategies for implementing water supply and sanitation services to the urban poor in order to meet the Millenium Development Goals (MDGs).

It is ten (10) years since the National Water Policy was adopted by Cabinet, and it is currently rightly being updated to take into account the various new developments in the sector, specifically making policy objectives regarding poverty reduction and water supply and sanitation service provision, in consonant with the various initiatives in the region and the globe.
3 Service provision to the poor – Reaching the MDGs for water and sanitation

3.1 Overview

Zambia has a population of about 11 million people and an estimated 40-45% of the national population live in urban areas. Currently, the urban population living in peri urban and low cost areas has soared to 80% compared to 69% in 1991. Access to safe water supply for the peri urban population is estimated at 50% whereas basic sanitation coverage (as defined in the MDGs) is estimated at 70%. This data, which is mainly obtained from projects and a currently ongoing detailed data collection exercise, deviates from Central Statistics Office (CSO) data mainly due to different definitions of urban population and the application of different standards in determining coverage (i.e. functioning installations as opposed to installed installations).

The Millennium Development Goals (MDGs) of 2000 set out the target for water supply that was supplemented with the sanitation target at the World Summit on Sustainable Development in September 2002 in Johannesburg. The targets are “to halve the proportion of the population without access to improved water supply and basic sanitation by 2015”. Currently, the water supply coverage is estimated at 60% in urban areas which is not significantly different from the situation in 1990. However, in the mid 90s there was significant deterioration of service provision due to dilapidation of infrastructure and population increase. There has since been notable improvement following the commercialisation of service provision. The challenge is to increase the water supply coverage to 80% and sanitation coverage to 85% in order to reach the MDGs. This entails approximately an additional 2 million people accessing safe water supply and basic sanitation by 2015 if population growth is taken into account.

Government has developed a Poverty Reduction Strategy Paper (PRSP) for the period 2002-2004, which, however, needs to be reviewed in order to provide measurable indicators for determining the impact of improved water supply and sanitation on poverty reduction.

The CUs are obliged by their licence conditions to also provide water supply and sanitation services to the peri urban areas within their defined service area. However, due to their fragile financial base, they are currently often unable to extend services to both new development and peri urban areas. They, therefore, require particular assistance to fulfil their licence obligation. A strategy has been developed through the DTF to enable providers increase access to water and sanitation services to the urban poor in their service areas whose ultimate objective is to attain the MDGs.

There have been interventions by some Non Governmental Organisations (NGOs) in providing water supply to a number of peri urban areas in the country. These have mainly been in the form of decentralised schemes, which were managed by the communities. However, it is clear that both decentralised and community managed schemes are not sustainable in the long run. Decentralised schemes are usually not adequately supervised by the licenced providers.
3.2 Devolution Trust Fund (DTF)

The DTF was established in 2001 to provide resources as an incentive for CUs to extend their services to the peri-urban areas. The DTF provides financial support to CUs intending to improve water supply and sanitation services for the urban poor. It receives funding through government grants as well as external support agencies.

The DTF has developed guidelines on how to plan and implement projects for improved service provision to the urban poor. These guidelines draw on proven and sustainable best practice within the country on service provision to the urban poor. The DTF is promoting the kiosk system which is managed by the CUs and usually linked to their network in order for the consumers to benefit from the economies of scale and to ensure good water quality.

Through assistance from GTZ, two demonstration projects were commissioned to enable the DTF show that the concept of the kiosk system is an effective and sustainable way of service provision to the urban poor and could therefore be replicated in other towns in Zambia as a short and medium term strategy. These projects, which are located in Itimpi, Kitwe (5 kiosks) and Maiteneke, Chingola (6 kiosks) are targeting a total population of 16,000 people and are scheduled to be completed by June 2004.

Development Cooperation Ireland (DCI) and the Danish International Development Agency (DANIDA) have also expressed interest to support similar projects under the DTF in Copperbelt and Western provinces respectively.

Baseline Study

A baseline study has been commissioned with support from DANIDA and KfW. The purpose of this study is to identify the urban populations in Zambia living in peri-urban and low cost areas, analyse their socio-economic living conditions and the level of adequacy of their water supply and sanitation, as well as, to determine the necessary investments to achieve adequate water supply and sanitation infrastructure. The study is being carried out between June 2004 and June 2005. The information gathered will be fed into the database of the NWASCO Information System (NIS) where it will be updated on an annual basis. In addition, the data will be disseminated widely in order to be accessible to all stakeholders as standard reference data.
4 NWASCO

4.1 Internal Developments

A new NWASCO Council was finally appointed in August 2003 after a delay of about eleven months following the expiry of term office of the first Council. The Water Supply and Sanitation Act is also being amended to provide, among other things, for the reduction of the Council membership from sixteen (16) to seven (7).

N WASCO is financed mainly through license fees and minimal grants appropriated by Parliament as well as limited support from the German Government through technical assistance. NWASCO was able to meet 75% of its budget from license fees in 2003 compared to 70% in 2002. Despite this slight increase, the licence fees are not yet sufficient to improve an effective monitoring on the ground.

The annual report for 2003 containing the institution’s detailed activities was published in March 2004. Additional information on NWASCO and various publicity materials can be accessed on the website (www.nwasco.org.zm).

4.2 NWASCO Information System (NIS)

N WASCO has developed an Information System (NIS) on urban water supply and sanitation which became operational in March 2004. It enables NWASCO and other stakeholders to observe the developments in the sector and to monitor the impact of interventions or support projects on the population. This is increasingly important with the growing interest of Government, development agencies and the public in poverty reduction and the achievement of the MDGs.

The information gathered in the NIS serves NWASCO as a support tool to monitor and compare the performance of the providers and their compliance with the requirements defined in the licence and service level agreements. With the sector data stored and compiled in a systematic way, the NIS considerably enhances the regulator’s efficiency in monitoring. For the providers, the NIS results in time savings and in an increased data reliability.

Training workshops were held for all the CUs on the use of the same and the system was installed on their computers. All the annual reports for the financial year 2003/2004 from the CUs were submitted through the NIS. Detailed information on peri-urban and low cost areas will be included in the NIS as a result of the baseline study (see Chapter 3.2).

4.3 Licensing

Chambeshi Water and Sewerage Company (CHWSC) was issued with a licence to provide water supply and sanitation services in ten (10) districts in Northern Province which were previously operated by the respective Local Authorities. Only two districts of the province, Mbala and Luwingu, are, however, still serviced by Local Authorities due to refusal to be part of the commercial utility, although they are not sustainable on their own as per recommendations of the feasibility and options study for the province.

Zambia Revenue Authority (ZRA) complied with all the licensing requirements and was issued with a Licence for their water schemes in Kazungula and Chirundu. They have since entered into a lease agreement with Southern Water and Sewerage Company who are to manage their schemes for a period of five years.
These two providers brought the total number of licensees to 39, that is, 10 CUs, 22 Local Authorities (LAs) and 7 Private Providers.

4.4 Tariff adjustments

During the reporting period, the Council approved tariff adjustments for AHC-MMS, Katubu, Mulonga, North Western and Western Water and Sewerage Companies and for six LAs. The approved tariff adjustments were in the range of 10% to 70% gross for LAs and between 15% and 35% gross for the CUs. It must be noted that there had not been any tariff adjustment for two years due to the absence of the NWASCO Council.

4.5 Monitoring

4.5.1 Inspections

Nine providers were inspected during the reporting period, covering 23% of licensed providers. Eight CUs (covering 80% of CUs) were inspected checking on their compliance to licence and service level guarantee conditions. This included a special financial audit inspection for Chipata WSC. The findings and recommendations of the audit were submitted to the CWSC board for their actions. In case of the main inspections the areas of non compliance were brought to the attention of management and they were given time frames in which to address the same. Almost all the inspected CUs were able to resolve the identified issues within the given time frames. One main issue still outstanding is that on poor water quality in some areas serviced by AHC-MMS. An inspection of the Chilanga Cement plc private run water scheme revealed poor water quality with respect to bacteriological parameters. Chilanga was directed to improve disinfection of supply water and they have now embarked on upgrading their chloration systems.

4.5.2 Complaints

NWASCO has devised a procedure for handling complaints, which encourages consumers to resolve their complaints directly with the providers. Complaints can only be referred to the Water Watch Groups (WWGs) and subsequently to NWASCO where the provider has failed to resolve the complaint directly.

The major complaints handled by NWASCO during the reporting period addressed the issues of poor water quality, high meter readings and billing, erratic water supply and the slow pace of handling consumer complaints by various service providers. The concerned providers were given directives to resolve the same. They were also a number of other complaints which were successfully resolved through the Water Watch Groups.
4.6 Support to Commercial Utilities

NWASCO mediated in the dispute between Asset Holding Company-Mining Municipal Services (AHC-MMS) and Nkana Water and Sewerage Company (NWSC) on the non-payment for bulk water supply. A lease agreement was finally signed in 2003 providing for AHC-MMS to manage the concerned service areas on behalf of NWSC for a period of one year or until the debt was liquidated.

4.7 Participation and exchange at local and international Level

NWASCO staff participated in a number of international meetings and conferences:

- Capacity Building Workshop for Regulating Water Services, Kenya
- 12th Congress of the Union of African Water Suppliers, Ghana
- Centre for Regulation and Competition (CRC) Conference, South Africa
- Workshop on Regulating Public and Private Partnership (PPP) for the Poor, UK
- WUP-Conference: Coordinators of Reforms in Water and Sanitation Services, Kenya
- Workshop on Concept and Benefits of formal twinning agreement between water utilities, South Africa

The papers presented at some of the conferences generated a lot of interest from a number of participating organisations.

At national level, NWASCO continued to provide advice and support in the sector through participation at all relevant meetings, workshops and conferences in the sector as well as on request from the Ministries and Local Authorities.
5 Water Watch Groups (WWGs) - Involving the community in regulation

As a way of establishing its presence on the ground, NWASCO has set up voluntary consumer groups known as Water Watch Groups (WWGs) in areas serviced by Commercial Utilities (CUs). The WWGs’ main objective is to ensure that consumer’s rights are protected, their obligations explained, their complaints satisfactorily resolved and adequate information on service delivery provided. The WWGs also work in collaboration with other community structures on the ground.

Currently, four Water Watch Groups have been set up in Lusaka, Copperbelt and Northern Provinces and cover areas serviced by five Commercial Utilities. NWASCO supports the WWGs by providing transport, limited stationery, and publicity material such as brochures, T-shirts and banners. Their meetings and outreach programmes as well as their participation at workshops are facilitated by NWASCO. The costs incurred by NWASCO come to about US$ 2,000 per quarter. In addition, some funding was secured from DCI for supporting the establishment of the WWG in Northern Province.

The activities of the WWGs included a number of sensitisation meetings in various residential areas and occasional hearings at which consumers submitted their complaints individually or through their community leaders. They were able to resolve over 65 individual and group complaints. NWASCO was only requested to intervene on behalf of the WWG on three occasions during the reporting period. However a total of 49 complaints were handled and resolved by NWASCO directly.

The consumers are already feeling the impact of the WWGs as more attention is being paid to consumer complaints by the CUs and more public awareness has been created. This has resulted for example in the decline in cases of vandalism of infrastructure as members of the public come forward to report offenders. However, the level of understanding of customers still has to be raised further so that only valid complaints are brought to the providers’ attention. There is also need to create more awareness among CUs staff on customer care.
6 Human resource development in the water sector

6.1 Sector scenario

Human resource management and development is vital for the achievement of the overall goal of sustainable service delivery in the established CUs. Before the commercialisation process, there was inefficient service delivery in the water sector, which was partly attributed to the lack of skilled and motivated manpower, as the Local Authorities (LAs) did not have adequate management tools for human resource development in place. This resulted in poor human resource planning and uncoordinated training. Due to insufficient funding the LAs could neither attract nor retain qualified staff. This is still prevailing in areas where the services are run by the LAs.

Consequently, the sector policy recognised human resource management and development as an essential factor for the success of the sector. Hence, the strategy for human resource management and development was elaborated to ensure professional, efficient, effective and sustainable service delivery. The Competence Based Modular Training modules (CBMT) were also developed to train employees, particularly, those at the lower ranks to enable them acquire job related skills. However, these modules have not been implemented due to lack of funds. Discussions on the implementation of the CBMT have now been taken up again by NWASCO and Technical Educational Vocational Entrepreneurship Training Authority (TEVETA). Some CUs have, nevertheless, made efforts to introduce in-house training which, for instance, is quite successful at NWWSC.

6.2 Situation in the CUs

The Local Authorities' employees seconded to the seven CUs continued to be a major concern in terms of improving operational efficiency, however, Government has been making efforts to slowly pay for the retrenchment of excess personnel through the CUs. A total of K2.4 billion was released, so far, through the Ministry of Local Government and Housing to the CUs. The bloated workforce has also negatively impacted on the CUs’ resources and thus they have only managed to employ 20% to 30% of staff directly from the labour market. Currently over K20 billion is needed to separate all excess staff seconded to CUs as a result of commercialisation to allow the CUs operate more efficiently.
Chart D gives an overview of the qualifications of the personnel in the CUs. However, not only the formal qualification but in particular practical know-how has a bearing on the quality of service delivery. CUs have the challenge to train and develop the skills and competencies of their personnel. Further training and development is still needed to build on the experience attained, which will enable staff to provide services more efficiently and professionally. HR management tools should be developed and implemented for optimum utilisation of labour.

6.3 Performance Oriented Incentive Scheme (POIS)

In light of the critical need for human resource development and motivation, as well as, the lack of adequate management skills in the sector, NWASCO introduced the Performance Oriented Incentive Scheme (POIS) funded by the German Government. POIS is a system that rewards performance in cash or in kind. Four CUs, namely, Kafubu, Nkana, North Western and Southern Water and Sewerage Companies are currently participating in POIS. These CUs have developed the necessary tools to measure and monitor performance of their employees. POIS has to some extent contributed to a change in the work culture as there has been a clear shift towards performance orientation as expected in a private sector environment.

Training measures in human resource management and development have been carried out in eight CUs. Training of trainer’s courses have also been conducted to enable CUs to carry out in-house training which is a less costly way of addressing specific training needs.
7 Comparative performance of providers

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 4.4 million, 3.7 million live in the service areas of the ten CUs (84%). This is an increase of almost 7% as compared to the previous year mainly due to the formation of Chambeshi WSC in Northern Province. 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 (15%). The majority of the urban population (64%) in Zambia are found in Lusaka and the Copperbelt towns.

The water service coverage in Chart 1 should be considered as an indication only since the reliability of population data on peri-urban areas differs considerably among the CUs. Therefore, some figures in particular for KWSC, MWSC and NWSC might be overstated. In the next sector report it will be possible to have a more reliable picture from the baseline data on peri-urban areas, currently being collected.

7.1.2 Water supply coverage

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

<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>Acceptable</td>
<td>70 – 80 %</td>
<td></td>
</tr>
<tr>
<td>Unacceptable</td>
<td>&lt;70%</td>
<td></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. During the period 2002/3 to 2003/4 little improvement was achieved by the CUs. The improvement is mainly due to adjustments made after a customer database clean up which captured additional customers with sewer connections. The updated figures in this report show that the sanitation coverage is still unacceptable. Only the Copperbelt towns have an acceptable sanitation coverage ratio. The low sanitation coverage by sewer network can be attributed to inadequate investment and effort going to extending the sanitation infrastructure.

7.1.4 Clustering of companies

Providers have been clustered as shown in Table 3, 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 other CUs similar in size.

Table 3: 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>AHC-MMS</td>
<td>83.3</td>
<td>333</td>
<td>391,248</td>
<td>50,142</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>LWSC</td>
<td>72.0</td>
<td>504</td>
<td>1,300,000</td>
<td>37,252</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>KWSC</td>
<td>58.0</td>
<td>272</td>
<td>370,000</td>
<td>36,844</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>NWSC</td>
<td>39.5</td>
<td>299</td>
<td>307,405</td>
<td>31,191</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>SWSC</td>
<td>20.6</td>
<td>258</td>
<td>290,624</td>
<td>20,041</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>MWSC</td>
<td>17.6</td>
<td>158</td>
<td>224,000</td>
<td>20,635</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>CHWSC</td>
<td>9.3</td>
<td>141</td>
<td>230,000</td>
<td>7,353</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>WWSC</td>
<td>6.6</td>
<td>101</td>
<td>224,600</td>
<td>6,607</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>NWWSC</td>
<td>5.0</td>
<td>56</td>
<td>130,000</td>
<td>3,992</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>CWSC</td>
<td>2.0</td>
<td>59</td>
<td>130,000</td>
<td>5,279</td>
<td>1</td>
</tr>
</tbody>
</table>

7.1.5 Household connections

There was a 5% increase in the total number of household connections from 185,000 reported in 2002/3 to 193,000 in 2003/04. This increase is mainly a result of customers database cleanup (Kafubu WSC +29%, Western
WSC +15% and Southern WSC+12%) as well as Chambeshi WSC joining
the ranks of CUs. A slight decrease in connections for AHC (5%) is due to
the transfer of one service area, Kalulushi, to Nkana WSC.

7.1.6 Water production

The total water production of the CUs has remained quite stable (Chart 3). The slight decrease of Lusaka WSC can be attributed mainly to capacity
restrictions due to lower water tables as a result of a previous draught. The
increase in production of AHC-MMS is mainly due to improved pumping
efficiency. Chart 4 links the water production with the serviced population.
A high per capita production in CUs without major industries is an
indication for inefficiencies in water demand management (managing
unaccounted for water and consumption). The high level of per capita
production is therefore acceptable for AHC-MMS serving major mines while
it is a concern for KWSC, SWSC and NWWSC.

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efficiency. Chart 4 links the water production with the serviced population.
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indication for inefficiencies in water demand management (managing
unaccounted for water and consumption). The high level of per capita
production is therefore acceptable for AHC-MMS serving major mines while
it is a concern for KWSC, SWSC and NWWSC.
7.1.7 Unaccounted for Water (UfW)

UfW is the expression used for the water lost in the distribution system. It is the difference between the quantity of water produced and the quantity of water billed. UfW consists of technical losses (e.g. due to leakage) and commercial losses (illegal connections, unbilled customers, wastage on unmetered customers premises). The high average UfW in the sector of about 50% (see Chart 5) is an indicator for serious inefficiencies on the part of the CUs. Since all the costs have to be covered and only half of the water is sold to customers, it implies that the customers indirectly pay for the inefficiencies. It should be noted that the UfW figures are still estimates where metering is less than 100% (all CUs except Chipata WSC). Some improvements were achieved during the reporting period by NWWSC and AHC-MMS due to partial rehabilitation of infrastructure. LWSC showed some progress mainly due to water demand management measures initiated in selected zones. Mulonga, Chipata and WesternsWSCs reported a worse UfW than in the previous years. There, the main contribution to the high UfW is the high network leaks in the low cost areas.

Compared to the sector benchmarks, all CUs (except CWSC) have continued to report unacceptable levels of UfW during the past three years. CWSC has unfortunately moved from acceptable to unacceptable levels of UfW during the reporting period. Efforts to tackle the problem have to be increased considerably.

If the high water losses (UfW) are translated into monetary terms, as shown in Table 4, one can get an understanding of the magnitude of the problem. This should serve as an incentive for each CU to come up with a strategy on reducing UfW. Lower UfW decrease production costs and especially costs for capital investments since less production capacity is required. Furthermore, additional revenues can be realised by CUs which are currently not yet in a position to satisfy the entire demand.

<table>
<thead>
<tr>
<th>Benchmark for UfW</th>
<th>Good</th>
<th>&lt;20%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Acceptable</td>
<td>20 – 25 %</td>
</tr>
<tr>
<td></td>
<td>Unacceptable</td>
<td>&gt;25%</td>
</tr>
</tbody>
</table>

Chart 5: Unaccounted for Water (UfW)
Table 4: Lost revenues due to UfW in 2003/2004

<table>
<thead>
<tr>
<th></th>
<th>Total Billing (in mil K)</th>
<th>UfW (in %)</th>
<th>UfW (in mil K)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AHC – MMS</td>
<td>29,126</td>
<td>40.0%</td>
<td>19,419</td>
</tr>
<tr>
<td>Chambeshi WSC</td>
<td>534</td>
<td>60.0%</td>
<td>801</td>
</tr>
<tr>
<td>Chipata WSC</td>
<td>2,947</td>
<td>31.8%</td>
<td>1,376</td>
</tr>
<tr>
<td>Kafulu WSC</td>
<td>19,634</td>
<td>57.6%</td>
<td>26,640</td>
</tr>
<tr>
<td>Lusaka WSC</td>
<td>32,739</td>
<td>51.7%</td>
<td>35,010</td>
</tr>
<tr>
<td>Mulungu WSC</td>
<td>5,420</td>
<td>59.3%</td>
<td>7,887</td>
</tr>
<tr>
<td>Nkana WSC</td>
<td>12,179</td>
<td>50.1%</td>
<td>12,239</td>
</tr>
<tr>
<td>North Western WSC</td>
<td>1,114</td>
<td>40.0%</td>
<td>743</td>
</tr>
<tr>
<td>Southern WSC</td>
<td>9,093</td>
<td>50.5%</td>
<td>9,277</td>
</tr>
<tr>
<td>Western WSC</td>
<td>884</td>
<td>56.6%</td>
<td>1,152</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>114,546</strong></td>
</tr>
</tbody>
</table>

7.1.8 Water Quality

All the CUs continued to control quality of water supplied to customers and tested for the physical–chemical aspects, residue chlorine and the bacteriological aspect apart from Western WSC, which had a problem with the laboratory in the province, and Chambeshi, which did not report any tests during the period.

There has been a steady improvement in the water quality supply by most of the CUs. However there was general deterioration in the water quality supplied to some areas by AHC-MMS, Southern WSC and Lusaka WSC in the physical-chemical aspects during the second half of the reporting year. The complaints where mainly in the colour and suspended solid in the water.

While most of the CUs analysed the water supplied to customers in terms of residue chlorine, physical-chemical and bacteriological aspects, the number of tests varied widely and was in most cases inadequate.

NWASCO has therefore responded to this scenario by developing a water quality guideline that will address the number of tests to be done by each CU and the type of tests to be conducted. With this new guideline, which will be in use in 2005, it will be possible to have a better monitoring system in place by the regulator and hence improve on the quality of water supplied by providers. The guideline obliges the provider to publish water testing results.
7.1.9 Metering Ratio

Chart 6 shows the metering ratio which is defined as the metered connections compared to the total connections. Metering is a precondition for charging consumers according to their consumption and thereby ensures an equitable distribution of costs. It is an important tool for controlling consumption and UfW. In 2003/4 the average metering ratio has improved by about 10%. Notable improvements were made by NWWSC, SWSC, AHC-MMS and LWSC. There is room for more improvement for all the CUs (except CWSC), as their current levels of metering is unacceptable.

7.1.10 Hours of Supply

Chart 7 shows the range of supply hours per day. The minimum supply hours have improved from 2 to 5 hours compared to the previous year. The average hours of supply remained quite constant apart from SWSC which was able to show an improvement. It should be noted that in some areas not connected to the national grid the availability of electricity can be an external constraint for the supply hours.

A higher level of supply hours is requested in large and medium sized towns because of a higher demand. Only Chipata WSC and Western WSC have good benchmarks in their respective categories of medium and small towns. All the CUs, except CHWSC, however, meet the acceptable level of requested sector benchmarks.
During the reporting period, major water supply interruptions were reported from NWWSC and WWSC due to interruptions of power supply. Whereas, NWSC had to interrupt their service for two days due to spillage of acid into the water source.

7.1.11 Collection Efficiency

The average collection efficiency improved by about 10% compared to the previous year, which can be considered an achievement. However parts of this achievement can be attributed to a debt swap, which resulted in Government settling major arrears with the CUs. The payment of long-term outstanding debts distorts the collection figures in a financial year (Chart 8). This distortion is eliminated in Chart 9 where collection is compared over a three year period.

Despite this positive effect, SWSC, MWSC, KWSC and NWSC only managed to collect about half of the amount billed. This is a serious threat to their sustainability.
Chart 9 shows that NWWSC has an excellent collection efficiency while KWSC, MWSC, SWSC and NWSC have had a persistently poor performance on this indicator over the past three years. There is an urgent need for all these CUs to pursue an aggressive collection strategy in order to achieve economic viability.

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 i.e. billing per staff and collection per staff have been analysed in order to adequately compare the staff efficiencies (see Chart 11 and Table 5).

There were generally no significant improvements in terms of staff per 1000 connections (Chart 10) as well as in billing per staff per month (Chart 11). LWSC and CHWSC have unacceptable levels of staff efficiencies. The remaining CUs with acceptable levels should however also undertake further efforts in order to achieve a good level.

<table>
<thead>
<tr>
<th>Benchmark for staff per 1000 connections large companies (Cluster 1 &amp; 2)</th>
<th>Good</th>
<th>Acceptable</th>
<th>Unacceptable</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;5</td>
<td>5-8</td>
<td>&gt;8</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Benchmark for staff per 1000 connections medium &amp; small companies with up to 3 towns (Cluster 1 &amp; 2)</th>
<th>Good</th>
<th>Acceptable</th>
<th>Unacceptable</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;5</td>
<td>5-8</td>
<td>&gt;8</td>
<td></td>
</tr>
</tbody>
</table>
Benchmark for staff per 1000 connections medium & small companies with more than 3 towns (Cluster 3 & 4)

<table>
<thead>
<tr>
<th>Quality</th>
<th>Benchmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>&lt;9</td>
</tr>
<tr>
<td>Acceptable</td>
<td>9-14</td>
</tr>
<tr>
<td>Unacceptable</td>
<td>&gt;14</td>
</tr>
</tbody>
</table>

7.1.13 Average personnel cost per staff

Chart 12 shows the average personnel cost per staff per month which have increased on average by 12% compared to the previous year. Considering the inflation rate in Zambia of about 20%, this increase is still within the inflationary rate. Southern WSC and Katfu WSC recorded a substantial increment of average personnel costs of 60% and 38% respectively.

The reported moderate increase in the personnel cost overall is distorting the picture. It is suspected to be partly due to the allocation of personnel related costs to different cost categories (i.e. administration and other), thereby distorting the true picture. Hence all CUs should make serious efforts to contain the personnel related costs.

### Table 5: Observations on Staff Efficiency

<table>
<thead>
<tr>
<th>Commercial Utility</th>
<th>No. of Staff</th>
<th>Staff/1000 Connections</th>
<th>Av. personnel cost/Staff/Month</th>
<th>Billing/Staff Month</th>
<th>Collection/Staff Month</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>AHC - MMS</td>
<td>333</td>
<td>7</td>
<td>2.81</td>
<td>7.29</td>
<td>5.21</td>
<td>While the number of staff seems to be adequate, the personnel costs are high.</td>
</tr>
<tr>
<td>LWSC</td>
<td>504</td>
<td>14</td>
<td>2.70</td>
<td>5.41</td>
<td>4.35</td>
<td>Staff efficiency is very poor. Urgent need to increase customer base as there is a very high potential to reduce number of staff. Personnel costs have to be brought down.</td>
</tr>
<tr>
<td>NWSC</td>
<td>299</td>
<td>10</td>
<td>1.08</td>
<td>3.39</td>
<td>2.14</td>
<td>Poor staff efficiency mainly due to high number of staff.</td>
</tr>
<tr>
<td>KWSC</td>
<td>272</td>
<td>7</td>
<td>2.12</td>
<td>6.02</td>
<td>3.17</td>
<td>Acceptable staff efficiency. High average personnel costs which have to be reduced.</td>
</tr>
<tr>
<td>SWSC</td>
<td>258</td>
<td>13</td>
<td>1.35</td>
<td>2.94</td>
<td>1.46</td>
<td>Unacceptable staff level which should be addressed urgently.</td>
</tr>
<tr>
<td>MWSC</td>
<td>158</td>
<td>8</td>
<td>0.94</td>
<td>2.86</td>
<td>1.47</td>
<td>Staff efficiency is within the acceptable range.</td>
</tr>
<tr>
<td>WWSC</td>
<td>101</td>
<td>15</td>
<td>0.55</td>
<td>0.73</td>
<td>0.74</td>
<td>Satisfactory level of personnel costs but staff efficiency has to be improved.</td>
</tr>
<tr>
<td>NWWSC</td>
<td>56</td>
<td>14</td>
<td>2.04</td>
<td>1.66</td>
<td>1.61</td>
<td>Comparatively low level of staff efficiency and high level of personnel related costs.</td>
</tr>
<tr>
<td>CWSC</td>
<td>59</td>
<td>11</td>
<td>2.61</td>
<td>4.16</td>
<td>3.25</td>
<td>Unacceptable level of personnel cost which has to be addressed urgently.</td>
</tr>
<tr>
<td>CHWSC</td>
<td>141</td>
<td>19</td>
<td>0.25</td>
<td>0.32</td>
<td>0.24</td>
<td>Newly established CU with poor staff efficiency due to unacceptably high level of personnel.</td>
</tr>
</tbody>
</table>
7.1.14 Water production cost

One of the sector objectives is to provide water to everyone at reasonable costs. 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 that unjustified costs are passed on to the consumers.

Cost of operation

In the water industry the major cost categories associated with production are personnel, chemical, energy and administration costs. CUs should generally focus on these areas in order to reduce on their production cost.

One example of best practices in the reduction of production cost has been recorded by AHC-MMS, who have managed to reduce their Energy cost by 29% mainly by replacing some of their pumping motors with more efficient ones that use less energy. Additional savings were realised by switching from fixed electricity tariffs to metered electricity consumption.

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

A sharp increase in personnel cost was reported by Southern and Kafubu WSCs, mainly as a result of staff recruitment. In the case of Southern, they also reported a sharp increase in the chemical cost mainly as a result of poor procurement procedures. CWSC reported a high increase in chemical cost due to under reporting for the previous year mainly because they had used chemicals received from a project which was externally funded.

Western and Southern WSC reported significant increases in their energy costs. For Western this was as a result of under reporting of their energy costs in the previous period while Southern had an increased pumping capacity due to the rehabilitation of infrastructure particularly in Livingstone.

Table 6: Cost of Operation

<table>
<thead>
<tr>
<th>Cost structure</th>
<th>Personnel Cost (n mln K)</th>
<th>Chemicals Cost (n mln K)</th>
<th>Energy Cost (n mln K)</th>
<th>Other Cost (n mln K)</th>
<th>Total Cost (n mln K)</th>
</tr>
</thead>
<tbody>
<tr>
<td>% change</td>
<td>% change</td>
<td>% change</td>
<td>% change</td>
<td>% change</td>
<td>% change</td>
</tr>
<tr>
<td>AHC-MMS</td>
<td>10,004</td>
<td>11,227</td>
<td>12%</td>
<td>1,902</td>
<td>1,385</td>
</tr>
<tr>
<td>CWSC</td>
<td>0</td>
<td>421</td>
<td>-</td>
<td>0</td>
<td>416</td>
</tr>
<tr>
<td>CWSC</td>
<td>1,534</td>
<td>1,845</td>
<td>20%</td>
<td>7</td>
<td>35</td>
</tr>
<tr>
<td>NWSC</td>
<td>4,662</td>
<td>6,972</td>
<td>51%</td>
<td>679</td>
<td>782</td>
</tr>
<tr>
<td>LUSC</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>MWSC</td>
<td>1,389</td>
<td>1,763</td>
<td>25%</td>
<td>39</td>
<td>35</td>
</tr>
<tr>
<td>NWSC</td>
<td>3,407</td>
<td>3,890</td>
<td>14%</td>
<td>1,121</td>
<td>1,323</td>
</tr>
<tr>
<td>NWSC</td>
<td>1,103</td>
<td>1,313</td>
<td>25%</td>
<td>52</td>
<td>75</td>
</tr>
<tr>
<td>SWSC</td>
<td>2,525</td>
<td>4,177</td>
<td>56%</td>
<td>496</td>
<td>1,117</td>
</tr>
<tr>
<td>WWSC</td>
<td>473</td>
<td>671</td>
<td>40%</td>
<td>39</td>
<td>53</td>
</tr>
</tbody>
</table>

Cost structure

Personnel associated costs continue to be a major concern in the water supply sub-sector during the period under review. The proportion associated to personnel cost still is the highest component in the operation costs for the CUs. In 2003/4 the average cost of personnel as a percentage of O+M increased to 54% from 38% reported in 2002/3. Of particular concern are Chipata and North Western WSC which reported 68% and 57% increases respectively. Lusaka WSC, Western WSC and Southern WSC also reported above 50%.
7.1.15 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 has the responsibility of ensuring that only justified costs are passed on to the customer.

A comparison of the expected customers water bill to be charged by each CU (except for CHWSC) at the different consumption levels as shown in Table 7 shows Chipata has the highest tariff among the CUs, while AHC, KWSC, NWSC, NWWSC and SWSC are in next bracket; LWSC, MWSC and WWSC have the lowest tariffs.

The uneconomically low tariff of the newly established Chambeshi WSC was inherited from the Local Authorities and each town had different tariff. It is expected to be increased considerably over the coming years.

The average tariff in Chart 14 is calculated by comparing the quantity and the amount (in K) billed. Therefore the variations do not necessary reflect the change in the actual tariff during the period.
The substantial increase in unit operation cost for SWSC can be attributed to completely unacceptable personnel cost and costs for chemicals per metre cubed produced which exceed the average by more than 100%. There is urgent need for SWSC to assess the procurement procedures for chemicals and to reduce the personnel related costs. Another unacceptable increase was reported by Kafubu WSC who need to address their high personnel and excessive energy costs. Chipata WSC failed to reduce the high operation costs which are a result of excessive personnel costs. Chambeshi WSC reported the lowest operational costs simply because they are at this stage operating below capacity.

### 7.1.16 Operational cost coverage by collection

All the CUs are currently operating at a loss which is shown by the operational cost coverage below 100% in Chart 15. Considerable improvement was only reported by AHC-MMS and Chipata WSC. However, SWSC, WWSC, NWWSC and LWSC reported a decrease from their already low levels of O+M cost coverage. This is due to no or minor improvements on the collection efficiency and at the same time a significant increase in operational costs for most of the CUs. This trend is a major concern to all stakeholders as it threatens the commercial viability of water utilities and has to be reversed urgently.

<table>
<thead>
<tr>
<th>Benchmark for coverage of O + M cost</th>
<th>Good</th>
<th>&gt;150%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acceptable</td>
<td>100-150%</td>
<td>&lt;100%</td>
</tr>
<tr>
<td>Unacceptable</td>
<td>&lt;100%</td>
<td></td>
</tr>
</tbody>
</table>

The substantial increase in unit operation cost for SWSC can be attributed to completely unacceptable personnel cost and costs for chemicals per metre cubed produced which exceed the average by more than 100%. There is urgent need for SWSC to assess the procurement procedures for chemicals and to reduce the personnel related costs. Another unacceptable increase was reported by Kafubu WSC who need to address their high personnel and excessive energy costs. Chipata WSC failed to reduce the high operation costs which are a result of excessive personnel costs. Chambeshi WSC reported the lowest operational costs simply because they are at this stage operating below capacity.
Cost coverage at 85% collection

Chart 16 shows the cost coverage assuming an acceptable collection efficiency of 85% (benchmark for collection efficiency). Compared to the previous year, the indicator has deteriorated for most of the CUs. This means that at the current cost level and with the current tariffs most of the CUs are not able to cover their cost of operation even with an acceptable collection rate. This scenario is mainly due to the sharply rising costs, which are considered to be unjustified to a large extent. Therefore, CUs have to seriously accelerate their efforts to reduce their costs. Tariff increases to improve cost coverage will be considered based on a reasonable level of operational costs.

7.2 Performance of Local Authorities (LAs)

The reporting of the LAs was still quite poor, after considerable effort was put in on the part of the regulator, out of the 22 only 15 LAs submitted information. The level of service continues to deteriorate particularly due to the poor financial position of the LAs. Although most of them have followed the NWASCO directive to separate the water department with their respective accounts from the rest of their administration, the water and sanitation revenues continue to be used for other council activities to the detriment of maintenance of equipment and purchase of purification chemicals. This still explains the generally poor service levels.

Due to the limitation on reliable data, it was only possible to analyse a few key indicators. The water quality is a general problem in the service areas of most LAs, since treatment is not adequate and hardly any tests for analysis are carried out.
During the period between 1999 and 2003 the coverage in LAs serviced areas actually reduced on average from 45% to 42%. In comparison, the CUs have an average coverage of 72% with a continuous upward trend. According to the information submitted coverage is less than 50% for most of the areas serviced by LAs. The services were practically suspended in some LAs (eg Nyimba and Kawambwa). People in these areas are mainly depending on wells and hand pumps.

Most LAs supply water between 2 to 10 hours a day, apart from Kafue, Kapiri and Serenje which have slightly better results. The average usually does not exceed 5 hours.

The indicator may be distorted for 2003 since some LAs also benefited from the Government debt swap. Due to the very low tariff level this effect can create a big impact. The average collection efficiency in 2003 is estimated at about 25% for the 22 LAs. In comparison, the average collection efficiency for the CUs is at 74.5%.
### 7.3 Private providers

There are currently 7 licensed private providers:
- Chilanga Cement
- Kaleya Small holding
- KCM
- Maamba Coaleries
- Zesco
- Zambia sugar
- Zambia Revenue Authority (ZRA)

The private providers are companies which provide WSS service to their employees. The WSS is run as an auxiliary function and there is no dedicated water department per se. They do not have separate accounts for WSS or commercial activities like billing. Therefore, the regulatory performance requirements are minimal relating mainly to service level issues of coverage, hours of supply and water quality shown in Table 8.

#### Table 8: Performance of Private Providers

<table>
<thead>
<tr>
<th>Provider</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>2,700</td>
<td>100</td>
<td>24</td>
<td>20</td>
<td>90</td>
</tr>
<tr>
<td>Kaleya Small holding</td>
<td>2,000</td>
<td>100</td>
<td>24</td>
<td>54</td>
<td>39</td>
</tr>
<tr>
<td>KCM</td>
<td>4,300</td>
<td>100</td>
<td>24</td>
<td>107</td>
<td>30</td>
</tr>
<tr>
<td>Zesco</td>
<td>10,600</td>
<td>100</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Maamba Coaleries Limited</td>
<td>15,700</td>
<td>100</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Zambia Sugar Plc</td>
<td>16,836</td>
<td>100</td>
<td>24</td>
<td>48</td>
<td>100</td>
</tr>
<tr>
<td>Zambia Revenue Authority</td>
<td>(Transferred to SWSC)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>52,136</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NA = Data not available

### Coverage

All the private providers have 100% coverage for both water and sanitation in their areas of service. Service is mainly provided through household connections and a few communal or public taps mainly for junior staff and surrounding communities who are not necessarily their employees. In terms of sanitation they have a combination of septic tanks and water borne networks.

### Hours of supply

All private providers supply water 24 hours to customers with household connections, and 8 to 12 hours to the communal or public taps.

### Water Quality

The water quality is the main service level problem of areas serviced by private providers. The water quality is mostly poor for some private providers with respect to bacteriological aspects. The main source of the contamination seems to be the local sewage treatment ponds, which leak into the environment. This is a particular problem at Chilanga, Kaleya and Nampundwe. Among the private providers only Zambia Sugar supplies water which meets the national standard. During the past year Chilanga and Kaleya have been working on improving water quality by introducing on-line chlorinators though the operation of these is yet to be optimised. In addition, there is need to clean up and maintain the sewerage ponds in good working conditions.
### 7.4 Quality of submitted information

**Table 9: Quality of submitted information**

<table>
<thead>
<tr>
<th>Commercial Utilities</th>
<th>Quality of Submitted information in the Nwasco Information System</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The Annual Report</td>
<td>Remark</td>
</tr>
<tr>
<td>AHC-MMS</td>
<td>Good</td>
<td>Minor Omissions</td>
</tr>
<tr>
<td>Chipata WSC</td>
<td>Fair</td>
<td>Some figures had to be corrected</td>
</tr>
<tr>
<td>Katubu WSC</td>
<td>Good</td>
<td>Minor clarifications where necessary</td>
</tr>
<tr>
<td>Lusaka WSC</td>
<td>Fair</td>
<td>Late submission of data</td>
</tr>
<tr>
<td>Mulonga WSC</td>
<td>Fair</td>
<td>Late submission of data</td>
</tr>
<tr>
<td>NkanaWSC</td>
<td>Fair</td>
<td>Late submission of data</td>
</tr>
<tr>
<td>North Western WSC</td>
<td>Fair</td>
<td>Late submission of data</td>
</tr>
<tr>
<td>Southern WSC</td>
<td>Good</td>
<td>Good response time</td>
</tr>
<tr>
<td>Western WSC</td>
<td>Fair</td>
<td>Late submission of data</td>
</tr>
<tr>
<td>Chambeshi WSC</td>
<td>Fair</td>
<td>Late submission of data</td>
</tr>
<tr>
<td><strong>Local Authorities</strong></td>
<td>Poor to completely absent</td>
<td></td>
</tr>
<tr>
<td><strong>Private Providers</strong></td>
<td>Poor</td>
<td></td>
</tr>
</tbody>
</table>