Water Operators Partnerships

Africa Utility Performance Assessment

wsp water and sanitation program

UN HABITAT FOR A BETTER URBAN FUTURE

ESAR IWA-East and Southern Africa Region

Water Operators Partnerships-Africa Utility Performance Assessment

Final Report | June 2009

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Foreword

The present report provides a synthesis of the self-assessment and benchmarking exercise carried out among about 134 African utilities engaged in water supply and sanitation services. These assessments and the ensuing regional workshops are critical steps in the operationalization of the Water Operators Partnerships program for Africa (WOP-Africa). WOP-Africa is built on the premise that well-performing utilities will step forward and emerge as leaders and that the needs of the less well-performing utilities will be met in a professional and sustainable manner.

WOP-Africa is the regional branch of the Global WOP Alliance, a central tenet of the Hashimoto Action Plan launched at the Mexico World Water Forum (2005) and endorsed by the United Nations Secretary-General's Advisory Board on Water and Sanitation (UNSGAB). The basic strategy of WOP is to seek accelerated improvements through more intense and systematic knowledge sharing including support partnerships between operators.

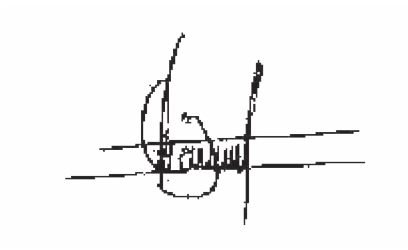
The initial step to promote and develop the WOP-Africa initiative was the Nairobi (December 2006) workshop which endorsed the idea and mandated UN Habitat and the Water and Sanitation Program (WSP) to pursue its preparation. The next step was the Johannesburg Workshop (April 2007) which brought together about 100 water utility executives representing 70 water utilities in 30 African countries. The Johannesburg Workshop defined the principles and governance structure for the WOP-Africa program and outlined the action plan for its operationalization including the continent-wide benchmarking exercise which is the object of this report.

The present synthesis report confirms that there are African utilities whose operating standards put them among the top 25 percent world-wide. It also shows that a large number of utilities have considerable room for improvement. Consequently, there is high potential for WOPs and progress through peer support and networking as utilities themselves are best placed to show how to move up the performance ladder.

Before this document was finalized, three sub-regional workshops were held to present and discuss the findings with participating utilities, and to facilitate face-to-face match-making opportunities. Although efforts have been made to verify the data with utilities, there are still cases of extreme outliers which are difficult to explain. Since the main audience of this report is utilities, the position taken by the authors has been to report these as indicated by the respective utilities rather than eliminate dubious data, which would have required the arbitrary determination of acceptable maximums and minimums.

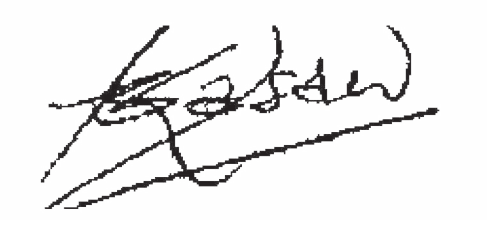
This position is consistent with the principle of self-assessment; the regional workshops have made many utilities keenly aware of the gaps and weaknesses of their management information systems.

We believe that by working together and sharing the immense utility experience that exists on the continent, WOP-Africa is more likely to realize its vision of an Africa with improved water and sanitation services for all. The findings in this report will help us to move forward in a strategic and focused manner.



Mamadou Dia

President, African Water Association (AfWA)



Hamanth Kasan

Chairman, Intertaional Water Association-Eastern and Southern Africa (IWA-ESAR)

Acknowledgements

This report was made possible first of all by the African water and sanitation utilities that responded to the benchmarking questionnaires and their membership associations, the Africa Water Association (AfWA) and the East & Southern Africa Region of the International Water Association (ESAR-IWA), which provided leadership to ensure a high rate of participation.

The benchmarking process was facilitated by the Water and Sanitation Program in Africa (WSP-AF). The WSP-AF 'WOP team' benefited from the support and contributions from many people, in particular: (i) Caroline van den Berg and Alexander Danilenko leading the IBNET initiative; and (ii) Mr. Dajan Hossana (WSS Sector Consultant) and Aladjin Dieng (Technical Director, Sénégalaise des Eaux) who were instrumental in collecting data from the utilities in West Africa.

The WSP-AF 'WOP Team' was led by Dennis Mwanza and included Dr. Josses Mugabi, Vivian Castro, Lilian Otiego, Jean Doyen, Alain Morel, Jecinter Hezron, Jane Wachuga, Norah Osoro and Bill Wandera.

Special gratitude goes to Dr. Josses Mugabi who was the principal author of the report and Vivian Castro who managed the benchmarking exercise and final production of this report.

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Executive Summary

Urban water utilities in Africa differ greatly in terms of size, organisational culture and operating environments. But they all share one major challenge, that is, expanding access to appropriate levels of services to their growing urban populations. This challenge can be seen clearly in the context of the MDGs where Africa lags far behind other regions. It is now widely acknowledged that the inefficiencies of African water utilities are a major cause of poor access to water services. In many systems, as much as a third of production is lost through physical and commercial losses and revenues are insufficient to cover operating costs let alone expand service coverage. Thus, it is becoming clear that the real potential in the African water sector lies in increasing efficiency in the existing systems - for example by reducing wastage, improving service quality and securing cash flows.

Water operator's partnerships (WOPs) have been proposed by utilities and their partners as a promising approach for improving the efficiency of water utilities and accelerating progress towards the MDG targets for water and sanitation. At the heart of these partnerships is a strategy of intense and systematic knowledge-sharing (including peer-support) between water operators as a way of bridging the capacity gaps that exist in many countries. However, limited availability of reliable performance information across the region presents a significant challenge to performance improvement through partnerships as it is difficult to tell which operators are doing well and should be emulated and which ones need support from peers. To support the partnering approach, the Water and Sanitation Program (WSP) in Africa facilitated a utility self-assessment exercise among selected African water utilities to ascertain their strengths and needs and identify the most promising areas for learning and peer-support under the evolving WOP platform. This report synthesizes the results of the assessment and provides a basis for further development of the WOP program in Africa.

The findings, despite the many problems in getting reliable data, broadly confirm the perilous state of the urban water sector in Africa. On average, utilities provide water to only about 65 percent of the population within their respective areas of jurisdiction while sewerage services coverage is only 36 percent. Sewerage coverage generally lags behind water in all regions but it is one of the areas where there is greatest opportunity for collaboration. The findings also show that Non-Revenue Water (NRW) is a major weakness for most utilities in the sample. In many systems, as much as a third of production is lost due to technical and commercial losses and, on average, utilities in the sample get revenue for only half of the water they produce.

In addition to the NRW challenge, most utilities in the sample are currently struggling to cover even their operating costs. In all regions less than half of the utilities can be considered financially viable and, for many, poor performance on collections seems to be the main problem.

Given the renewed focus on achieving the MDG targets for water and sanitation access on the continent, the evolving WOP-Africa program is well placed to connect utilities and facilitate knowledge sharing and capacity building - especially on improving technical efficiency and improving cash flows, areas that are critical to improving service coverage. Contrary to the view held by many sector observers, Africa is not entirely short of well-performing utilities. Many countries have improved the institutional framework making it possible for utilities to shift from crisis management to strategic planning and performance improvement, which can be emulated by those still lagging behind. However, improvement by emulation requires that utilities are found which, firstly, exhibit superior performance and, secondly, have objectives or specific strengths which match the weaknesses of those utilities seeking improvement. This assessment provides some indication of who the superior performers might be, but clearly more work is needed to confirm their superiority and ability to provide peer-support.

List of Acronyms

AfWA	African Water Association
ESAR-IWA	Eastern and Southern Africa Region of the International Water Association
GNI	Gross National Income
HRD	Human Resource Development
IWA	International Water Association
Lpd	Litres per day
m^3	Cubic meters
M&E	Monitoring and Evaluation
MDGs	Millennium Development Goals
MIS	Management Information Systems
NRW	Non-revenue water
O&M	Operation and Maintenance
OCCR	Operating Cost Coverage
OEI	Overall Efficiency Indicator
OPEX	Operating Expenses
PIP	Performance Improvement Plans
PSP	Private Sector Participation
SPI	Staff Productivity Index
UN	United Nations
UN-DESA	United Nations Department of Economic and Social Affairs
USAQ	Utility Self Assessment Questionnaire
WSP	Water and Sanitation Program
WOP	Water Operators Partnerships

Introduction

Clean drinking water shortages continue to be a significant problem in many parts of Africa. The quality and coverage of services from most of the urban water utilities remains poor. The situation is becoming worse with high urban population growth rates reported at over 2-6 percent per year. Keeping pace with the rapid pace of urban population growth is a key challenge for urban water utilities in Africa. For a long time, measures taken by governments to address service coverage gaps have concentrated on building new infrastructure with little attention given to improving efficiency and productivity of water utilities. However, estimates of finance requirements for water and sanitation expansion point to large funding gaps and prospects of private sector investments appear bleak. These realities have compelled major players in the water sector to seek alternative approaches to improving water service coverage.

Alternative approaches include capacity-building and knowledge sharing through Water Operators Partnerships (WOPs). These partnerships have recently been recognized by utilities and their partners as a promising approach for improving the performance of water operators and accelerating progress towards the Millennium Development Goal (MDG) targets for water and sanitation services. At the most basic level, WOPs seek to bridge the capacity gaps that exist in many developing countries through intense and systematic knowledge-sharing including peer support partnerships between public operators. To support this process, WSP-Africa facilitated a utility self-assessment exercise among selected African water utilities to ascertain their strengths and needs and identify the most promising areas for learning and peer-support under the evolving WOP platform. This report synthesizes the results of the assessment and provides a basis for further development of the WOP program in Africa.

1.1 Purpose of this Report

The primary aim of this report is to take stock of African utilities' performance in a few key areas in order to provide a sound basis for further development of the WOP program in Africa. Specifically, the report aims to assist utilities in identifying their strengths and weaknesses as well as best practices under the WOP-Africa priority themes in order to uncover potential partnerships for improving performance. The end is not, therefore, the collection of metric data or the calculation of performance indicators, but rather the identification of performance gaps, benchmarking against superior performers and, ultimately, the implementation of performance improvements based on quantitative and qualitative data.

The primary audience of the report is the utilities themselves - hence the stand on publishing the data as received after enquiries and clarifications and showing wide discrepancies and possible abnormalities. Sector professionals and officials engaged in the MDG challenges for water and sanitation services will also find this report useful as it is founded on the recognition that the drive to accelerate progress towards the MDGs for urban HH has to focus on increasing the performance of the utility through reform and capacity building.

1.2 The MDGs Challenge Facing Water Utilities in Africa

The African continent poses the most difficult challenge for achieving the water and sanitation MDG targets. The MDGs for water supply and sanitation services require a doubling of the pace of expansion of coverage in water supply in urban areas and a tripling for sanitation. Reaching 175 million urban customers by 2015 as required by the MDG target for urban water services implies an average of approximately 2 to 3 million new connections per year (5 to 8 inhabitants per connection). This in turn would call for roughly 7,000 to 10,000 new connections per day for Africa as a whole –more than double the present rate. Most of these new customers will be poor households living in inner city slums or peri-urban settlements as the more affluent are already connected.

Recent projections show that following the 'business as usual' trends, Sub-Saharan Africa would only reach the MDG targets for water services by 2040, and those for sanitation by 2076 (United Nations Development Programme, 2006). The WOPs initiative recognises the critical role of WSS utilities in the drive towards the MDGs for urban water and sanitation services. This presents an enormous challenge and an impetus for relevant institutions to work together to accelerate progress. It is also becoming clear that the real potential in the African water sector lies in increasing the efficiency in the already existing systems; reducing wastage, improving service quality and securing cash flows can increase coverage and revenues in the existing systems. This performance improvement approach is consistent with the evolving 'soft path' to water which argues for complementary investments in efficient technologies and human capital to increase service coverage (Wolff and Gleick, 2002).

The previous Water Utilities Partnership (WUP, 1996-2006) contributed significantly to the formulation of policies and practices through which African utilities could improve their performance and, most importantly, extend their services to the poor (see Box 1).

In the same line, two related WUP mantras have been broadly disseminated and are

Box 1.1. WUP Vision for African Utilities

Efficient, well-managed, accountable and responsive utilities which provide equitable, sustainable, quality water and sanitation in their areas of operation.

Sector policies and institutions providing the right incentives for utilities to:

- extend services to the poor through partnerships with key stakeholders
- foster a culture of capacity-building, knowledge sharing and networking
- ensure a sound environment and sustainability of water resources

still relevant to the WOP program. Firstly, a reasonably efficient and financially viable utility is a pre-condition for serving the poor at scale. Second, improved utility performance is not sufficient to serve the poor as utilities need to work in partnership with local community-based organizations and private actors. African policy makers and sector planners readily recognized the potential and the relevance of utility partnerships and have taken steps to operationalise a WOP program on the continent that builds on WUP.

1.3 Responding to the Challenge: The WOP-Africa Program

1.3.1 The global WOP movement

The WOP-Africa program is part of the Global WOP initiative - a key element of the Hashimoto Action Plan announced by the United Nations Secretary-General's Advisory Board on Water and Sanitation during the 4th World Water Forum held in Mexico (2003). The Hashimoto Action Plan proposed WOPs as a tool for building the capacity and improving the performance of water operators in order to step up progress toward the MDG targets for water and sanitation. The WOP initiative was endorsed by UN-DESA in 2005. UN-Habitat was tasked with the responsibility for operationalising it through separate but coordinated regional initiatives under the Global WOP Alliance.

1.3.2 The Jo-burg action plan for launching WOP Africa

African water utilities through their membership associations, namely, the African Water Association (AfWA) and the Eastern and Southern Africa Region of the International Water Association (ESAR-IWA), have taken up the WOP concept and, with the support of UN-Habitat and WSP-Africa, have defined and recently launched[1] WOP-Africa as their branch of the global WOP movement.

[1]The WOP-Africa program was launched on February 25, 2008 during the AfWA bi-annual congress held in Cotonou, Benin

The utilities and stakeholders gathered first in Nairobi (December 2006) to review and eventually endorse the WOP approach. They subsequently met in Johannesburg (April 2007) to lay down the goals, guiding principles, priority themes and structure of WOP-Africa.

Participants of the Johannesburg *(Jo-burg)* workshop agreed on an action plan that would be used to develop the initial three-year business plan covering the period mid-2009 to mid-2012. The Jo-burg Action Plan included self-assessment followed by three sub-regional workshops. The three workshops allowed participating utilities to (i) review their internal strengths and weaknesses and (ii) identify priority areas for mutual support and capacity development for accelerated progress toward the MDGs with the long term goal of achieving universal access to water and sanitation services.

The Jo-burg Workshop prioritized the following five themes to be the focus of the WOP-Africa action plan for knowledge sharing and capacity building:

- Management Information Systems: The aim is to assist utilities to establish or strengthen management information systems necessary for monitoring and evaluation and for performance assessments and benchmarking aimed at continuous improvement of services.
- Services to the Poor: The focus will be to strengthen pro-poor policies and strategies that define financing and operational mechanisms and tariffs that ensure equitable provision of services to all urban residents.
- WSS/MDGs Roadmap: The aim is to support water operators as they develop roadmaps and action plans with a long-term planning and financing perspective to accelerate progress towards the achievement of MDGs.
- Human Resources Development & Capacity Building: In order to foster a vibrant water sector, human resource development must be a top priority. WOP- Africa will catalyze and encourage utility-to-utility exchange of know-how and networking on training and human resource development.
- Infrastructure Development and Asset Management: Utilities have asked for support in asset planning and management. WOP-Africa will support the development and implementation of sound asset management plans with clear separation of operational and ownership roles and responsibilities.

These priority themes will guide structured learning under WOP-Africa and therefore formed the basis for the design of the utility self-assessment exercise and the subsequent synthesis of results presented in this report. In addition to the top five

themes, the following themes were strong contenders at the Jo-burg workshop: (i) communications, (ii) customer relations, (iii) access to sanitation, and (iv) WSS services for small towns. Participants in the sub-regional workshops identified sources of related expertise and good practice in all of these areas.

1.3.3 The three WOP Africa regional workshops

The three WOP Africa workshops took place over the period July 2007 to October 2008 starting with the Kampala workshop (July 2007) organized by Uganda's NWSC which gathered utility managers and sector policymakers from Eastern Africa. It was followed by the Dakar workshop (September 2008) gathering utilities from Western & Central Africa including a contingent of senior managers from six Nigerian utilities. The last workshop directed at utilities from Southern African as well as at a number of Eastern African utilities took place in Maseru (November 2008). Each workshop gathered about 60 to 100 utility managers and representatives from other sectors and partners. All in all, more than 240 utility managers from more than 80 utilities have been exposed to the WOP concept and have participated in its preparation.

The three workshops followed similar programs meant to sequentially address the following objectives:

- to share the results of the continent-wide benchmarking exercise and validate the findings of the benchmarking exercise conducted after Jo-burg (end-2007 and early 2008);
- to identify priority themes for exchange and learning and related good practices;
- to test the demand for peer support partnerships and help utilities identify potential 'matches'; and
- to learn from experience the modalities and success factors for such utility-to-utility partnerships (U2U).

The priority themes for exchanges and mutual support emerging from the workshop cover a wide range of issues including sector policies as well as technical and managerial approaches and practices. The workshop largely confirmed the broad themes identified in Jo-burg with the notable addition of customer care and change management. They also showed the interest of utility managers for practices addressing specific problems - for example, recovery of illegal and inactive connections, metering and billing systems, staff redundancy management and recovery of water bills from public sector entities.

The workshops confirmed the demand for utility to utility partnerships (U2U) as participants expressed interest for more

than 100 specific matches. The self-assessments show that U2Us are in fact already taking place on a significant scale among African utilities as well as with European partners. The cases of U2U reviewed by the participants showed that U2U come in many shapes and forms ranging from relatively short term interventions focused on a specific theme to broader more comprehensive partnerships involving periodic joint meetings of their management teams and their boards as well as staff exchanges. As a result of the discussions and relationships forged during the regional workshops, several utilities have initiated U2U partnerships. It is fair to say that the workshops have been an effective springboard to kick-start the WOP movement in Africa.

1.4 Overview and Scope of the Utility Self-Assessment Exercise

1.4.1 Overview

Consistent with the Jo-burg Action Plan for operationalising the WOP-Africa program, a number of water utilities in Africa completed a self-assessment of their internal strengths and weaknesses using a comprehensive utility self-assessment questionnaire (USAQ) adapted from the IB-NET and SEAWUN assessment tools. The assessment covered two dimensions: (i) assessment of performance, strengths and needs in the priority themes as outlined above; and (ii) assessment of the potential for peer-support partnerships between water operators in Africa. The USAQ contained both quantitative and qualitative questions relating to:

- **Utility profile:** type of services provided and institutional set-up;
- **Technical information:** service area/coverage, consumption and production;
- **Operations:** billings and collections, operating expenses (OPEX,) service continuity, metering, monitoring and evaluation, benchmarking and performance improvement planning;
- **Human resources:** staffing and training;
- **Customer care:** customer complaints/ procedures and continuity of services;
- **Pro-poor service delivery:** connection fees and tariffs, pro-poor service options and strategies;
- **Infrastructure and asset management:** sources of raw water, treatment methods, production capacity, network information, and capital investment;
- **MDGs roadmap:** reforms, long-term planning and financing, and potential areas for partnerships; and
- **Previous experience with utility partnerships:** context, areas covered, financing and contractual arrangements.

1.4.2 Scope and limitations

The primary objective of the USAQ was to uncover potential partnerships between utilities by identifying the areas in which each operator is performing well *(strengths)* and areas in which the operator is not performing well as compared to its peers *(weaknesses)*. A secondary objective of the assessment was to move towards standardizing the indicators for the sector in Africa by starting a dialogue on the most appropriate indicators.

Although the assessment largely utilized the USAQ data, actual performance data was obtained from multiple sources including databases maintained by the International Benchmarking Network for Water and Sanitation Utilities (IB-NET)[2] and national regulators. Given the limited timeframe and the practical difficulty of getting utilities to complete the USAQ in time, the research team decided to source actual performance data from a variety of existing sources rather than rely entirely on the USAQ. Nonetheless, filling out the questionnaire was the entry point for each utility to participate in the sub-regional workshop and the WOP-Africa program. Out of a total 156 utilities who were given questionnaires, more than half (99 utilities) responded. Table 1.1 shows the number of participating utilities and the sources of data.

Overall, the assessment includes data from 134 water operators in 35 countries. The majority (99) submitted data through the USAQ while data for 35 operators was obtained from existing databases maintained by IB-NET and national regulators. All data was entered into

Table 1.1: Number of participating utilities and sources of data

Sub-Region	Data Sources			
	USAQ	IB-NET	Regulator	Totals
Eastern	32	2	9	43
Western	49	1	0	50
Southern	18	23	0	41
Totals	**99**	**26**	**9**	**134**
USAQ Response				
Total Sent	156			
Total Returned	99			
Response rate (%)	63			

[2]www.ib-net.org

aspreadsheet and checked for accuracy, completeness and reliability. Questionable values and data gaps were rectified through follow-up communications with focal persons within each participating utility. In addition, data and findings of the assessment were presented at three utility sub-regional workshops held in June (Kampala), September (Dakar) and October (Maseru) of 2008 to validate its accuracy and reliability. In these workshops, the utilities themselves had a chance to point out data inconsistencies and misrepresentations and suggested ways of improving indicators, data quality and reporting.

Some limitations of this exercise should be noted. First, the analysis presented in this report is based on data for a single year (2006). Thus, the analysis provides only a snapshot of performance. The limited availability of reliable utility performance data across the region presents a significant challenge to any benchmarking exercise that seeks to establish trends in performance. At present, only a few utilities are able to provide even a limited set of performance statistics. There is hardly any comprehensive assessment of performance by which inter-utility comparisons can be made over time. While the USAQ tool itself was comprehensive, many utilities do not have the supporting information systems to easily and accurately respond to the questionnaire. Future benchmarking exercises will expectedly improve on the data and experience gained so that, over time, an African water utility dataset will develop allowing for further analysis of performance (such as trends and drivers) which would further inform partnership initiatives.

Secondly, indicators tend to portray an incomplete picture of a utility's performance as they often exclude other contributing factors such as accountability of institutions and incentives that are not readily quantifiable. Moreover, utilities face different social, political and financial constraints which need to be taken into account when evaluating performance. For these reasons, the indicators presented in this assessment should not be interpreted in a rigid fashion. Rather they should be taken only as indicative of the strength or weakness of a utility relative to its peers. The analysis is meant to provide the initial motivation for utility managers to 'pay each other a visit'. This first visit could be the beginning of a long-term and mutually beneficial partnership. The next section provides an overview of the utilities for which performance data was obtained. Analysis of performance and inter-utility comparisons are discussed in Chapter 2.

1.5 Overview of Participating Water Utilities

The self-assessment exercise sought to cover a broad spectrum of water utilities in Africa. **Table 1.2** shows the number of utilities represented by region

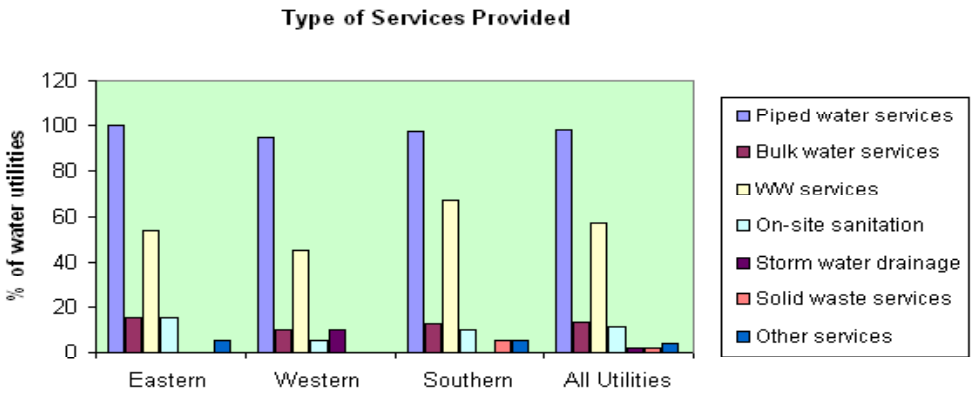
and by country. In total, 35 countries are represented. A list of all participating utilities (with names and nature of service area, whethere single city or national) is presented in **Annex A.** A summary of the type of services provided by the utilities is shown in **Figure 1.1.**

Almost all utilities (97 percent) provide piped water services. Of these, about 20 percent also provide bulk water to other utilities. About half (44 percent) of utilities provide both water and wastewater services while 42 percent provide water only. The Southern region has the highest number of utilities (68 percent) providing wastewater services. Only one utility in the sample (ONAS, Senegal) provides wastewater services only.

In terms of population served there is a marked regional variation in the size of utilities **(Figure 1.2, Tables 1.3 and 1.4)**.Small utilities (serving <100,000 people) are to be found predominantly in the Eastern region while medium size utilities (serving 100,000-1,000,000) are common in the South. Most of the large utilities (>1,000,000) are in the Western region where the urban water sector is largely centralised. Furthermore, of the 134 participating utilities, the majority (68 utilities) serve single cities/municipalities; 39 utilities operate at the regional level (regional utilities); and 25 utilities operate at the national level (national utilities). Single city utilities are to be found predominantly in the Eastern and Southern regions.

There are no single city utilities in the Western region. The sample also included two asset holding companies - DAWASA (Tanzania) and SPEN (Niger). The institutional structures of the utilities are

Figure 1.1: Type of services provided



Region	Countries	No. of utilities
Eastern	Burundi	1
	Democratic Rep. of Congo	1
	Djibouti	1
	Ethiopia	6
	Kenya	7
	Madagascar	1
	Rwanda	1
	Seychelles	1
	Sudan	3
	Tanzania	20
	Uganda	1
Total Eastern	11	43
Western	Benin	1
	Burkina Faso	1
	Cape Verde	1
	Cote d'Ivoire	1
	Gabon	1
	Gambia	1
	Ghana	1
	Liberia	1
	Mali	1
	Mauritania	1
	Niger	1
	Nigeria	34
	Republique De Guinee	1
	Senegal	2
	Togo	1
	Tunisia	1
Total Western	16	50
Southern	Lesotho	1
	Malawi	4
	Mauritius	1
	Mozambique	5
	Namibia	3
	South Africa	18
	Swaziland	1
	Zambia	8
Total Southern	8	41
	Total Africa	**134**

Figure 1.2: Regional variation in population served (2006 figures)

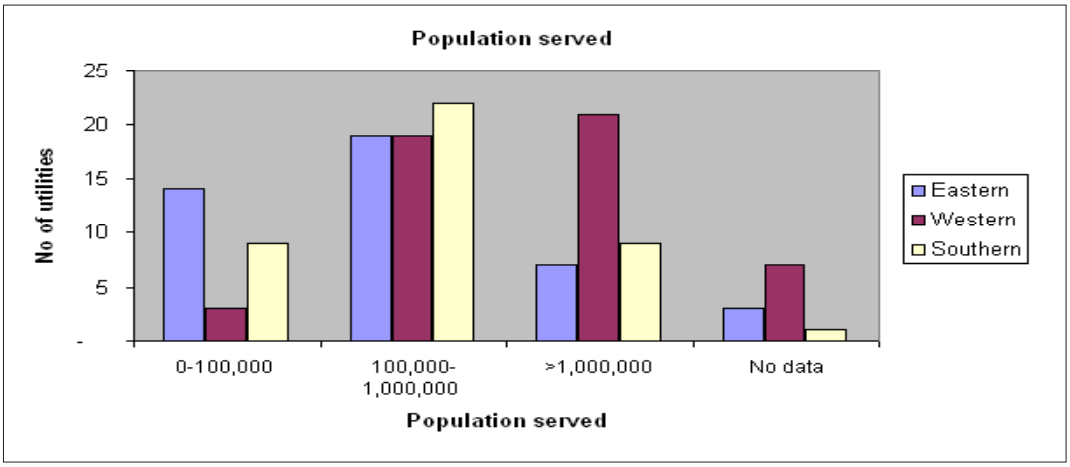


Table 1.3: List of largest utilities by population

	10 Largest Utilities (By population served – 2006 data)	
1	Rand Water (South Africa)	11,000,000
2	Ghana Water Company Limited (Ghana)	9,361,760
3	Société Nationale d'Exploitation et de Distribution des Eaux (SONEDE, Tunisia)	8,300,000
4	Société de Distribution d'Eau de Cote d'Ivoire (SODECI, Cote d'Ivoire)	6,342,072
5	Lagos Water Corporation (Nigeria)	5,573,855
6	eThekwini Metro (South Africa)	4,134,679
7	Sénégalaise des Eaux (Senegal)	3,823,460
8	Johannesburg Water (South Africa)	3,692,323
9	Cape Town Metro (South Africa)	3,229,503
10	Nairobi Water & Sewerage Company (Kenya)	3,000,000

summarised in Figures 1.3 and 1.4 with each type having significant implications on the operator's decision-making autonomy. The majority of utilities (49) are state owned enterprises operating under commercial law with Eastern utilities being the most represented under this category. A sizeable number of utilities (24) operate as statutory organisations following state requirements. The sample of utilities also includes ring-fenced government/ municipal departments (15) and a small number of privately owned companies operating under commercial law (5) as well as a few asset holding companies (3).

Institutional models involving private sector participation (PSP) are limited. Out of 134 utilities, more than half (71) do not have any form of private sector participation. A total of 39 utilities (29 percent) have some sort of private sector involvement in their operations through service contracts, while only seven utilities (5 percent) have more elaborate PSP models. Table 1.5 lists the few utilities with more elaborate forms of private sector participation.

On the other hand, although PSP is uncommon in the sample, almost half (43 percent) of the utilities operate under performance contracts with central or local governments. This arrangement is particularly common among utilities in the Eastern region (60 percent of utilities in this region have performance contracts). For instance, the National Water and Sewerage Corporation (NWSC) of Uganda engages in annual and multi-year performance contracts with the central government. Performance contracts also exist in all utilities in Zambia, Lesotho and

Table 1.4: List of smallest utilities by population served

	10 Smallest Utilities (By population served - 2006 data)	
1	Welkite Town Water Supply and Sewerage Enterprise (Ethiopia)	10,225
2	Naivasha Water, Sewerage & Sanitation Company (Kenya).	24,000
3	Lindi Urban and Sewerage Authority (Tanzania)	28,150
4	Oshakati Municipality (Namibia)	31,000
5	FIPAG Quilimane (Mozambique)	31,598
6	Bukoba Urban Water and Sewerage Authority (Tanzania)	46,270
7	Harar Water Supply & Sewerage Services Authority (Ethiopia)	48,900
8	Municipality of Walvis Bay (Namibia)	54,025
9	Singida Urban Water and Sewerage Authority (Tanzania)	54,165
10	Sumbawanga Urban Water and Sewerage Authority (Tanzania)	55,772

Figure 1.3: Number of participating utilities by institutional set-up

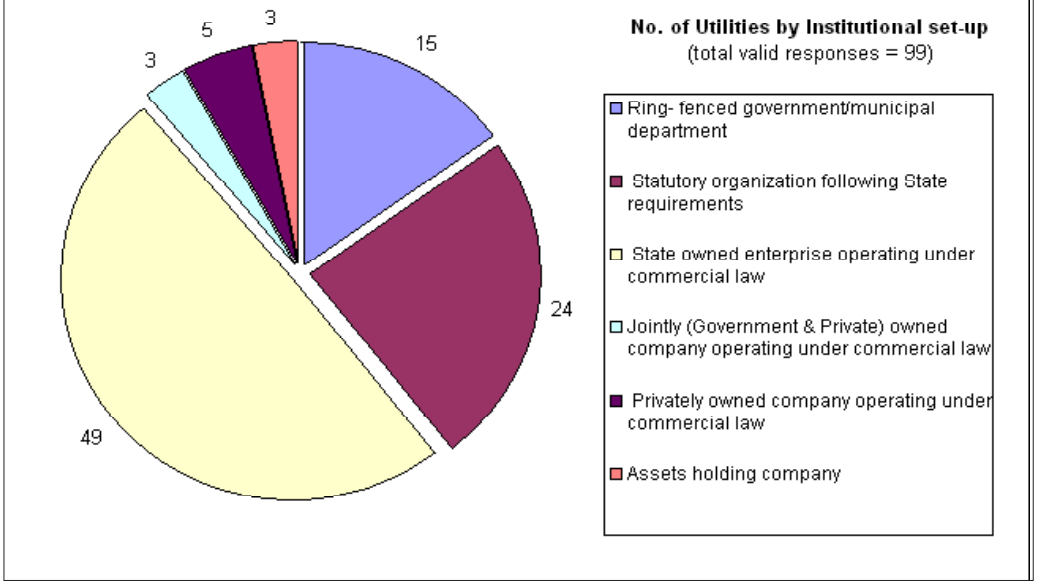


Table 1.5: Utilities with more elaborate forms of PSP

Utility Name	PSP Model
Ghana Water Company Limited (Ghana)	Management contract
National Water & Electricity Company (Gambia)	Management contract
ELECTRA S.A. - Empresa de Electricidade e Agua (Cape Verde)	Lease contract
Sénégalaise des Eaux (SDE, Senegal)	Lease contract
Aguas de Mozambique, S.A.R.L (Mozambique)	Lease contract
Societe de Distribution d'Eau de Cote d'Ivoire (SODECI, Cote d'Ivoire)	Lease contract
Société d'Energie et d'Eau du Gabon (Gabon)	Concession

Swaziland. The contracts have an average duration of five years and cover technical performance, service indicators, efficiency and financial indicators, as well as human resources issues.

Third party monitoring and oversight is also present in 58 percent of the utilities, suggesting that serious attention is being paid to enhancing external accountability for results. However, effective implementation of performance contracts depends on how internal incentive mechanisms are established. Utilities such as SDE (Senegal) and NWSC (Uganda) have performance-based management systems and enforce penalties for poor performance. Given their attractiveness as instruments for driving improvements in utility performance, performance-based contracts are becoming increasingly popular in the African water sector.

As such, their design and implementation is a promising area for knowledge sharing and learning between utilities.

Overall, the above comparison of services, institutional set-up and size of utilities shows that even though the assessment exercise may not have been representative of water utilities in Africa, it certainly does cover a broad spectrum of water utilities. The exercise was carried out across many countries and many types of institutions providing tremendous opportunities for learning.

Chapter 2 of this report will compare the 134 water utilities on the basis of selected performance indicators to identify the relatively stronger and weaker utilities in each area, as well as promising areas for learning and peer-support partnerships.

2. Utility Performance Assessment

Based on the data provided by participating utilities and that obtained from other sources, a broad range of indicators was selected to enable a comparative assessment of the different aspects of water utility performance. Consistent with the overall objective of the assessment exercise, indicators were selected on the basis of their usefulness in capturing performance differences in the key priority themes of the WOP-Africa program. As these themes were generally stated, it was necessary to translate them into corresponding performance categories and indicators.

Table 2.1 shows the list of indicators used under each theme. All quantitative indicators are based on standard IB-NET definitions, and the base data used is for a single year (2006). Performance profiles of utilities on these indicators were derived from basic data provided by the utilities themselves and computations using the formulas given in Annex B.

Given the large amount of information that results from any benchmarking exercise, it is important to be clear on how comparisons are made between water utilities. First, the performance of any utility in this sample was compared with those of other participating utilities and not to any other objective norm, such as national or international standards.

This means that if all utilities in the group[3] performed exceptionally, then even the lowest in the group cannot be said to be poorly performing. Similarly, if the entire group performed poorly, then even the top in the group cannot be said to be a good performer.

In this report, we considered a reasonable target for improving utility performance as the level of the lowest value within the top quartile (i.e. the top 25 percent). This is the same approach used by Tynan and Kingdom (2002) in their paper on setting performance targets for water utilities. Using data from 123 utilities in 44 developing countries, Tynan and Kingdom (2002) propose 'best practice' targets for developing countries on the basis of the performance of the top 25 percent of developing country utilities in their sample. Thus, for most of the indicators calculated in our sample, strong and weak utilities were identified based on the performance of the top 25 percent of the group. As will be noted later, for most of the indicators, this target performance level was fairly consistent with the 'best practice' targets proposed by Tynan and Kingdom (2002). Moreover, during the sub-regional workshops, utility managers discussed these targets and agreed that they were reasonable and achievable in the African context.

[3]Utilities were grouped into geographical sub-regions (Eastern, Western and Southern). The reason for this was to encourage utilities to look within their sub-region for a partner - and only look outside the sub-region if there are no "good performers". This is because of the high cost implications of travel in Africa.

Table 2.1: Selected indicators used for comparative performance assessment

WOP-Africa Theme	Performance Category	Indicators
Operational Performance and Management Information Systems (MIS)	Technical performance	1. Service coverage 2. Water production and consumption 3. Non-revenue water
	Financial performance	4. Average tariff and unit operational cost 5. Collection ratio 6. Collection period 7. Operating cost coverage
	Quality of MIS	8. % of USAQ response
Human Resource Development and Capacity Building	Human resource utilisation	9. Total staff per 1000 connections 10. Labour cost as a % of total operating costs
	Human resource development	11. Staff training participation rate 12. Total no. of training days
Customer Care and Services to the Poor	Customer service	13. No. of customer complaints per1000 connections 14. Continuity of supply (hours of service) 15. Average response time to address a complaint
	Affordability of services	16. Average per capita water bill as a % of GNI per capita 17. Monthly household bill for HH consuming 6m3 per month as % of monthly GNI per capita 18. Water connection charge as % of GNI per capita
Infrastructure Development	Capital investment	19. Capital expenditure in last 5 years (per connection)

Also, for each quantitative indicator, we calculated the mean value which is usually helpful in gauging median performance. However, since the assessment exercise did not utilise statistical sampling, no inference can be made about the performance of non-participating utilities based on the mean value. Individual participating utilities can compare their performance against the group average. But as earlier suggested a better target for improving performance would be to move up within the top quartile of the group. We also compared the mean values with those from other regions in order to determine how this sample of African utilities is faring in comparison to other utilities elsewhere in the world. Here, we made use of the IB-NET data performance dataset to compute the average values of key indicators for utilities from East and Central Asia (ECA), Latin America and the Caribbean (LAC), and East Asia and the Pacific (EAP).

Another way of ensuring meaningful comparisons between water utilities is by use of an overall efficiency indicator (OEI). This indicator attempts to provide a global measure of utility efficiency by comparing the volume of water for which the utility collects revenue and the total volume of water it produces. The OEI is intuitive, and although not entirely perfect, provides a good indication of the overall position of a utility, allowing us to make overall conclusions on performance.

In the following sections, we present the summary of results for all the utilities where data was available. The presentation of results is organised according to the themes and performance categories shown in Table 2.1. A number of graphs are presented with the top quartile (top 25 percent) values marked for each indicator, where appropriate, and also taking into account the nature of the indicator (e.g. for NRW percent and staff productivity, the lower quartile is used as lower values indicate good performance). In addition, while the top quartile values for most indicators represent the suggested cut-off point for identifying strong and weak performance, this cut-off point may not be appropriate for all indicators. For example, the top quartile may not be a relevant target for per capita consumption - as very high values may indicate wasteful use of water while very low values may point to insufficient availability of water for basic public health.

2.1 Operational Performance and Management Information Systems

2.1.1 Technical performance

Technical performance was assessed using three key indicators:

- coverage - defined as the percentage of the population with access to water or sewerage services (either with direct service connection or within reach of a public water point) as a percentage

of the total population under a utility's area of responsibility

- water production and consumption - both expressed by population served per day (production included purchased water, if any)
- metering level - defined as number of connections with operating meter as a percentage of total connections
- non-revenue water - defined as the difference between water supplied and water sold (i.e. volume of water 'lost') expressed as a percentage of net water supplied

Coverage: This is a key indicator for the MDGs but its assessment is usually affected by whether the data on population is up to date and accurate. An estimate of the population with direct service connections is fairly easy to make if a utility has good customer records. But estimating the population within reach of a public water point is problematic. Notwithstanding these data problems, a total of 118 utilities provided fairly credible base data for water coverage, while base data for sewerage was available for only 38 utilities out of the 59 utilities that provide sewerage services.

Figure 2.1 shows the regional averages and the average for all utilities in the sample. Utilities from Southern region have on average the highest coverage for both water and sewerage. But sewerage coverage lags behind water in all the regions. For the Western region, there is limited data on coverage of sewerage services. The mean value shown in Figure

Figure 2.1: Regional variation in service coverage

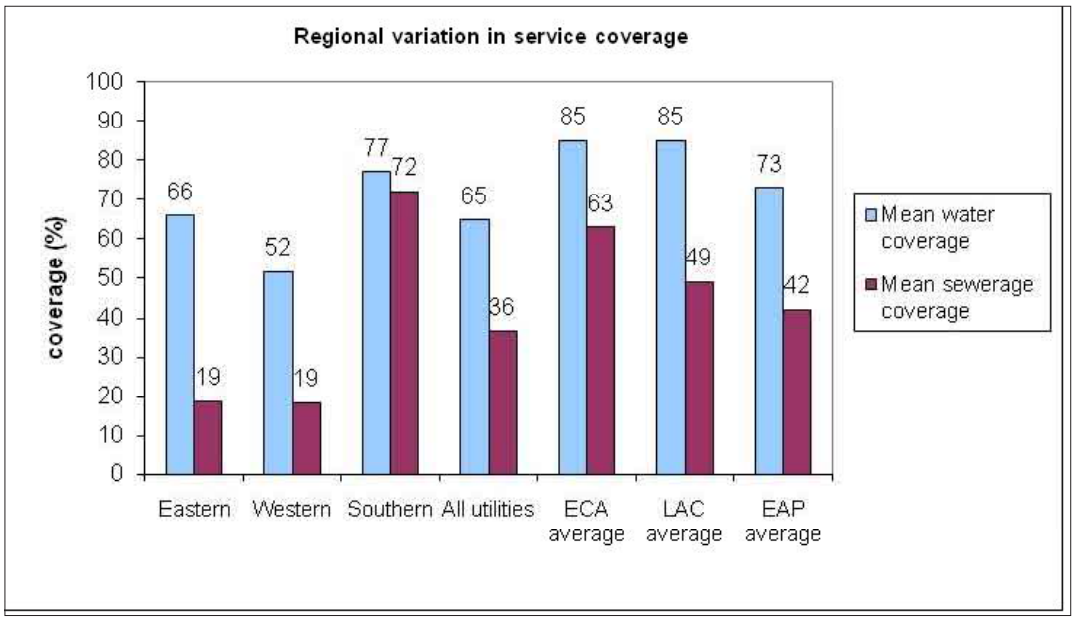


Figure 2.2: Water coverage for utilities in the Eastern region

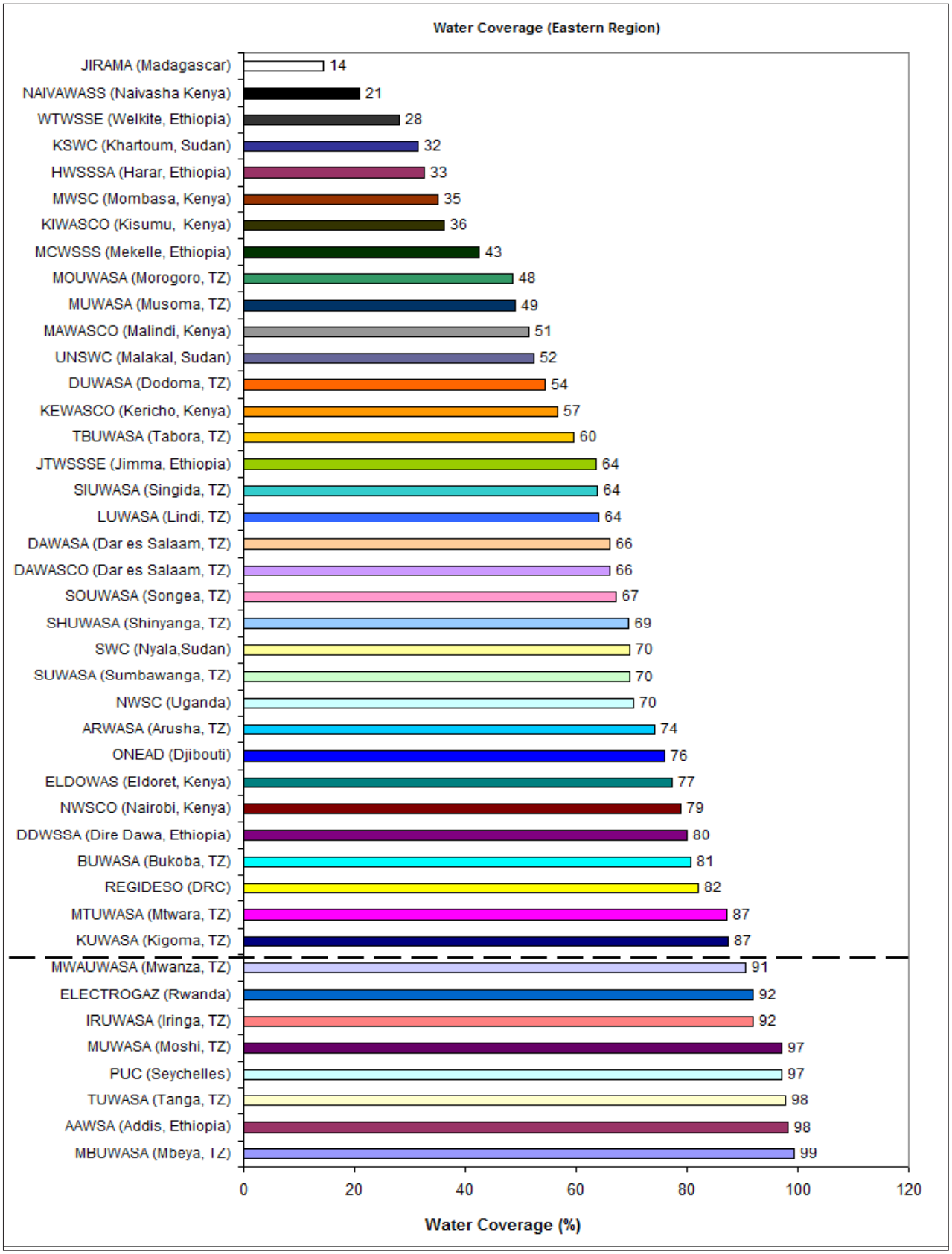


Figure 2.3: Water coverage for utilities in the Western region

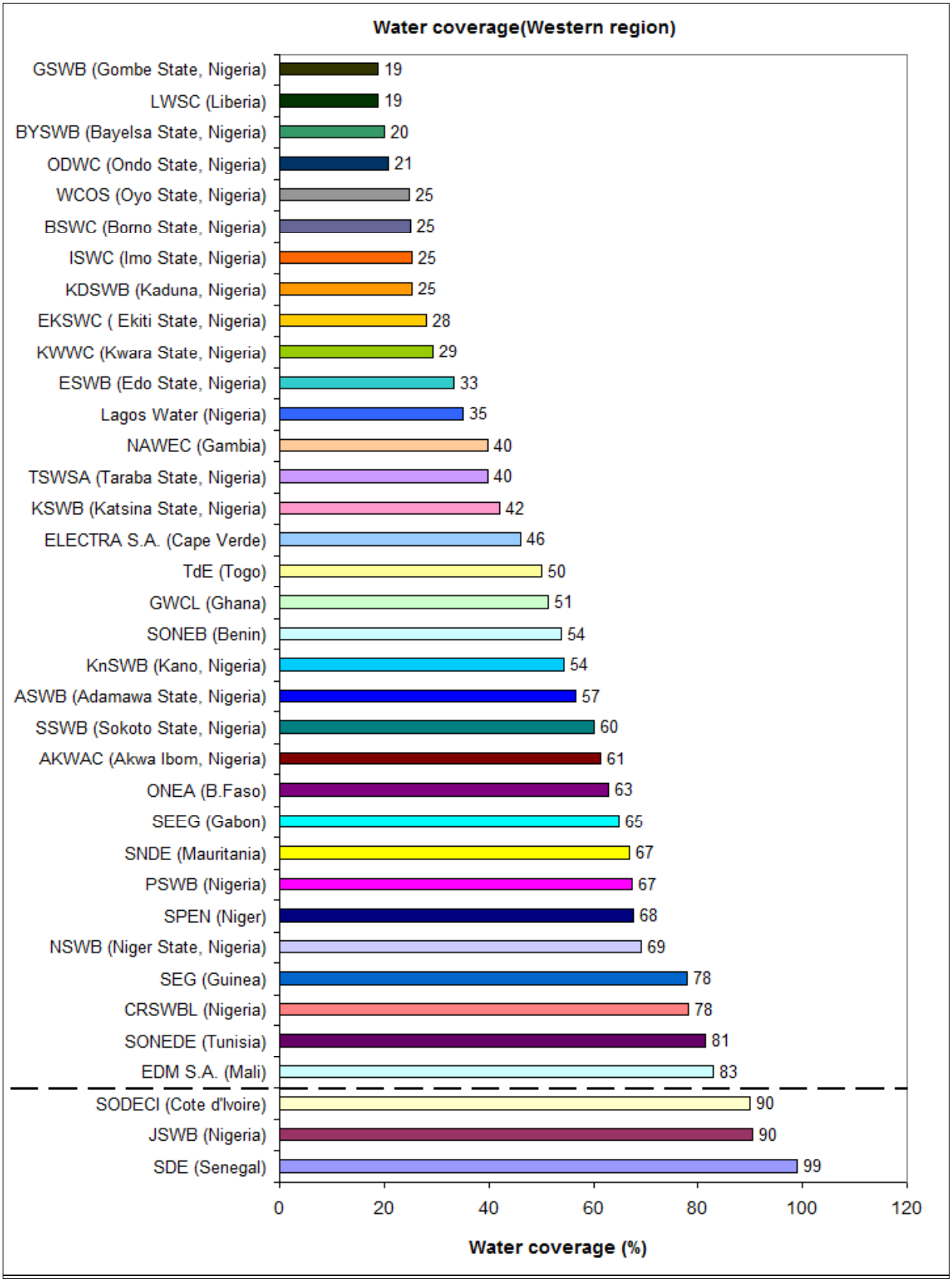


Figure 2.4: Water coverage for utilities in the Southern region

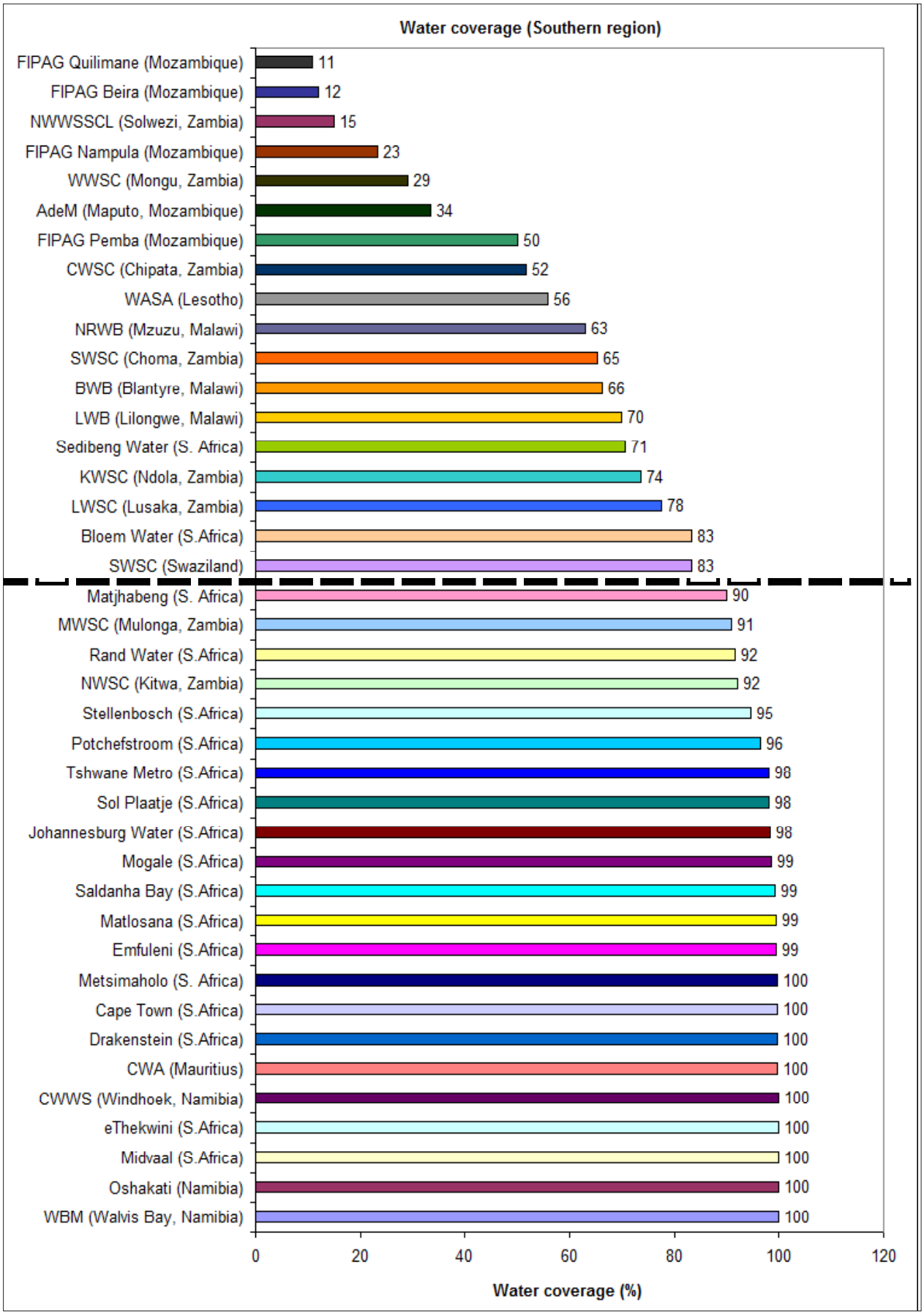


Figure 2.5: Sewerage coverage for utilities in the Eastern region

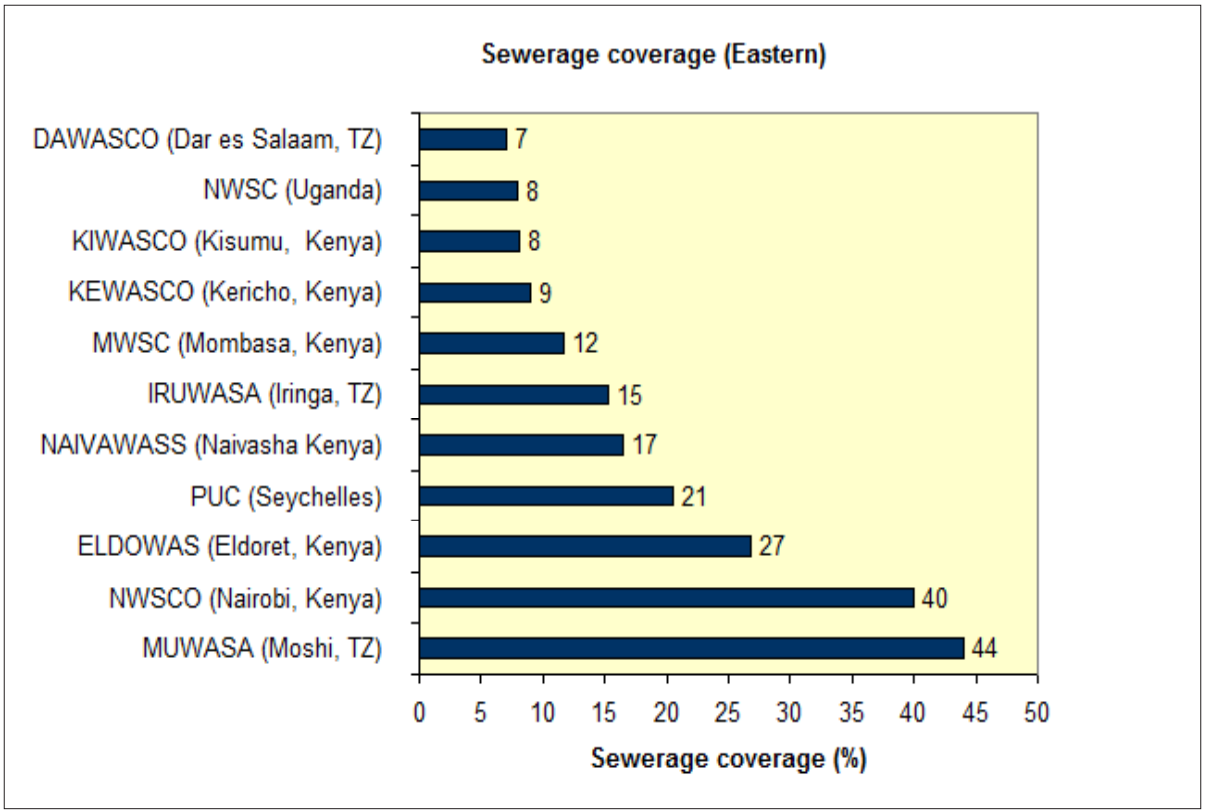


Figure 2.6: Sewerage coverage for utilities in the Western region

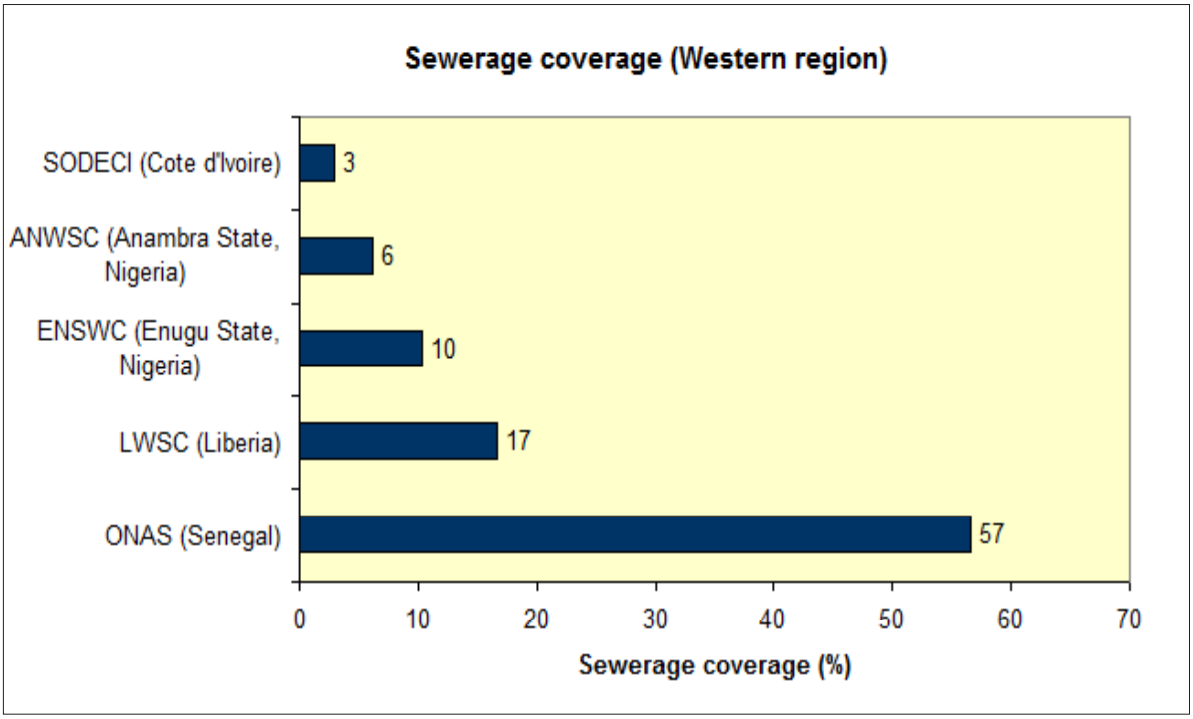
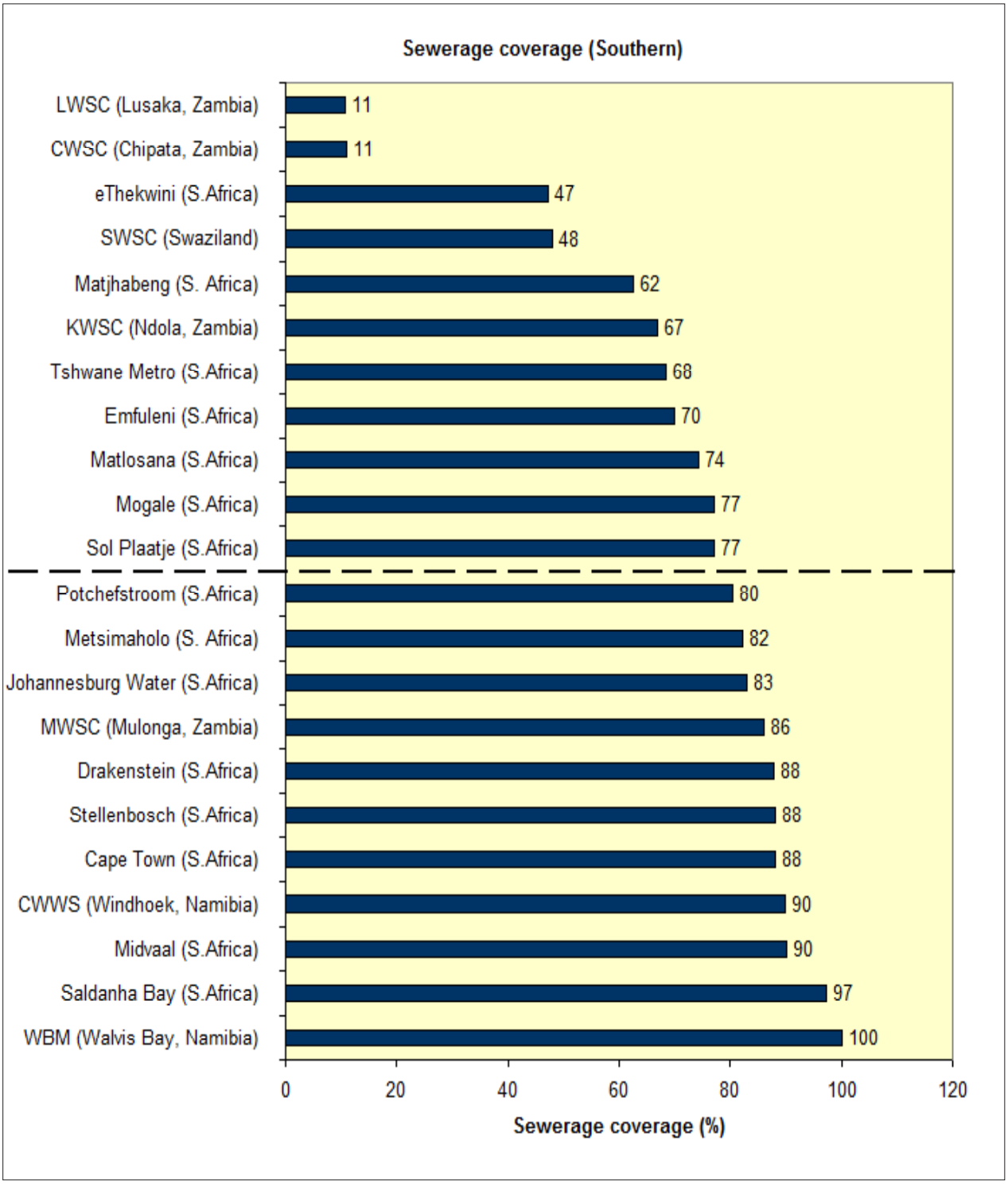


Figure 2.7: Sewerage coverage for utilities in the Southern region



2.1 is based on data from only five utilities , i.e. ONAS (Senegal) - the national sanitation agency for Senegal; LWSC (Liberia); ENSWC (Enugu State, Nigeria); ANWSC (Anambra State, Nigeria); and SODECI (Cote d'Ivoire). Data presented in **Figure 2.1** also show that Africa lags behind other world regions (ECA, LAC and EAP) as far as service coverage is concerned.

Water and sewerage coverage levels for individual utilities are shown in **Figures**

2.2-2.7. Based on the performance of the top 25 percent of all the utilities, a reasonable cut-off point for identifying strong and weak performers is 90 percent for water and 82 percent for sewerage. With these levels, the Southern region has the largest number of best performers for both water and sewerage coverage - the majority being South African utilities. A few utilities from the Eastern region - MBUWASA (Mbeya, Tanzania), AAWSA (Addis, Ethiopia), TUWASA (Tanga, Tanzania), PUC (Seychelles), MUWASA (Moshi, Tanzania), MWAUWASA (Mwanza, Tanzania) IRUWASA (Iringa, Tanzania), and ELECTOGAZ (Rwanda) - are also part of the best performer group for water coverage, while SDE (Senegal), SODECI (Cote d'Ivoire), and JSWB (Nigeria) are the only utilities from the Western region making it to the best performer group for water coverage.

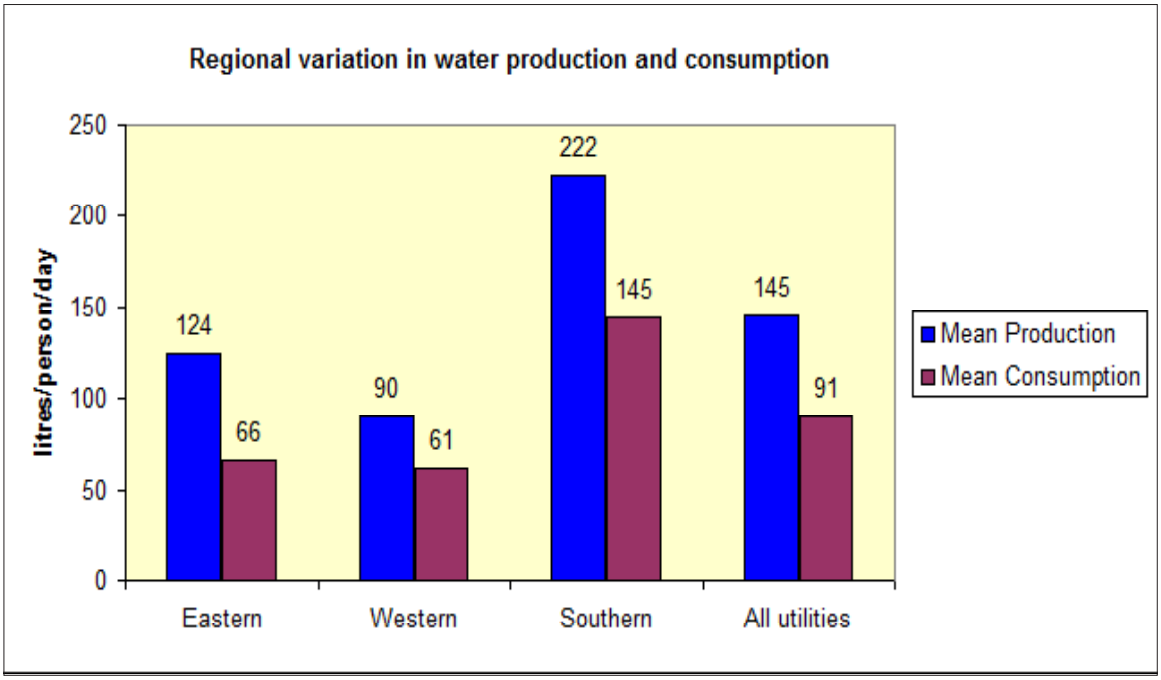
None of the utilities in the Eastern and Western region can be considered good performers on sewerage coverage. The highest sewerage coverage reported in the Eastern region is 44 percent (MUWASA, Moshi Tanzania) and some utilities in the Western region such as SODECI (Cote d'Ivoire) and ANWSC (Anambra State, Nigeria) report the lowest sewerage coverage levels in the entire sample.

It should be noted however that the USAQ focused on water-borne sewerage. It did not capture data regarding on-site sanitation even though the majority of Africa's urban residents rely on on-site solutions such as pit latrines and septic tanks. Future benchmarking exercises should include questions on the institutional arrangements for on-site sanitation including whether or not the utility has the mandate to empty on-site facilities, the cost of providing such services and information on partnerships with the private sector.

Water production and consumption: The production indicator measures total annual water supplied for distribution while the consumption indicator represents the average daily consumption per person. Both provide an indication of the overall efficiency of water resources use. The coverage data presented above focuses on the reach of the distribution network. However, ultimately, the possibility of expanding coverage depends on the availability of sufficient water production capacity in the service area relative to the resident population. Production and consumption data was available for a total of 113 and 94 utilities respectively. Figure 2.8 shows the regional summary. In Southern utilities, the average volume of water produced is about 222 litres per capita per day for each person resident in the service area. This indicates that there is already enough water available to provide a reasonable level of consumption if the distribution networks could be expanded to cover the entire population.

In contrast, utilities in the Eastern and Western regions have respectively only 124 and 90 litres per capita per day available even just for those customers

Figure 2.8: Regional variation in water production and consumption



who are already connected to the system. If these utilities were to connect their entire unserved population overnight the availability of water would drop to half suggesting that these utilities will need to invest both in water production capacity and water distribution networks in order to reach universal coverage.

While estimates for water consumed are not necessarily very accurate, the evidence available suggests that end-user water consumption in the sample of African utilities assessed is far from excessive. The overall average consumption works out at a fairly modest 87 litres per capita per day, compared to an average of 237 litres reported in ECA; 203 litres in LAC and 140 litres in EAP. As noted above, this data should be interpreted with caution as some utilities provided estimates due to the absence of universal consumption metering. For utilities where customers are almost 100 percent metered, total consumption can be calculated quite accurately. For utilities relying on estimates, it can be quite difficult to determine the split between true consumption and unaccounted for water.

Estimates of production and consumption levels for individual utilities in each region are summarised in Figures 2.9 - 2.14. Almost all utilities in the Southern region (except two - NWWSSL, Zambia and LWB, Malawi) have more than 100 litres per capita per day of water production available for the entire service area if the physical infrastructure to distribute the

water to them were available. At the other end of the spectrum, seven utilities (SWC-Nyala Sudan, DDWSSA-Ethiopia, LWSC-Liberia, JTWSSSE -Jimma, Ethiopia, TdE-Togo, SEG -Guinea and PSWB - Plateau State, Nigeria produce less than 50 litres per capita per day even for their currently served population. Consumption data seems fairly comparable between utilities, although there are some utilities (especially South African utilities) reporting relatively high per capita consumption (>200 lpd).

While application of the top 25 percent target may not be applicable in this case, utilities should aim to achieve the middle ground where customers have enough water available to support daily needs but consumption should not be so high as to be wasteful. The median value for all utilities is 76 lpd. Overall, there is no evidence of wasteful over-use of water in the sample of utilities assessed, nor that current, relatively modest levels of consumption could be further reduced by more aggressive use of demand management tools. However, while water use by the end-user can be characterised as modest, a substantial volume of water is lost during the distribution process as we will see later on.

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Figure 2.9: Water production data for utilities in the Eastern region

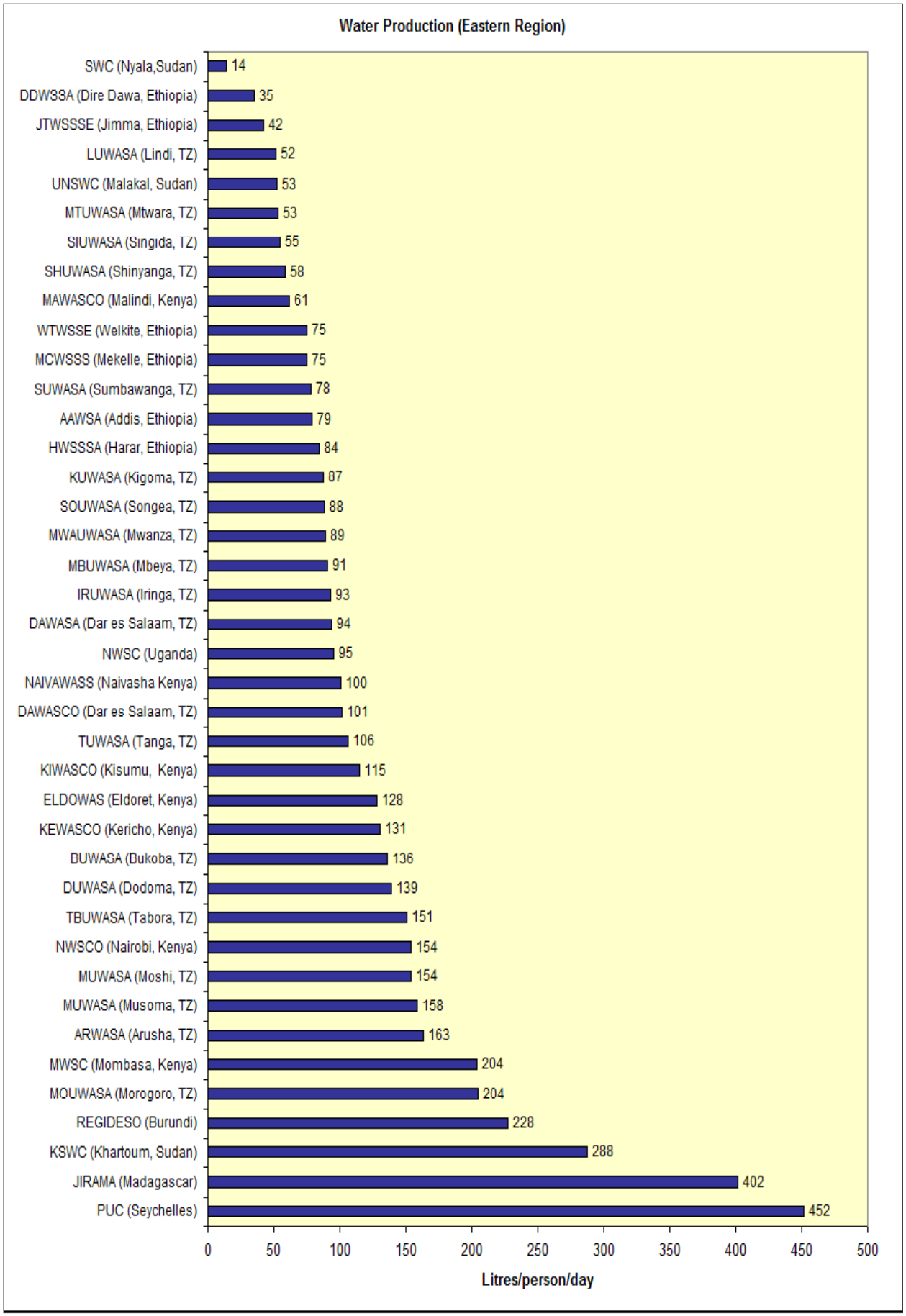


Figure 2.10: Water consumption data for utilities in the Eastern region

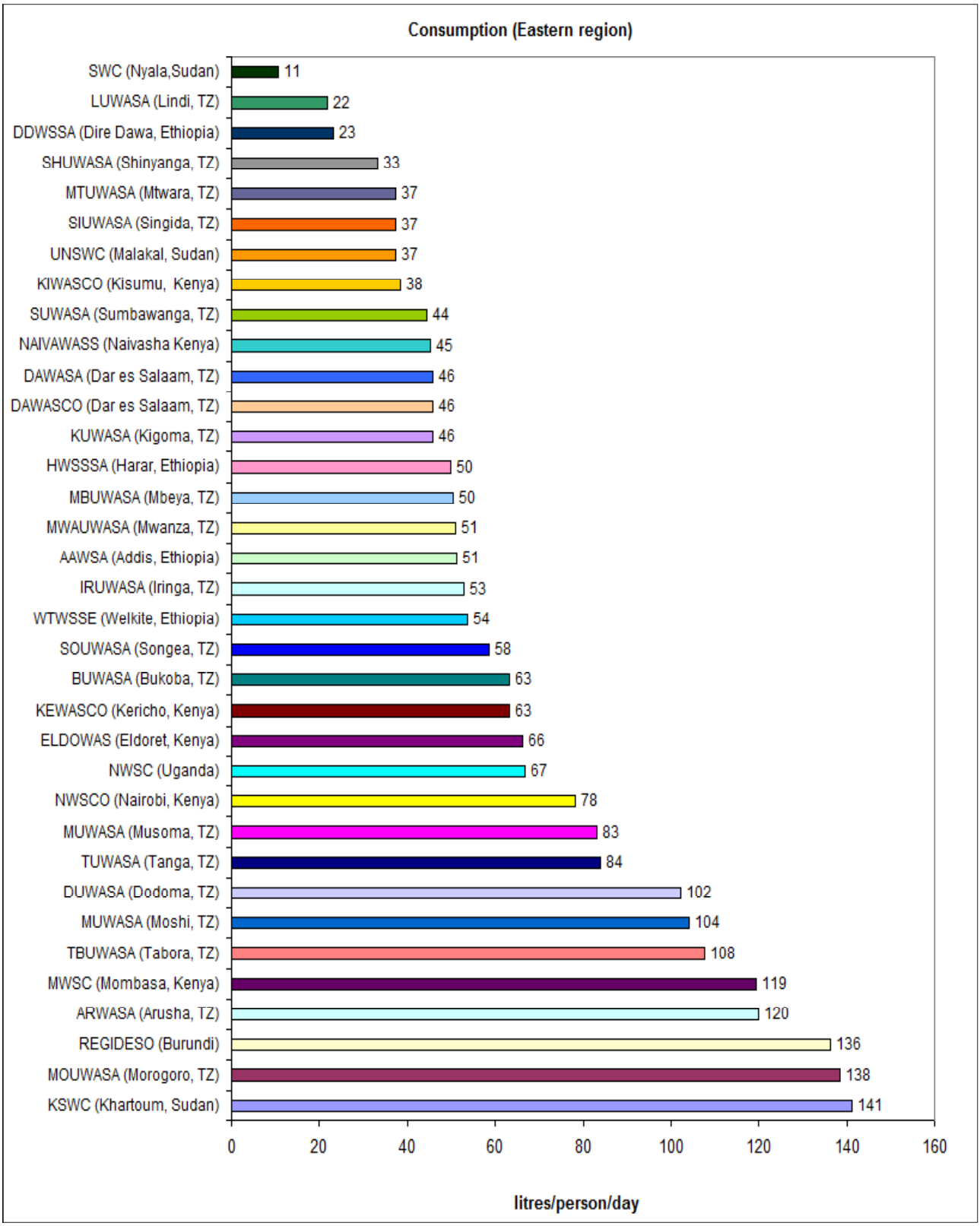


Figure 2.11: Water production data for utilities in the Western region

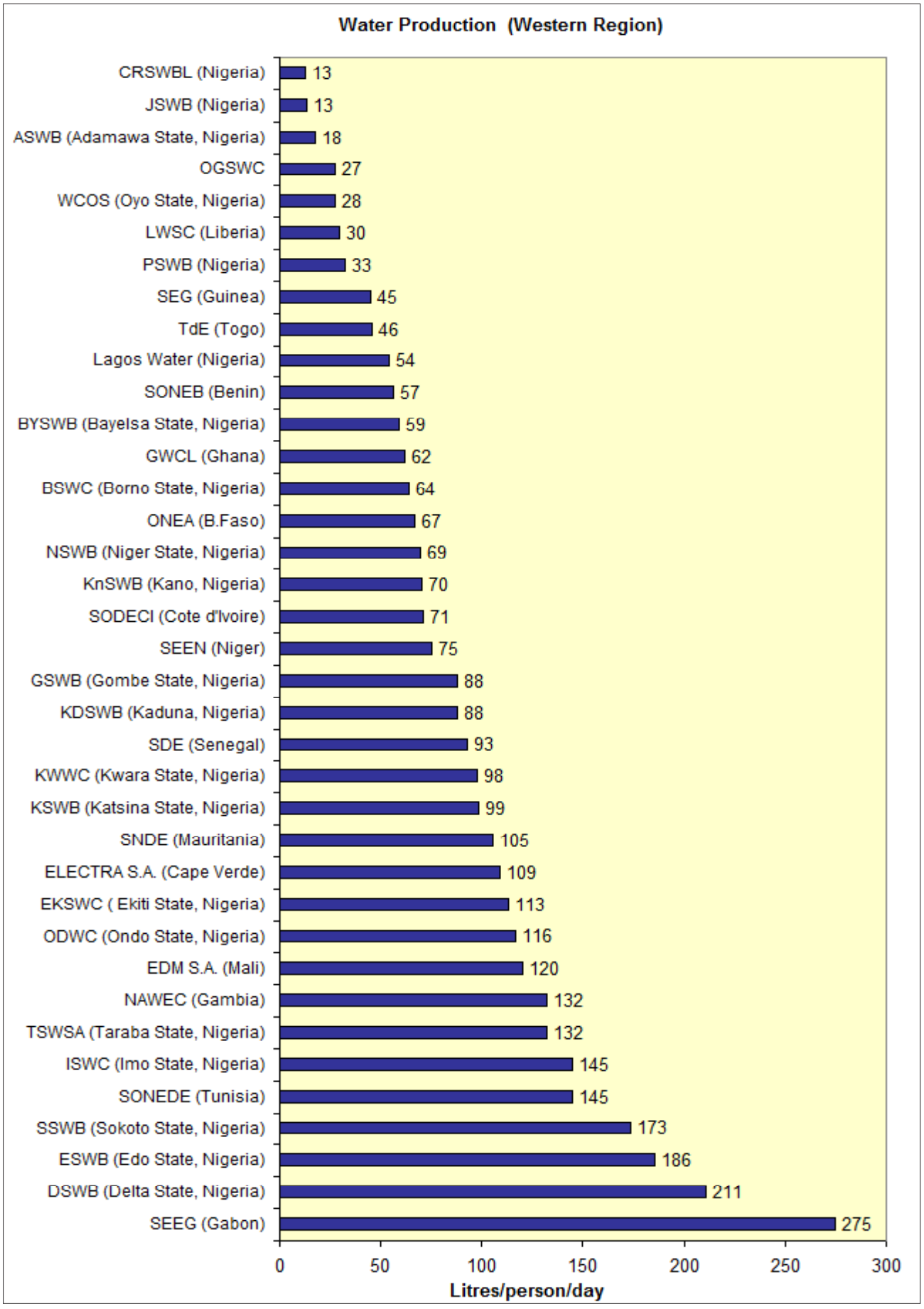


Figure 2.12: Water consumption data for utilities in the Western region

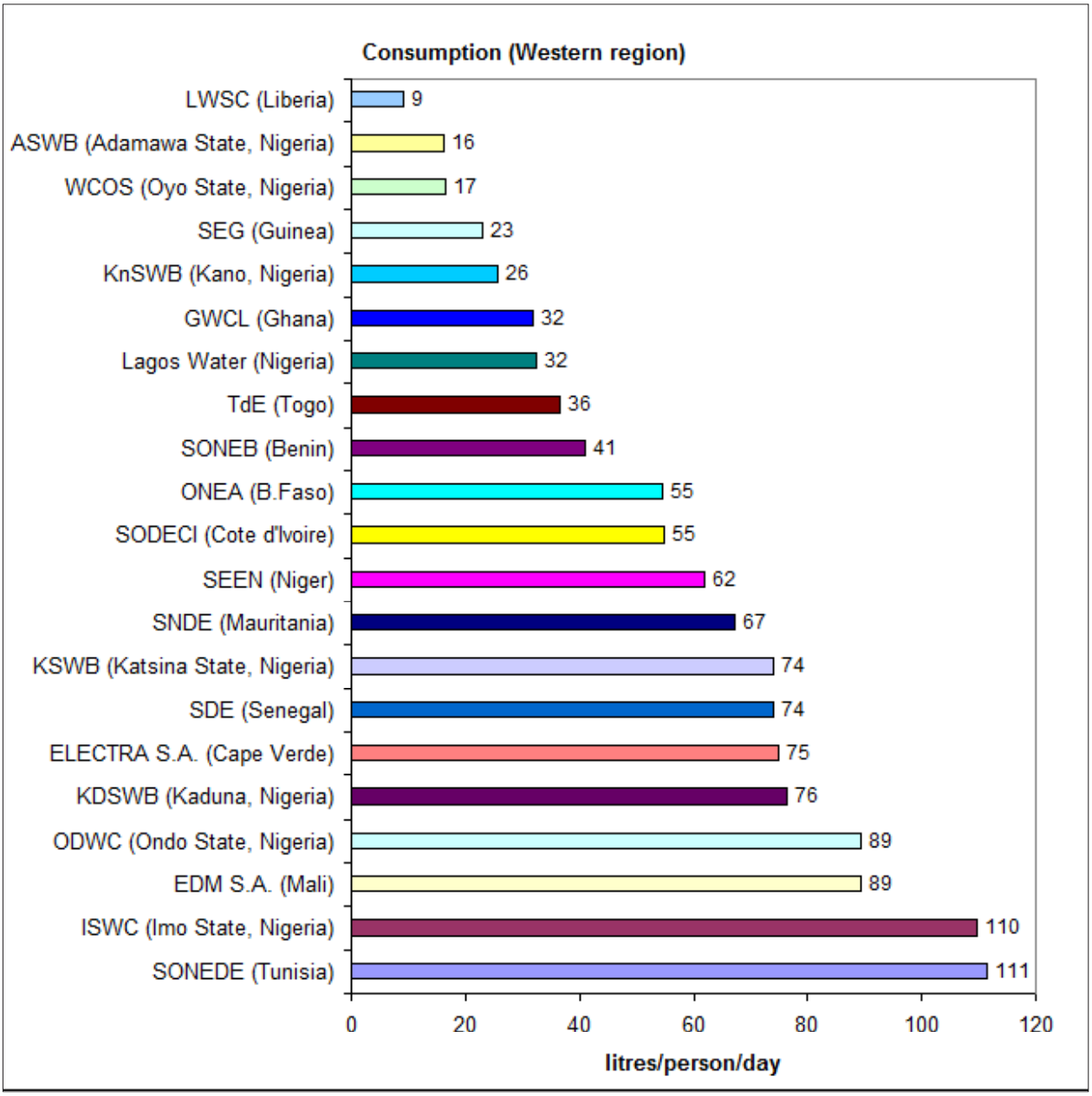


Figure 2.13: Water production data for utilities in the Southern region

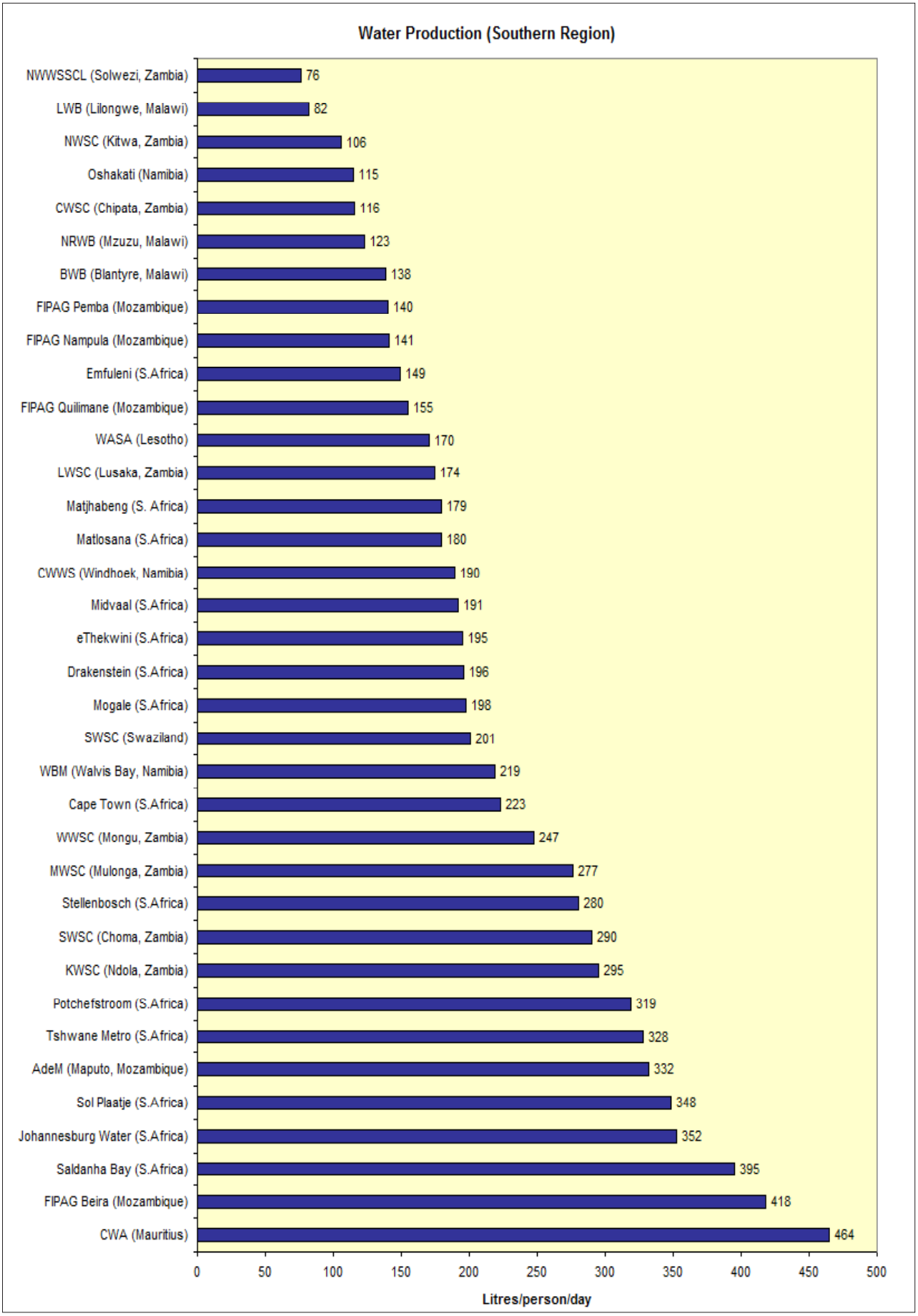


Figure 2.14: Water consumption data for utilities in Southern region

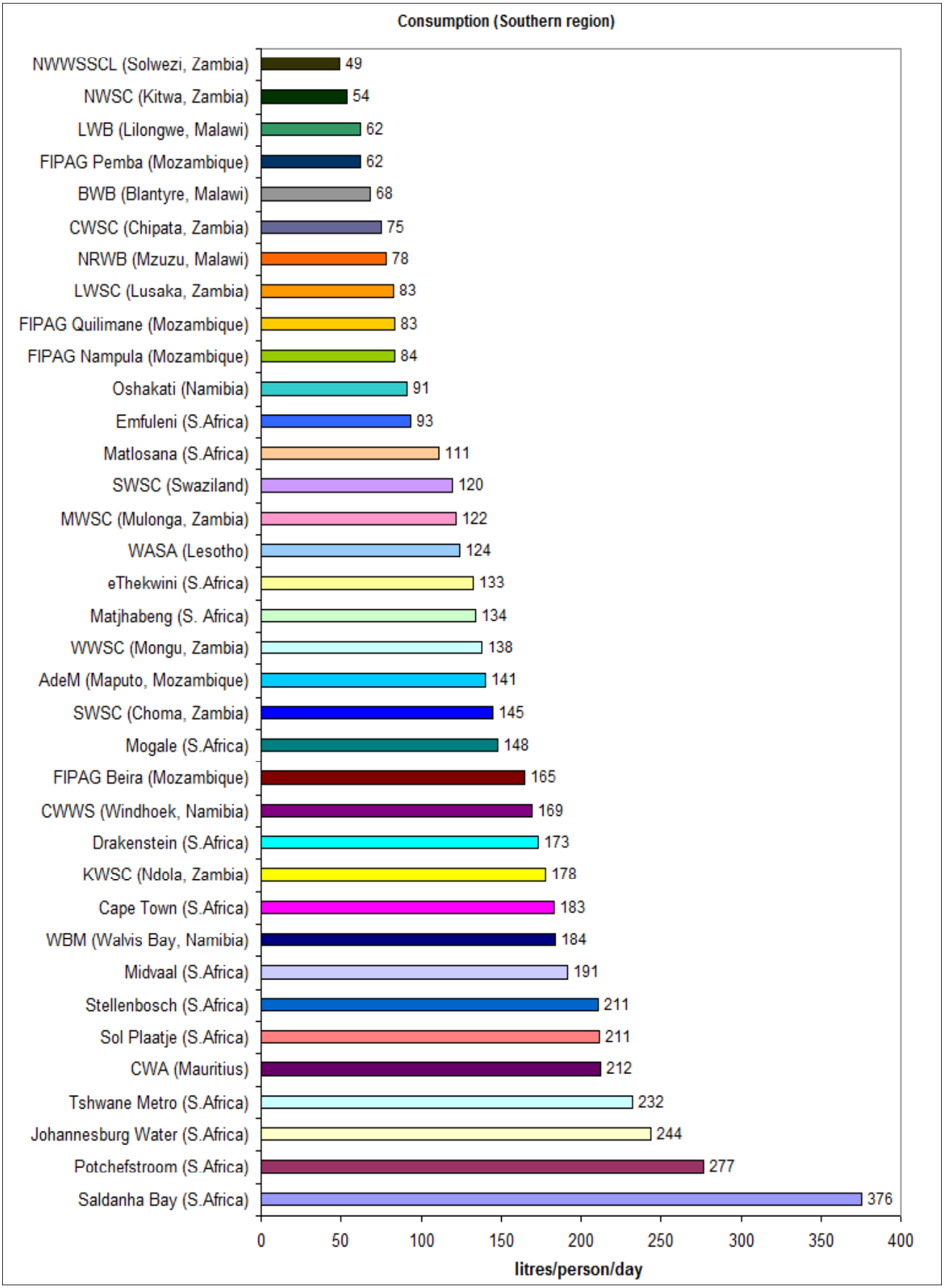
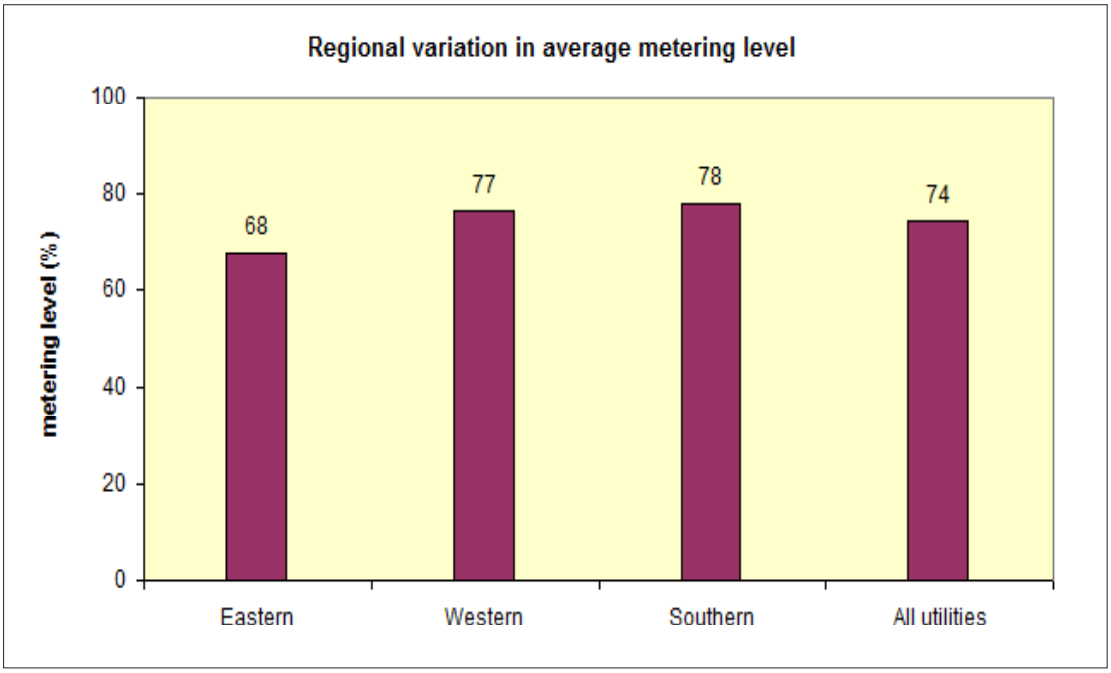


Figure 2.15: Regional variation in average metering levels



ground where customers have enough water available to support daily needs but consumption should not be so high as to be wasteful. The median value for all utilities is 76 lpd. Overall, there is no evidence of wasteful over-use of water in the sample of utilities assessed, nor that current, relatively modest levels of consumption could be further reduced by more aggressive use of demand management tools. However, while water use by the end-user can be characterised as modest, a substantial volume of water is lost during the distribution process as we will see later on.

Metering level: The metering of customers is considered good practice. It allows customers to influence their water bills and provides utilities with tools and information to allow them to better manage their systems. A total of 75 utilities provided fairly credible data on metering practices. Figure 2.15 provides a regional summary of metering levels. Southern and Western utilities have slightly higher than average levels of metering coverage.

Metering levels for individual utilities are shown in Figures 2.16-2.18. Based on the performance of the top 25 percent of all the utilities 100 percent metering is a reasonable target for utilities to achieve. With this level of metering, we can identify a total of 24 best performers - 14 in the Southern region, seven in the Western region and three in the Eastern region. Lack of universal metering is indeed a big

Figure 2.16: Metering levels for utilities in the Eastern region

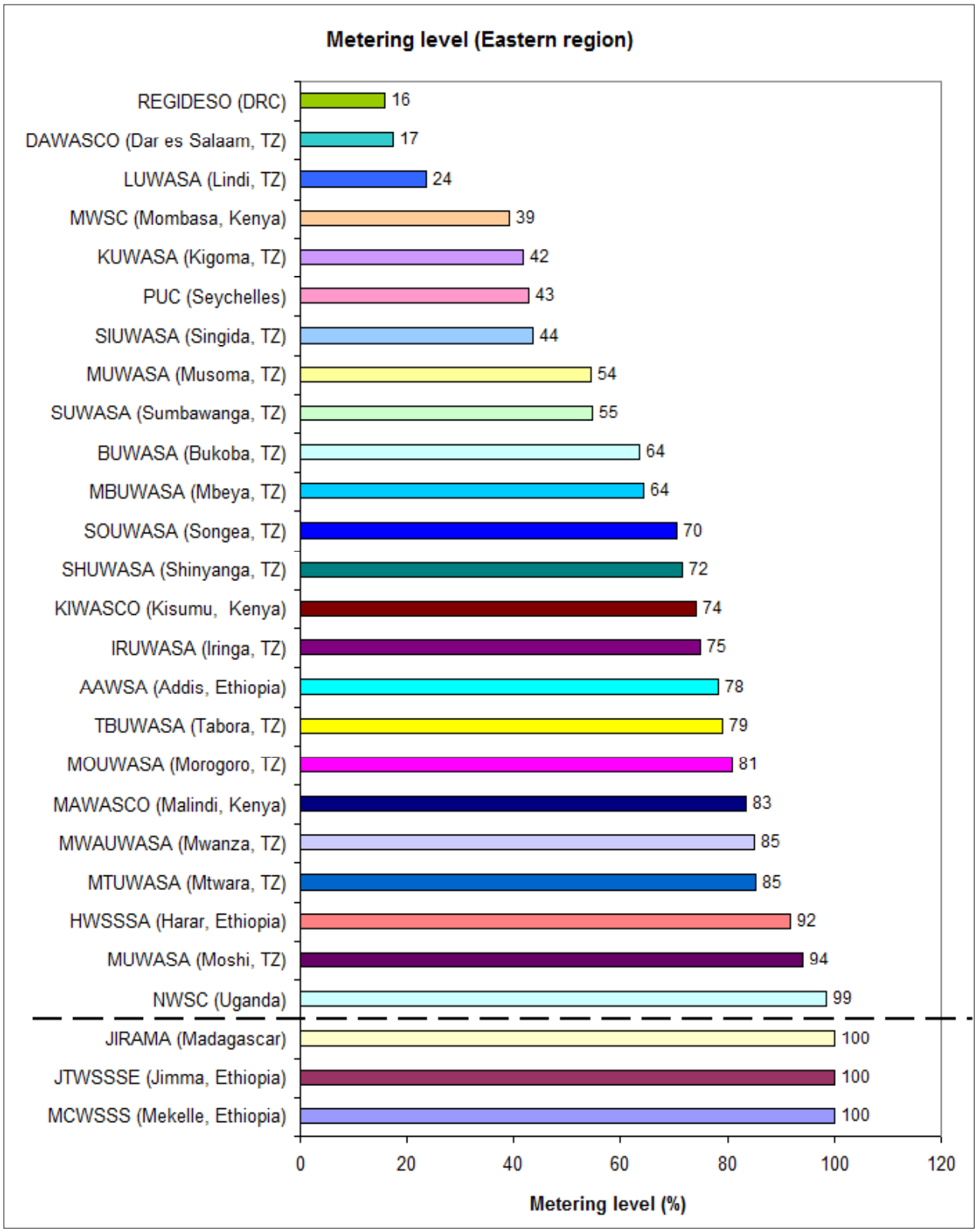


Figure 2.17: Metering level for utilities in the Southern region

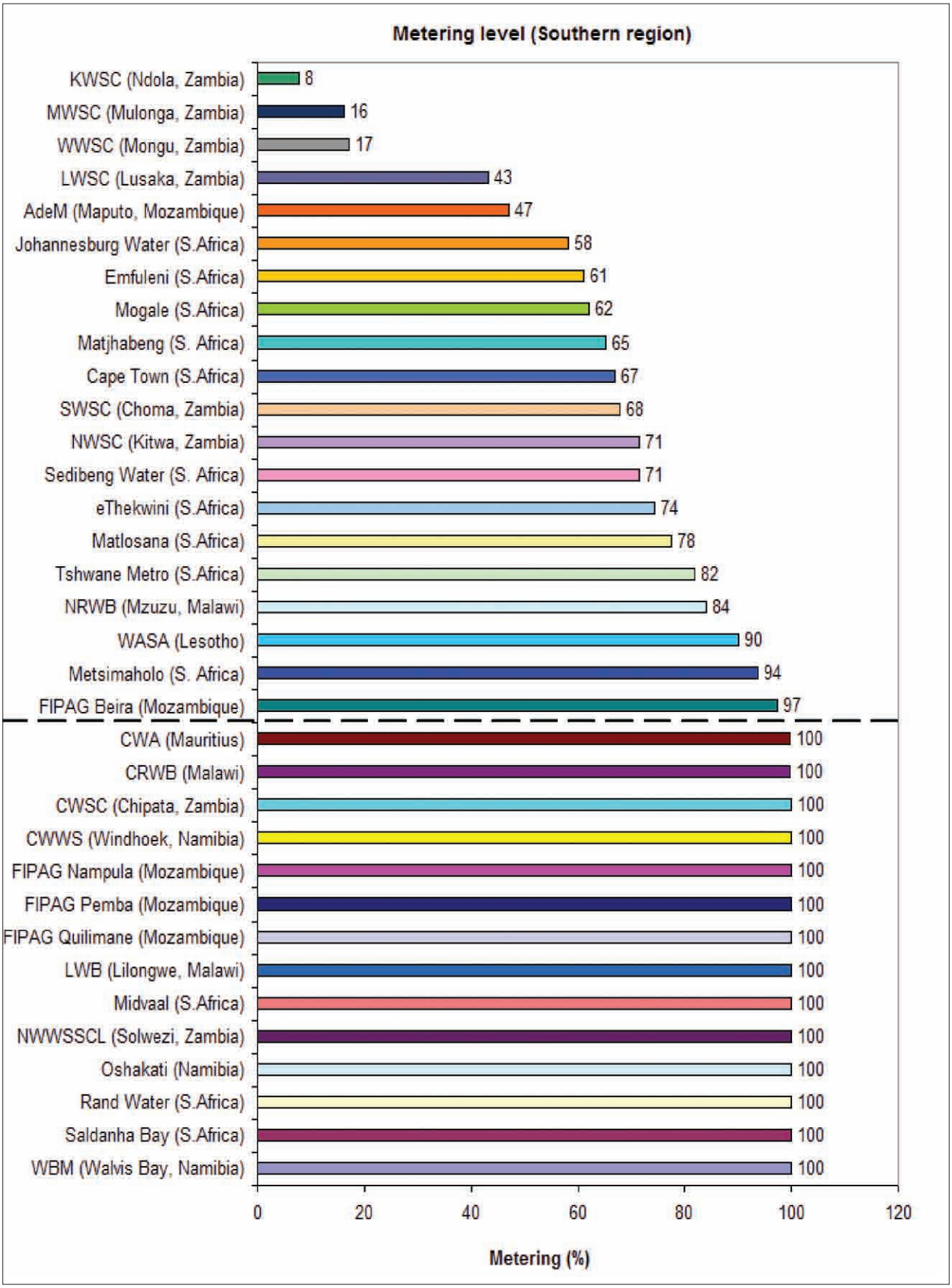
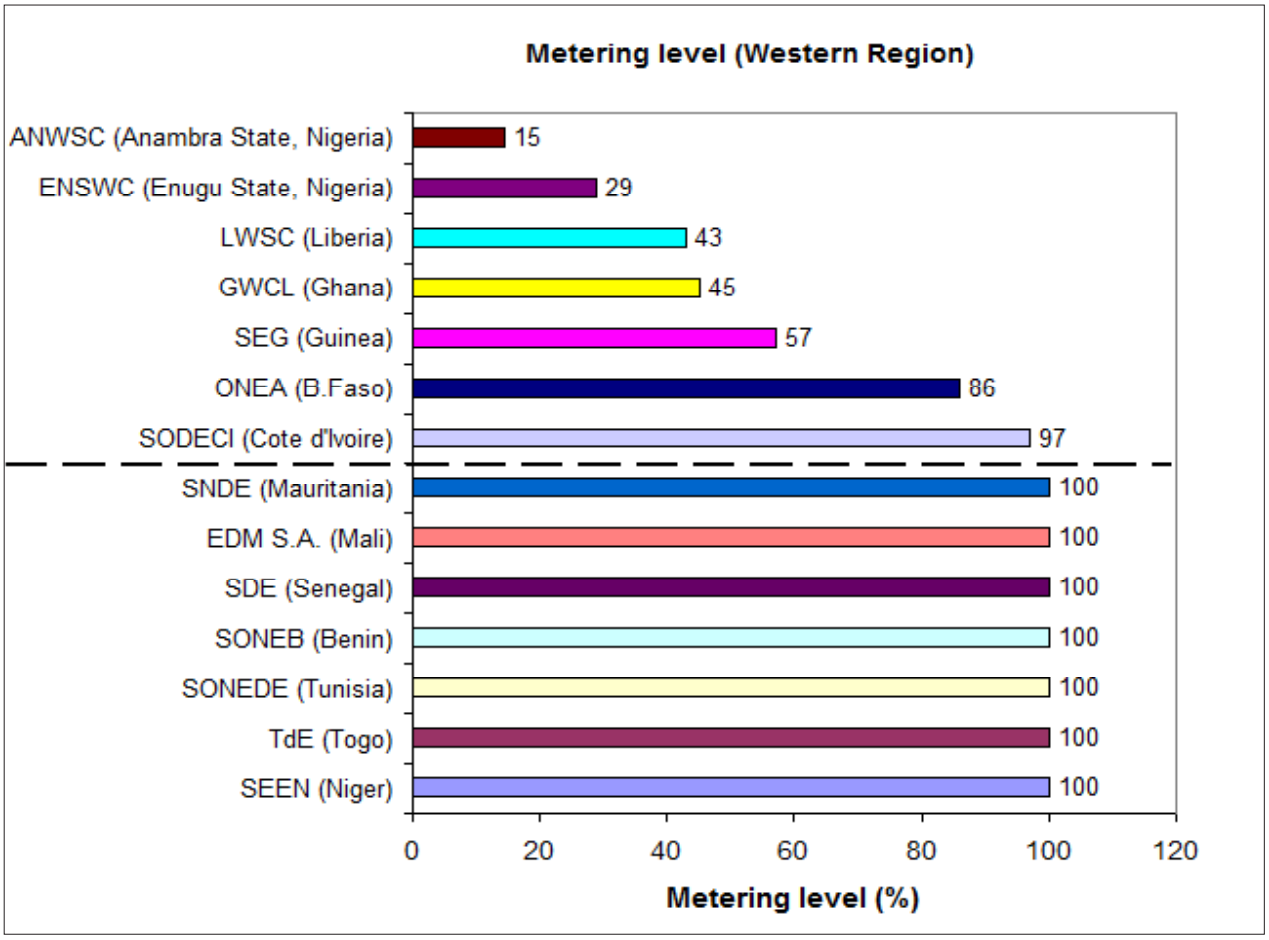


Figure 2.18: Metering level for utilities in the Western region

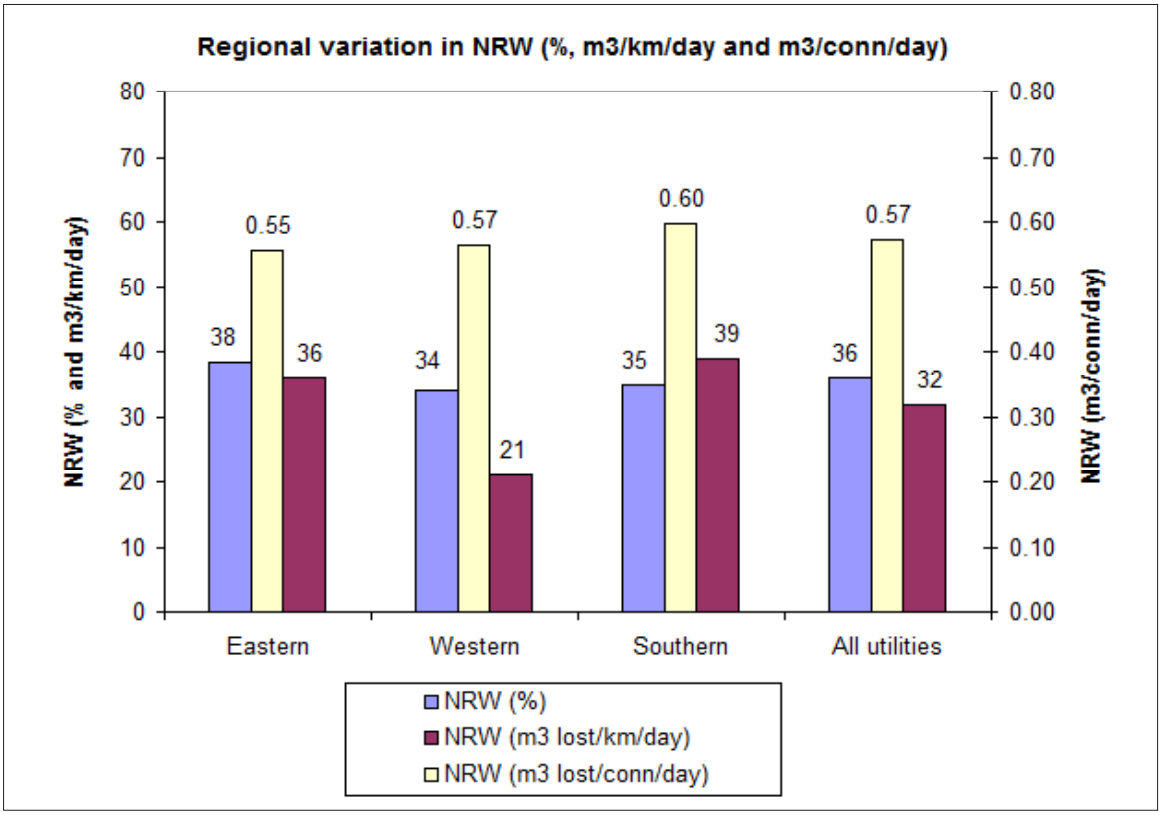


problem for utilities in the Eastern region. Almost half of the Eastern utilities in the sample have less than 75 percent meter coverage, implying that utility managers in the region may not be fully in control of their systems. On the other hand, metering is relatively widespread in the Western and Southern regions with almost half of utilities in these regions reporting 100 percent coverage.

Non-revenue water: Non revenue water (NRW) represents water that has been produced and is 'lost' before it reaches the customer (either through leaks, theft or through legal usage for which no payment is made). This indicator captures not only physical losses but also commercial losses due to inefficient billing or illegal connections. Thus high levels of NRW may indicate poor system management and poor commercial practices as well as inadequate network maintenance.

There is debate as to the most appropriate measure of non revenue water. A percentage approach can make utilities with high levels of consumption, or compact networks, appear to be better performing than those with low levels of consumption or extensive networks. To capture these different perspectives we will report three measures - NRW expressed as a percentage, as volume lost per unit length of network per day and as volume lost per connection per day. A total of 98 utilities had base data for calculating NRW (percent), 81 had data for calculating NRW (m^3/km/d) and 93 had data for NRW (m^3/conn/day). Figure 2.19 summarises the

Figure 2.19: Regional variation in NRW levels



regional variation in all three measures of NRW.

Data presented in **Figure 2.19** shows little regional variation in the NRW levels expressed as a percentage. There is also little distinction between regions when it comes to the volume of water lost per unit length of network and per connection. Southern utilities have slightly high water losses per kilometre of network and per connection compared to the other two regions despite a comparable level of NRW (percent). This difference may be due to the relatively high levels of consumption reported by Southern utilities.

Nevertheless, the average level of NRW in the entire sample is 36 percent, and well above the good practice levels for developing countries considered to be below 23 percent according to Tynan and Kingdom (2002). This is not to suggest that the NRW problem is an African problem. Utilities in other world regions report similar levels of NRW (an average of 39 percent for EAC and LAC and 36 percent for EAP)

Figure 2.20: NRW levels (percent) for utilities in the Eastern region

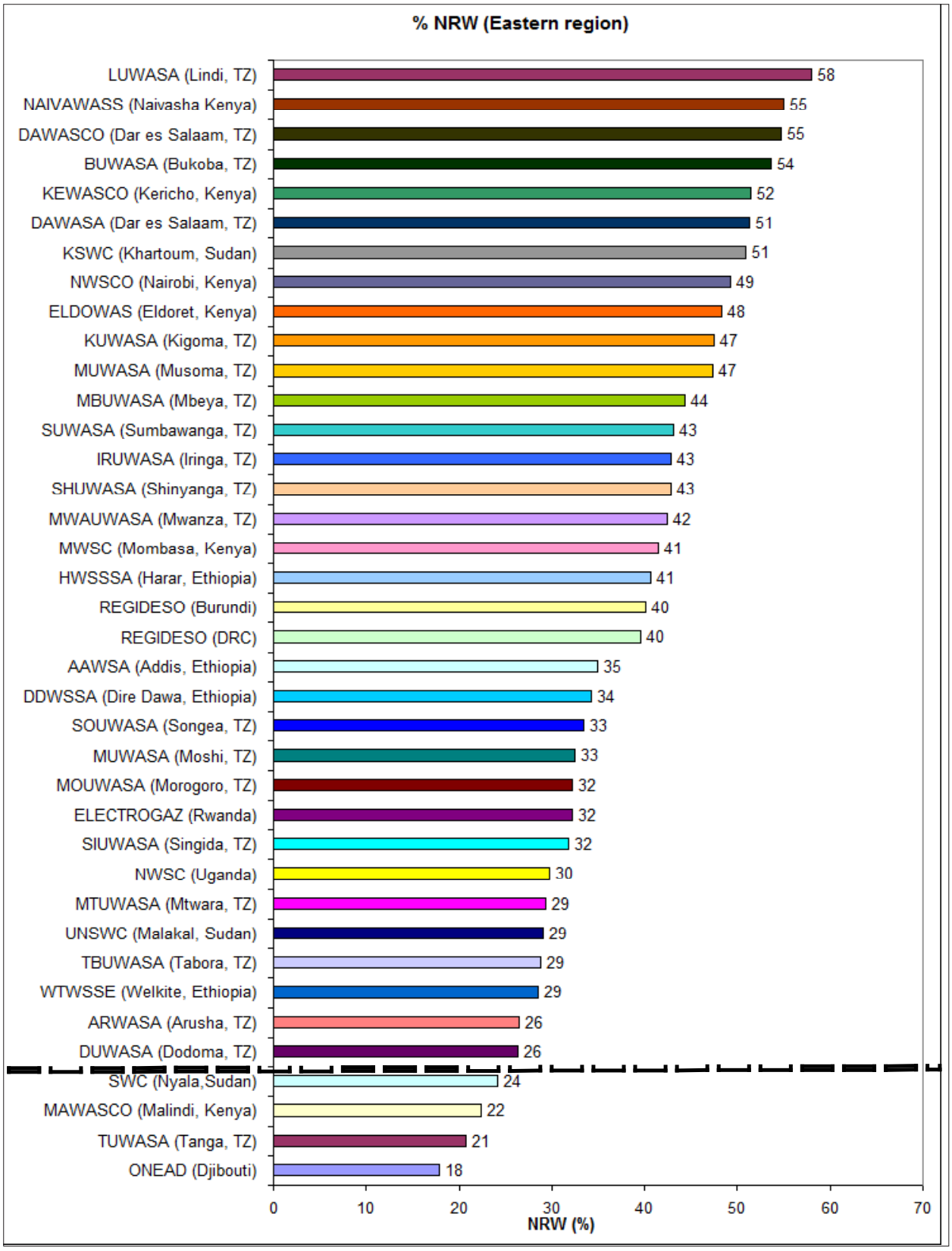


Figure 2.21: NRW levels (m^3/km/day) for utilities in the Eastern region

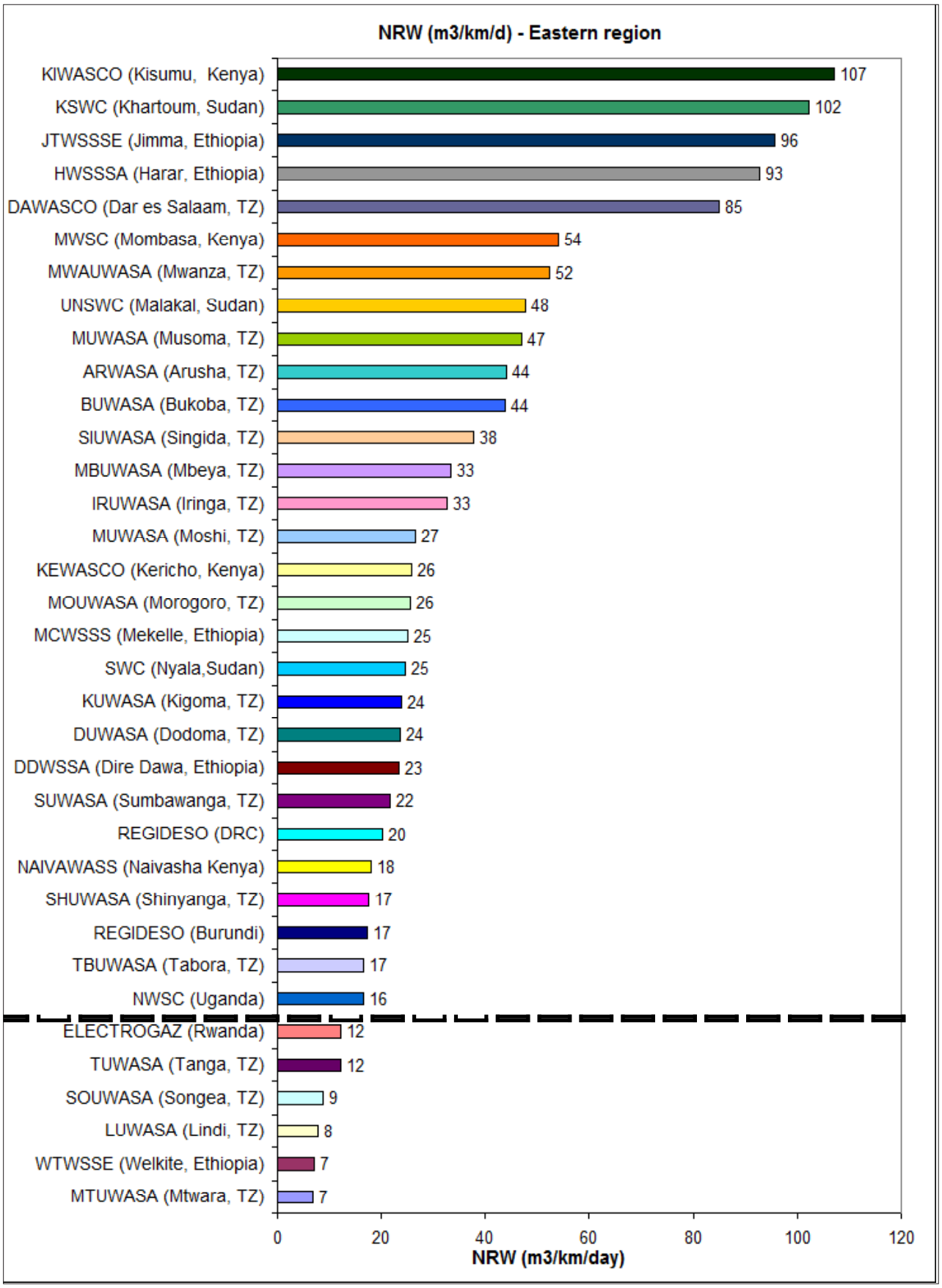
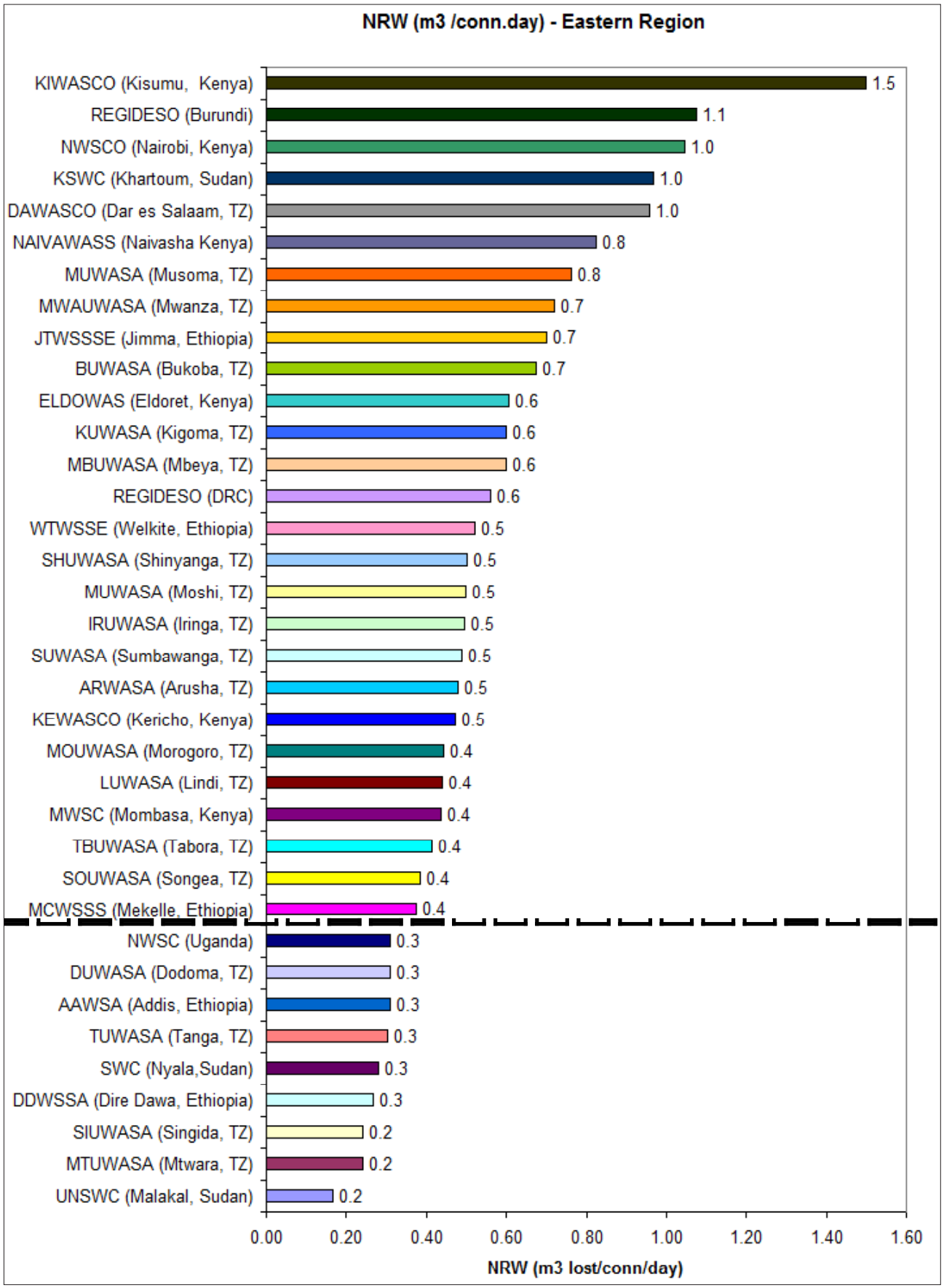


Figure 2.22: NRW levels (m³/conn/day)[4] for utilities in the Eastern region



[4]**Note:** NRW figures expressed in m3 per connection per day are provided to illustrate the extent of the NRW problem. But it does not mean that we have, say for DAWASCO, 1m3 of water hosing out of every connection per day. Leakage is only one component of NRW.

Figure 2.23: NRW levels (percent) for utilities in the Western region

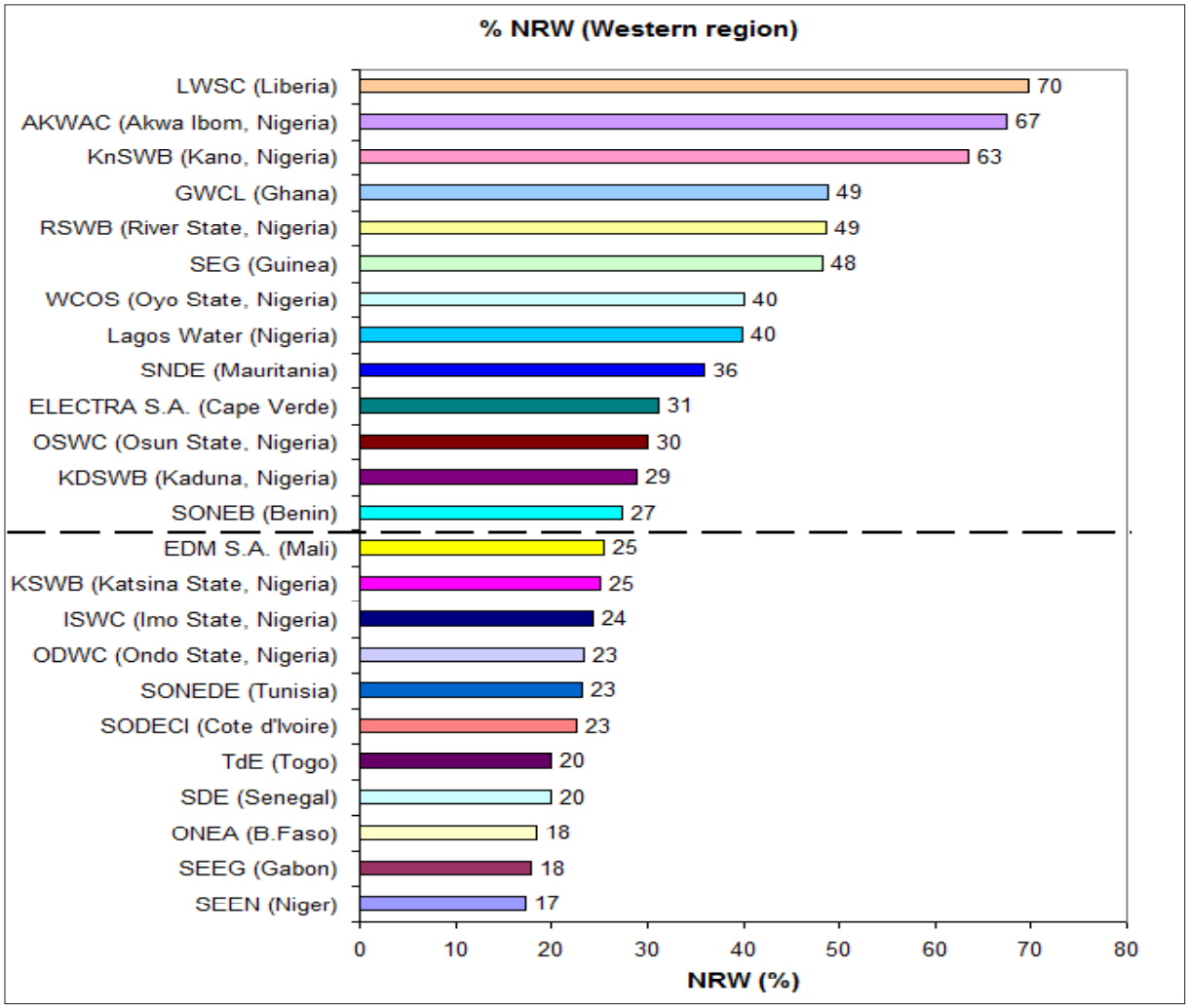


Figure 2.24: NRW levels (m^3/km/day) for utilities in the Western region

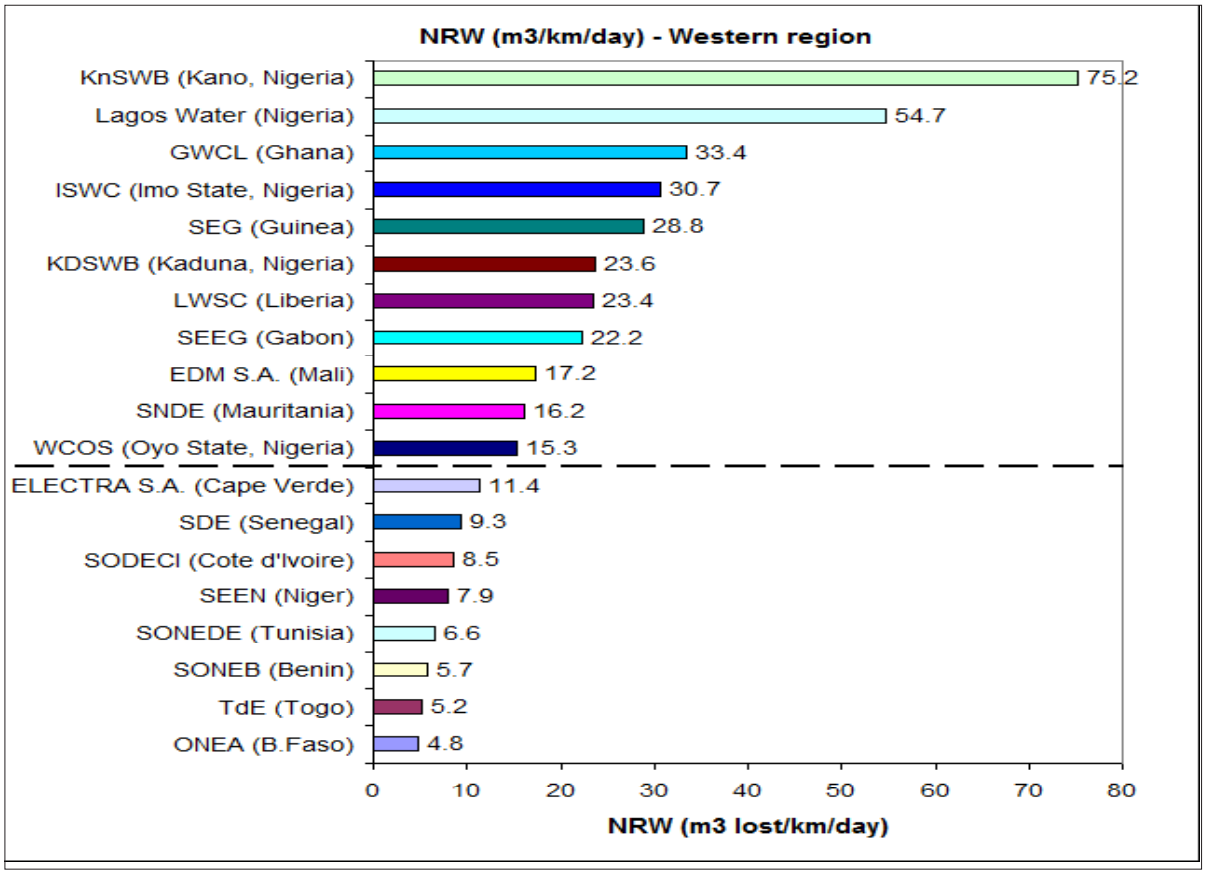


Figure 2.25: NRW levels (m^3/conn/day) for utilities in the Western region

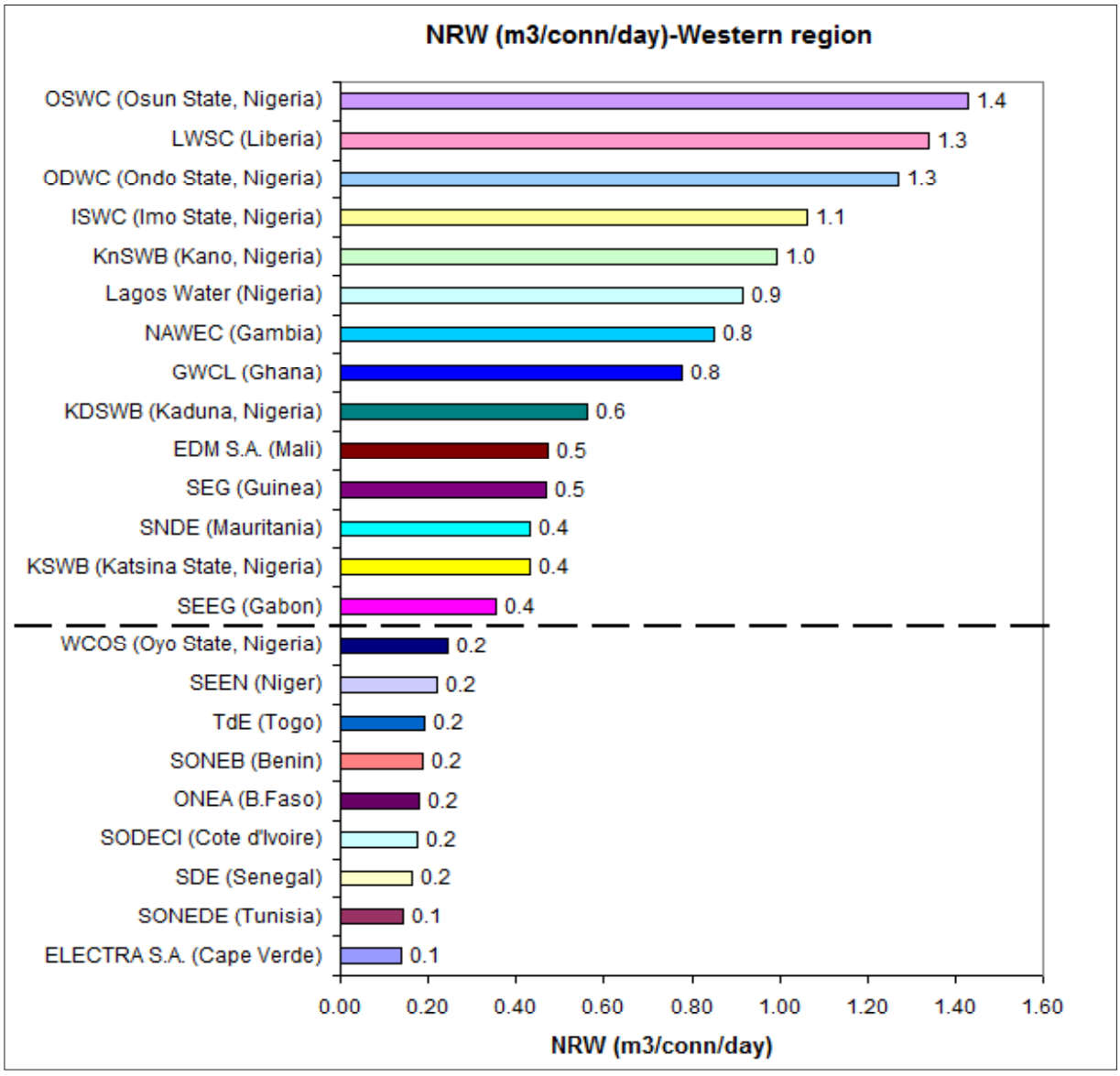


Figure 2.26: NRW levels (percent) for utilities in the Southern region

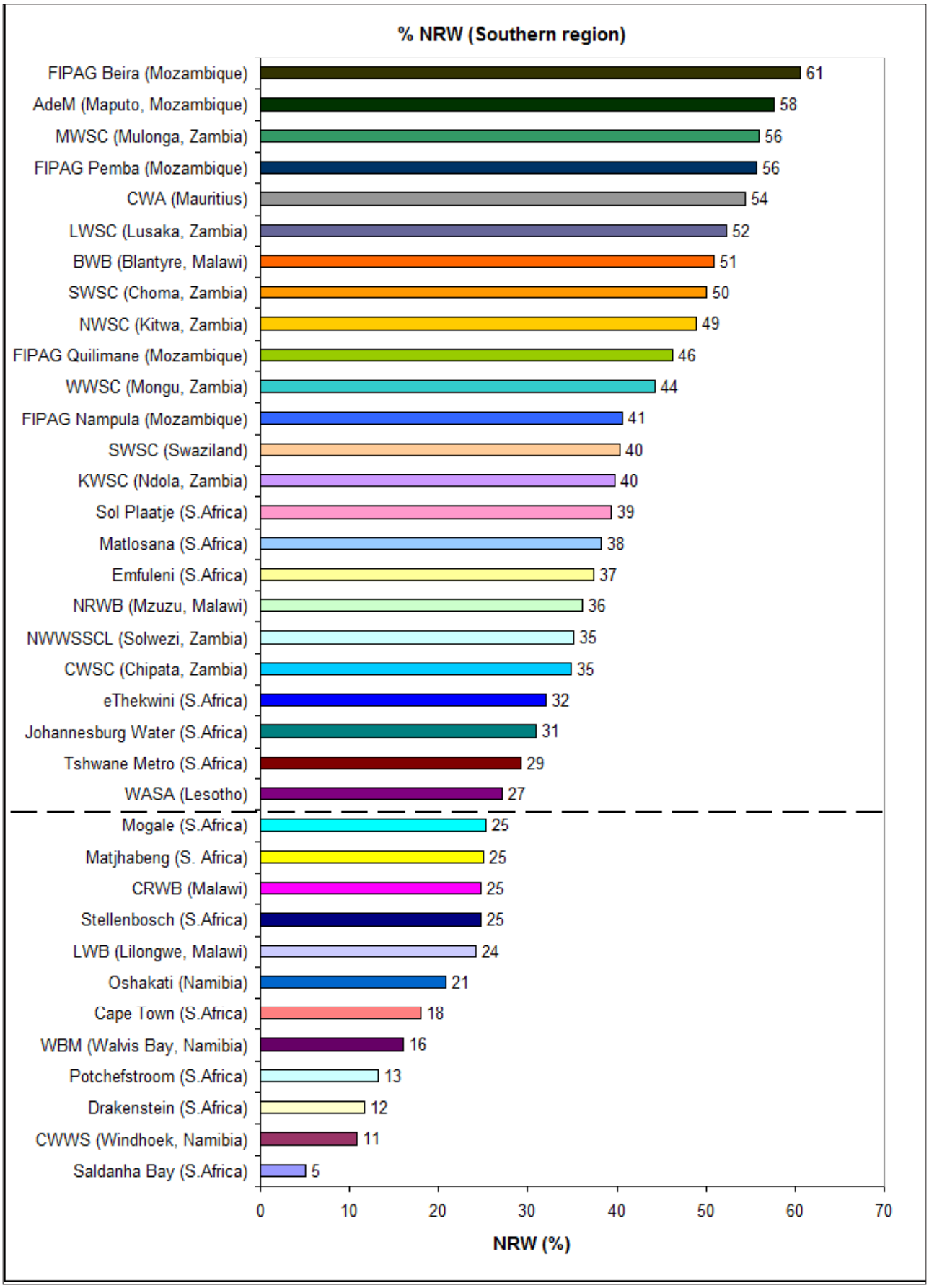


Figure 2.27: NRW levels (m^3/km/day) for utilities in the Southern region

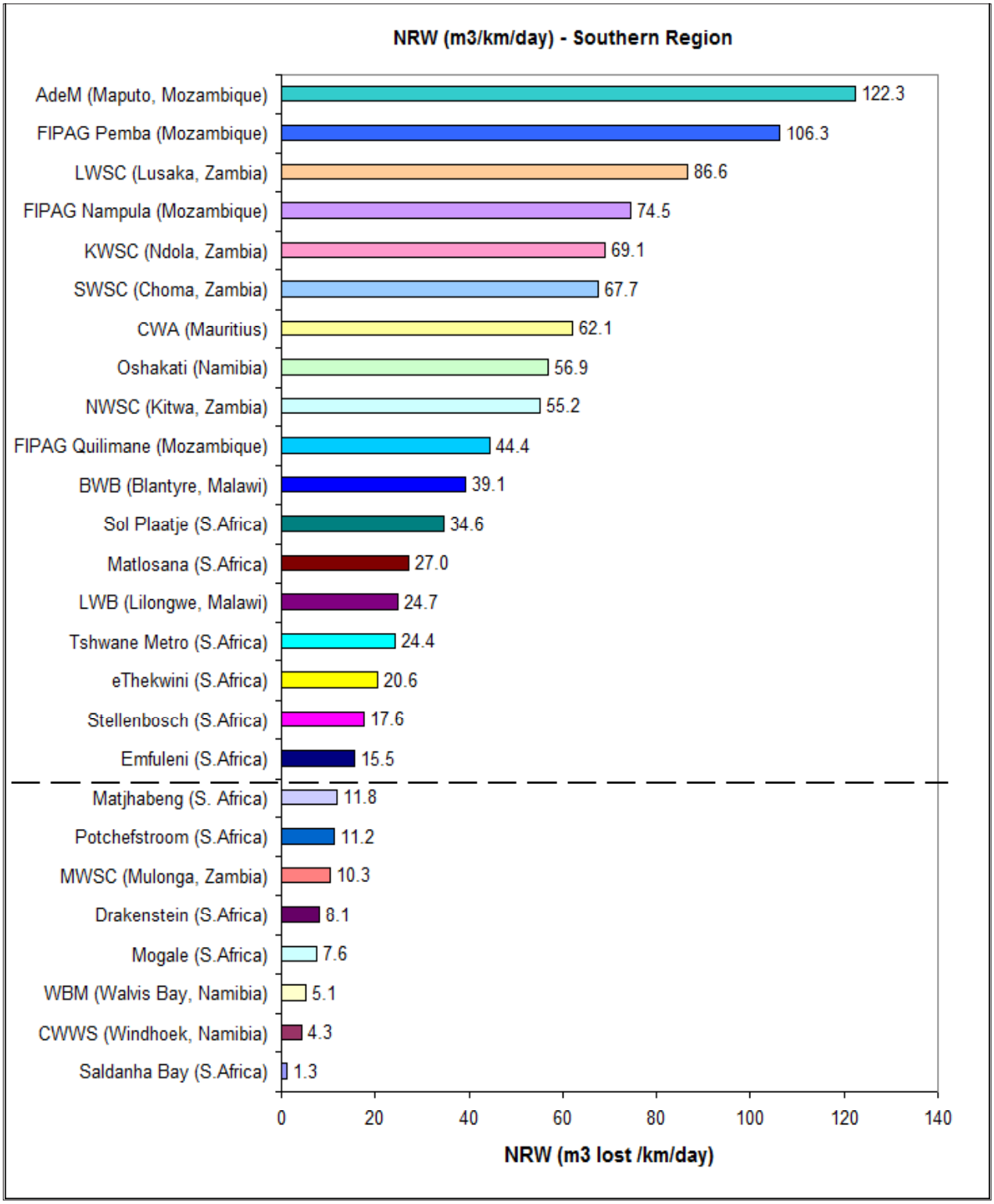


Figure 2.28: NRW levels (m^3/conn/day) for utilities in the Southern region

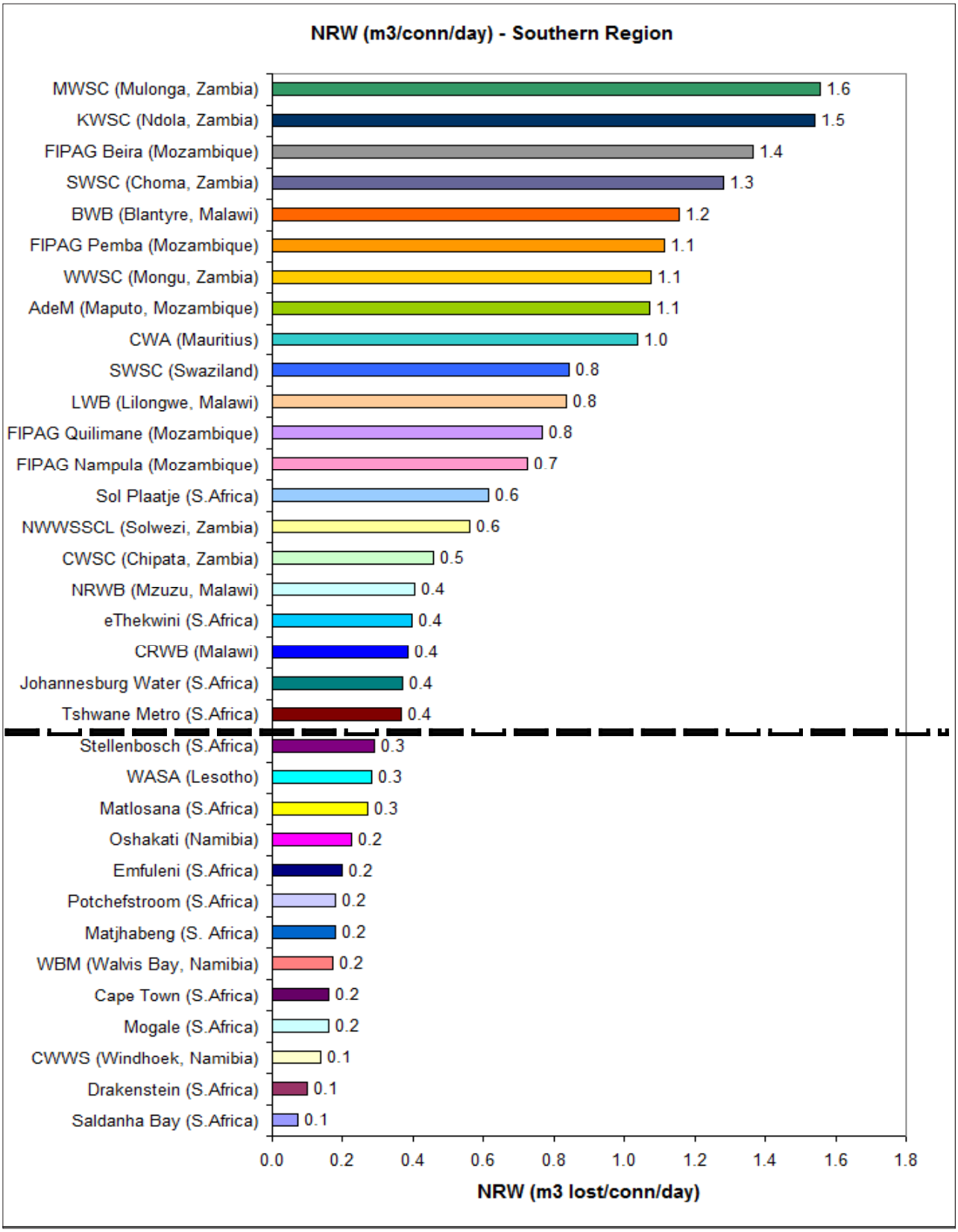


Table 2.2: Best performing utilities in all NRW categories

Best Performers in NRW Management					
	Utility name	Region	NRW (%)	NRW (m^3/km/day)	NRW (m^3/conn/day)
1	Saldanha Bay (South Africa)	Southern	5	1.29	0.07
2	CWWS (Windhoek, Namibia)	Southern	11	4.26	0.14
3	Drakenstein (South Africa)	Southern	12	8.13	0.10
4	Potchefstroom (South Africa)	Southern	13	11.24	0.18
5	SEEN (Niger)	Western	17	7.90	0.22
6	ONEA (Burkina Faso)	Western	18	4.80	0.18
7	SDE (Senegal)	Western	20	9.30	0.16
8	TdE (Togo)	Western	20	5.20	0.19
9	TUWASA (Tanga, TZ)	Eastern	21	12	0.3
10	SODECI (Cote d'Ivoire)	Western	23	8.50	0.18
11	SONEDE (Tunisia)	Western	23	6.60	0.14
12	Mogale (South Africa)	Southern	25	7.62	0.16
13	Matjhabeng (South Africa)	Southern	25	11.8	0.18

suggesting that NRW is indeed a global problem.

Levels of NRW for individual utilities in the sample are summarised in **Figures 2.20-2.28.** Based on the performance of the top 25 percent of all utilities, reasonable cut-off points for identifying strong and weak performers are 25, 12, and 0.3 for NRW percent, NRW m^3/km/day and NRW m^3/conn/day respectively. Using these values we are able to identify a total 27 best performing utilities under the percent NRW sub-category, 22 under the NRW m^3/km/day sub-category, and 31 under the NRW m^3/conn/day sub-category. However, only 13 utilities (6 Southern, 6 Western and 1 Eastern) belong to all three groups **(see Table 2.2).** These utilities can therefore be regarded as the 'pack leaders' on NRW management as they appear to be doing well in controlling NRW levels across the board. Utilities in the Eastern

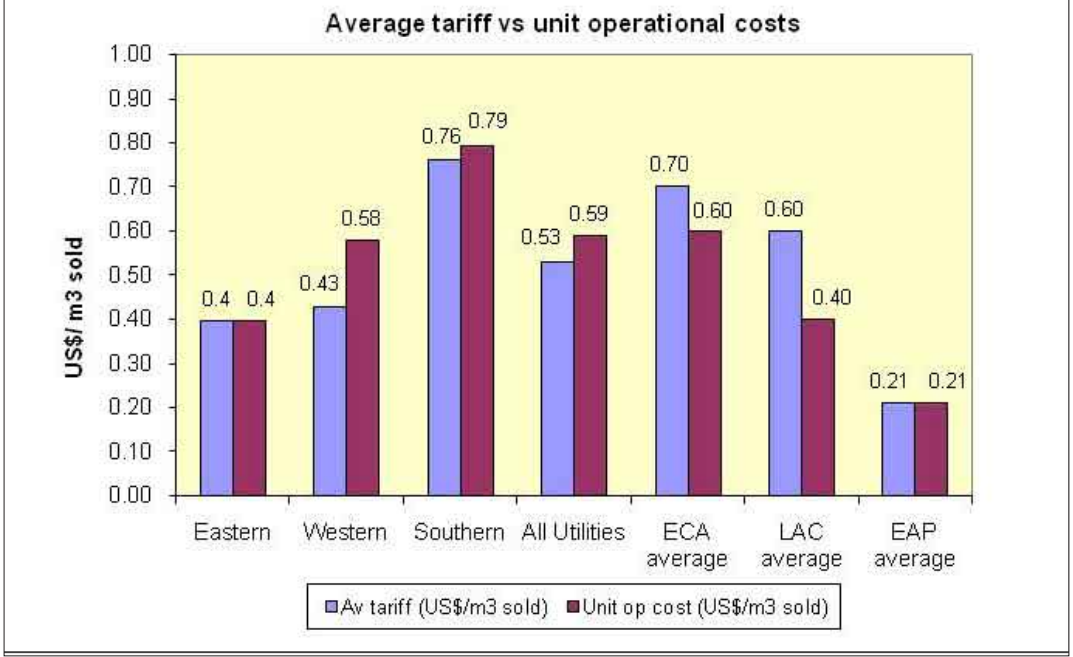
region generally perform poorly on NRW management.

2.1.2 Financial performance

Financial performance was assessed using the following key indicators:

- **average tariff per m³ sold** - expressed as the ratio of a utility's total annual direct billed revenue to total annual water consumption (that is, volume of water sold). Direct revenue is the actual amount billed for water services. Domestic, commercial and industrial revenue is included but bulk water revenue is excluded. Revenue from other sales, sundry income or interest received is excluded as are direct revenue subsidies;
- **unit operating cost per m³ sold** - expressed as the ratio of a utility's total annual operating expenses and total annual volume of water sold;
- **operating cost coverage ratio (OCCR)** - defined as the ratio of total annual billed revenues to total annual operating costs (excluding interest and depreciation);
- **collection ratio** - defined as the ratio of a utility's actual revenues collected and total billed revenues, expressed as a percentage;
- **collection period** - year-end

Figure 2.29: Regional variation of average tarriff vs. Unit operational costs



accounts receivables as a share of annual revenues, expressed in day equivalents.

Average tariff, unit operating costs and operating cost coverage: Average tariff measures the notional average tariff of the utility. It is not the same as the actual tariff charged which may include tariff bands and different tariffs for domestic and industrial customers. Utilities should be aiming to provide a good service to customers while keeping charges as low as possible. Unit operational costs per cubic metre sold reflect the cost of providing water at the customer take off point while operating cost coverage ratio (OCCR) is a key measure of the utility's ability to cover its operating costs (excluding interest and depreciation) from revenues, without reliance on external subsidies. Taken together, these three indicators give insight into the financial discipline of a utility, its ability to cover operational costs with revenues from tariffs and the general commitment to pursue a commercial approach to the provision of a public service.

Base data for the average tariff and unit operating cost indicators was available for 91 utilities in the sample. **Figure 2.29** summarises the regional variations in average tariff and unit operating costs. Data presented in **Figure 2.29** shows that on average all participating utilities are barely able to cover operational costs from tariff revenues. This is further illustrated by individual utility data presented in **Figures 2.30, 2.31 and 2.32.** In the Eastern region, the average tariff per cubic meter of water billed ranges from as low as US$0.12 (SOUWASA, Songea Tanzania) to as high as US$1.16 (KIWASCO, Kisumu Kenya). The range for Western utilities is US$0.01 (RWSB, Nigeria) to US$1.09 (LWSC, Liberia). In general, the highest average tariffs are to be found in the Southern region with a quarter of the sample reporting average tariffs more than US$1.0 per cubic meter of water billed and an average of US$ 0.76 compared to only US$0.4 - 0.6 elsewhere in Africa. Utilities in the Eastern region report lower operating costs compared to the other regions. The average for Southern utilities is twice that of Eastern utilities but the difference largely reflects the high cost of water in Namibia and South Africa.

Furthermore, individual utility data on operating cost coverage ratios is presented in **Figures 2.33 - 2.35.** An OCCR value greater than one means that revenues from tariffs cover the operating and maintenance (O&M) costs. A value less than one indicates that a utility is not able to cover its O&M costs. An OCCR value equal to one means that a utility barely covers its O&M costs. The average OCCR value for the entire sample is just about unity, further indicating that operating costs are covered with a narrow margin that likely falls well short of what is needed to recoup capital expenditures. Based on the performance of the top 25 percent of the sample of utilities, a reasonable OCCR target for identifying best performers is 1.2 - slightly

lower than the benchmark level of 1.5 for developing countries as proposed by Tynan and Kingdom (2002). Based on this criterion only 20 utilities (out of the 91) can be considered good performers - 8 from the Southern region, 6 from the Western and 6 from the Eastern region.

It should be noted that the calculation of OCCR values above was based on billed revenues rather than actual collections. When actual collections are used in the calculation the story changes dramatically. For a start, the average OCCR for the entire sample drops from unity to just about 0.8, suggesting that without improvements in collections, utilities will continue to struggle to meet their operating costs. Individual utility data is even more revealing (see Figures 2.36-2.38). In the Eastern region, with the exception of MWSC (Mombasa, Kenya), NWSCO (Nairobi, Kenya) and DDWSSA (Dire Dawa, Ethiopia), all the other utilities would fail to cover their operating costs (Figure 2.36). Moreover, if we consider the benchmark OCCR value of 1.2, all the utilities previously considered good performers would lose their places in the group.

Similarly, in the Western region, only three utilities - SDE (Senegal), GWCL (Ghana) and SONEB (Benin) - would be able to meet their O&M costs, but only SDE (Senegal) and SONEB (Benin) maintain their place in the best performer group (Figure 2.37). In the Southern region, five utilities -CWA (Mauritius), Midvaal (S.Africa), WASA (Lesotho), Saldanha Bay (S.Africa) and Stellenbosch (S.Africa) - would meet their operating costs from collected revenues. However, of the eight utilities previously considered good performers, only CWA and Midvaal would maintain their place in the group (Figure 2.38). These results lead to a rather obvious conclusion that without improving collections most utilities in the sample would struggle to stay afloat.

The results also seem to suggest that utilities do not necessarily need to increase tariffs to improve financial viability. Putting more effort in improving collections and reducing losses can be just as effective and could be the initial step utilities need to take towards financial viability. The next sub-section examines the performance of utilities on key collections indicators.

Collection ratio and collection period: These indicators, along with average tariff and operating cost coverage ratio, impact on the financial health of a utility. Utility managers know very well that billing customers and getting paid are two different things. Poor collection efficiency is mostly blamed on customers but the utility may also be at fault for delayed and faulty billings, inadequate responses to consumer queries on billings, poor customer service and a lukewarm effort to collect overdue accounts.

The effectiveness of the collections process is measured by the amount of outstanding

Figure 2.30: Average tariff vs. unit operating 1costs for utilities in the Eastern region

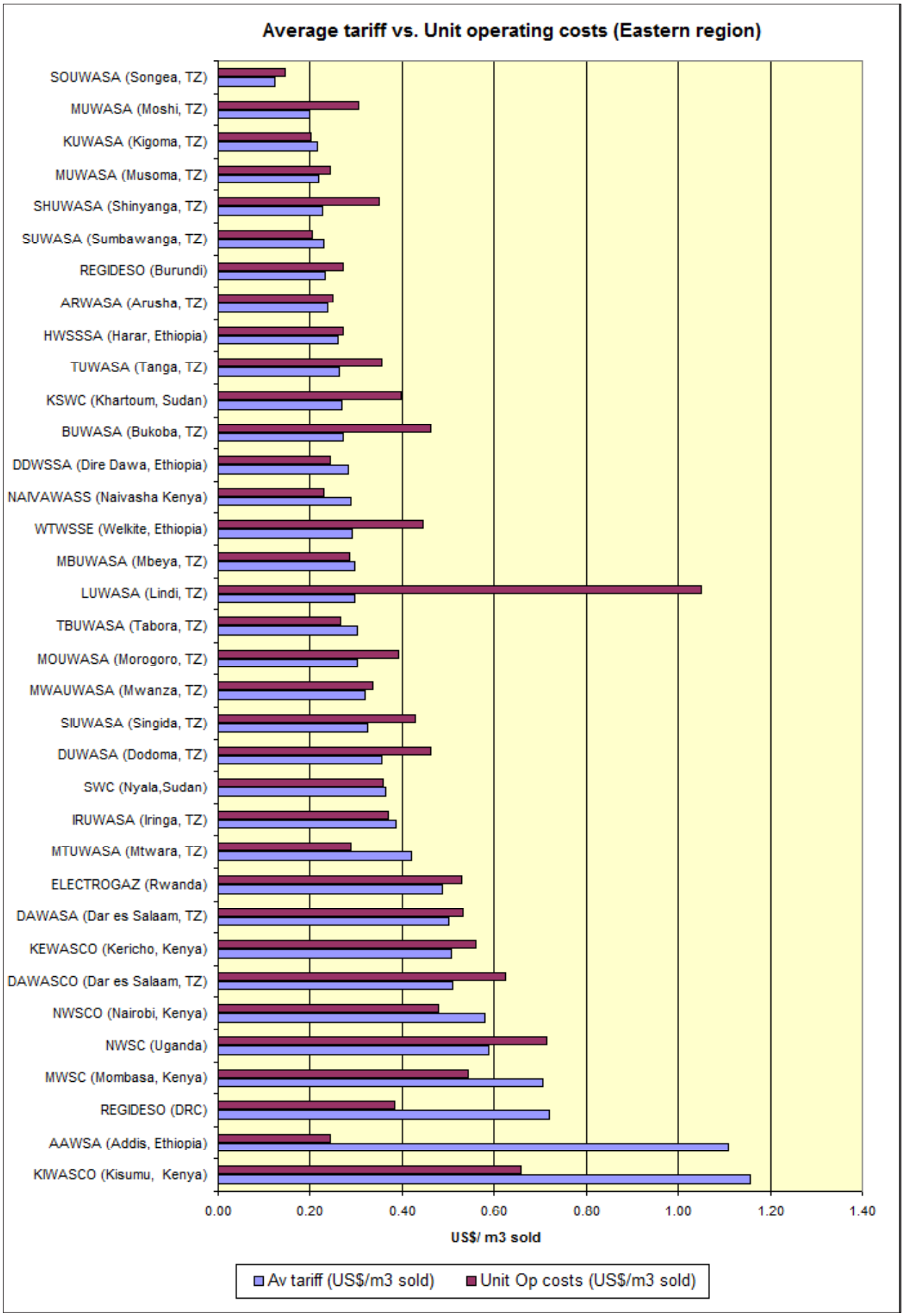


Figure 2.31: Average tariff vs. unit operating costs for utilities in the Western region

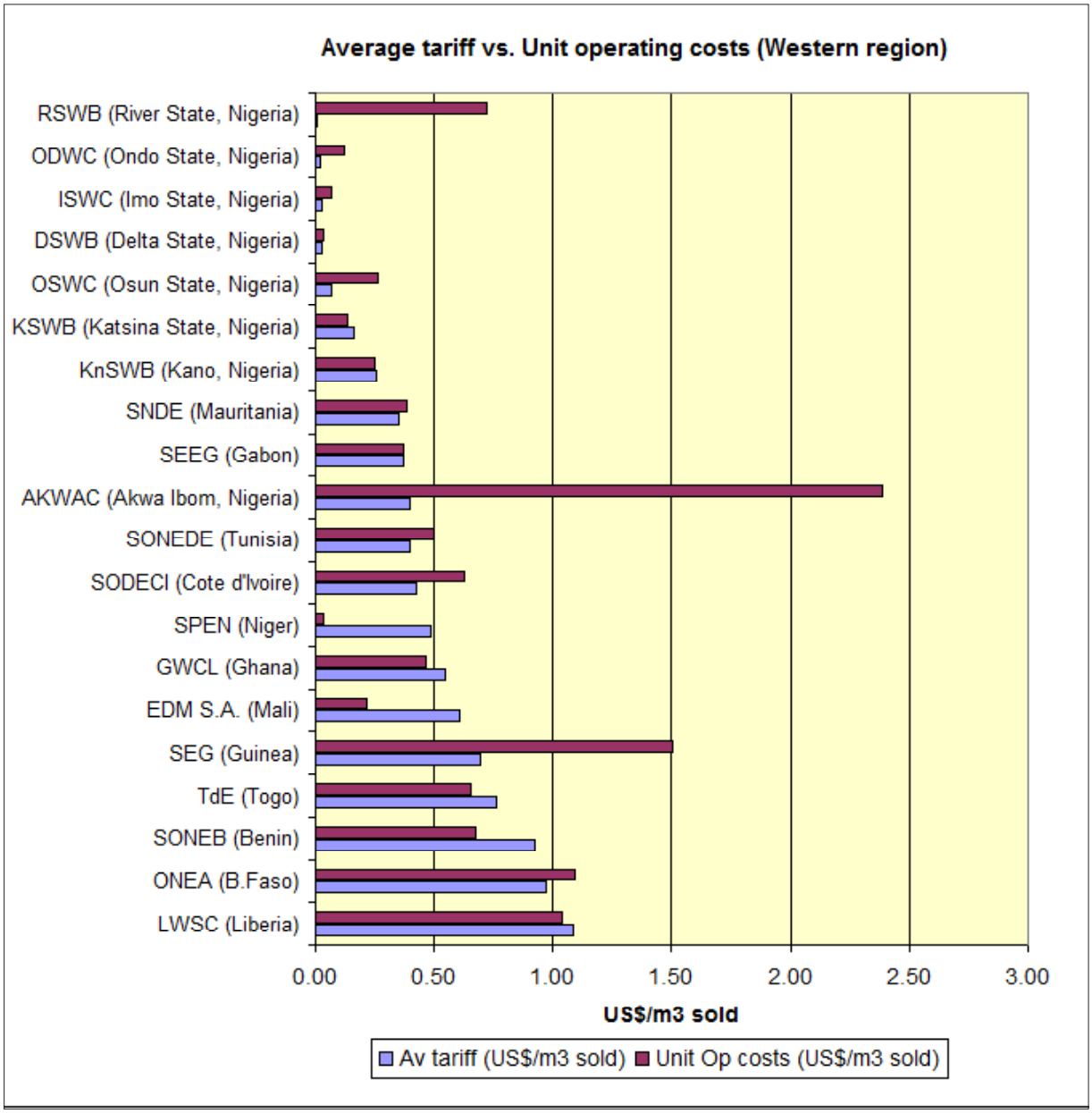


Figure 2.32: Average tariff vs. unit operating costs for utilities in the Southern region

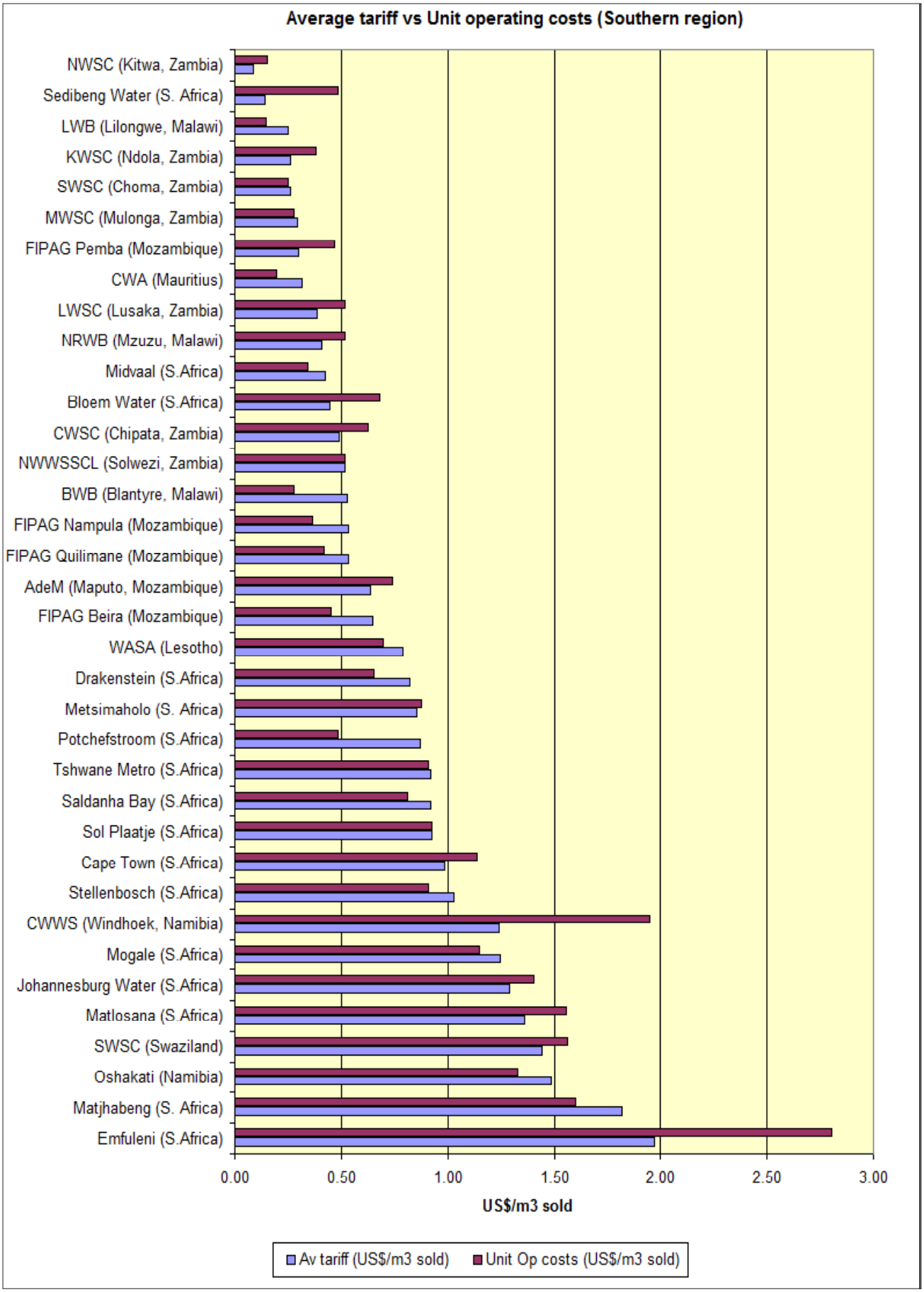


Figure 2.33: Operating cost coverage ratios for utilities in the Eastern region

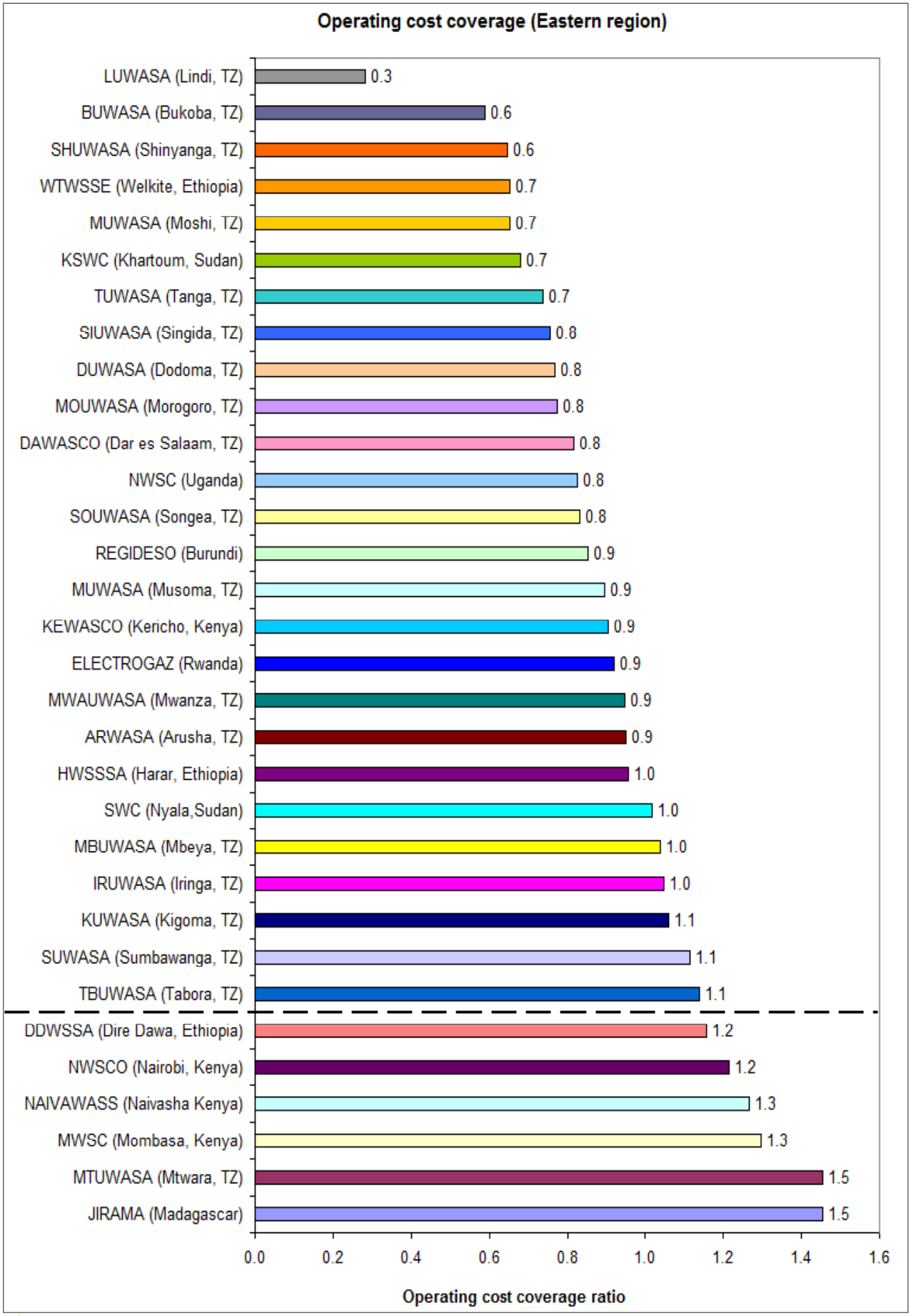


Figure 2.34: Operating cost coverage ratios for utilities in the Western region

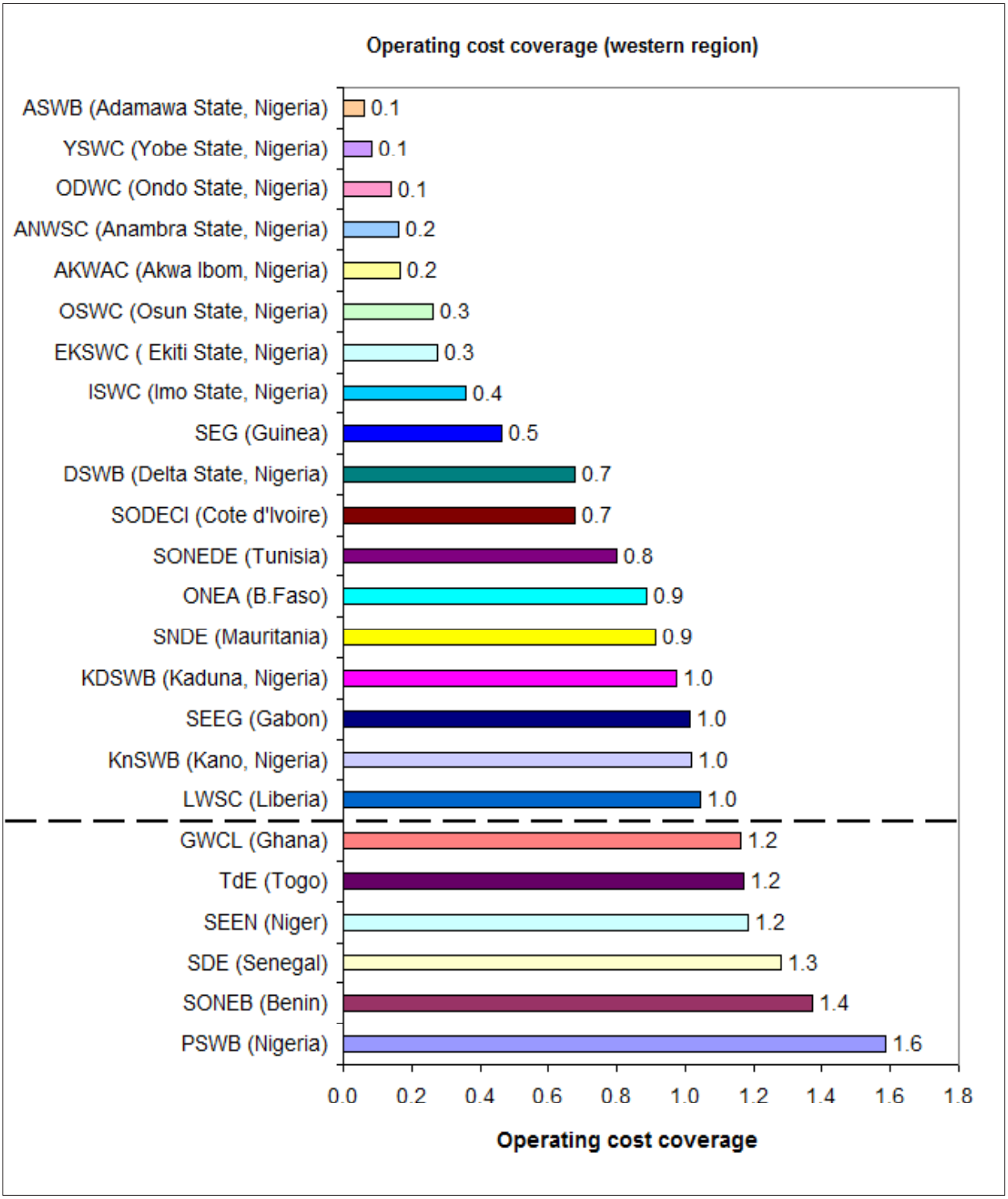


Figure 2.35: Operating cost coverage ratios for utilities in the Southern region

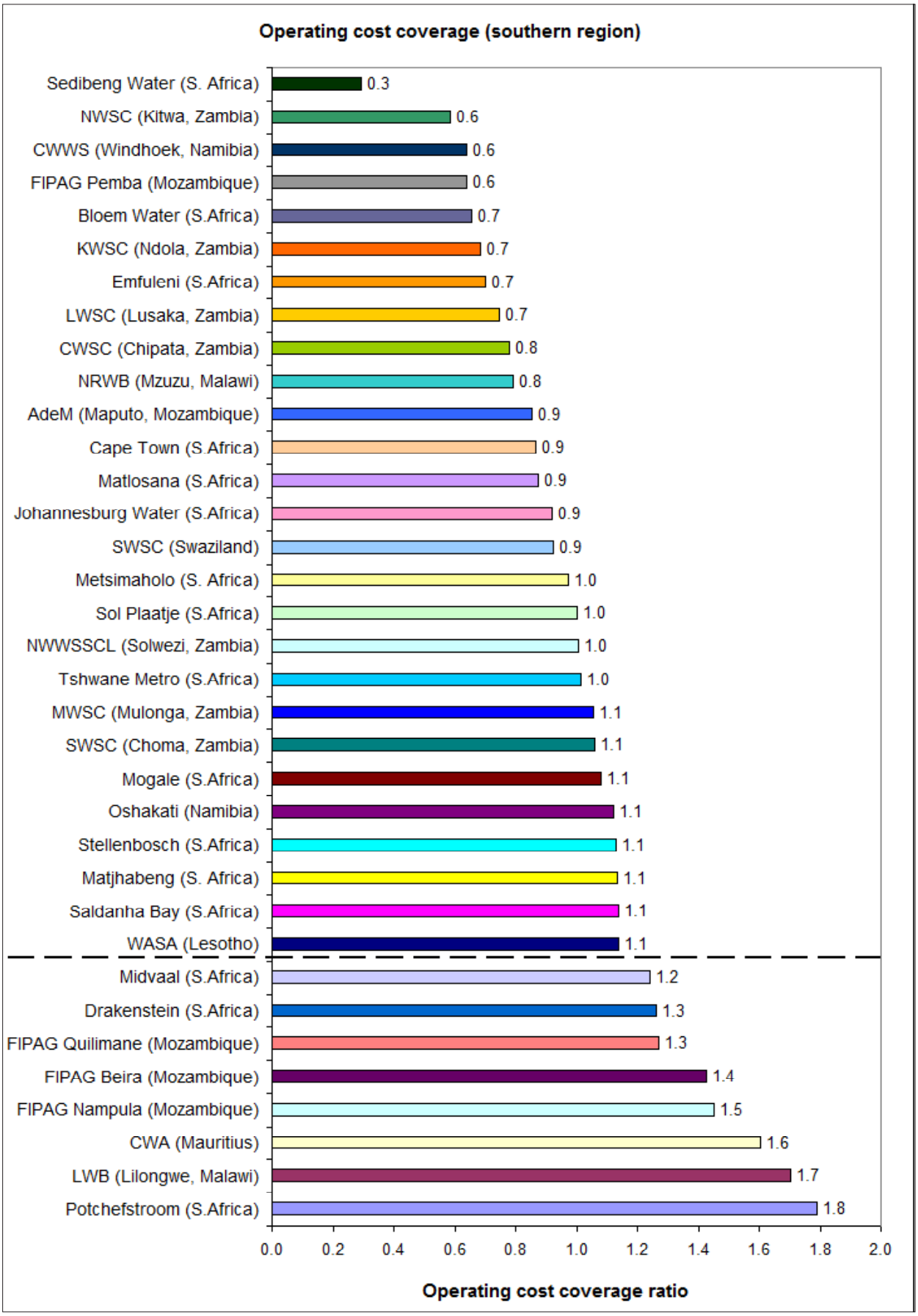


Figure 2.36: OCCR based on actual revenues vs. OCCR based on billings (Eastern region)

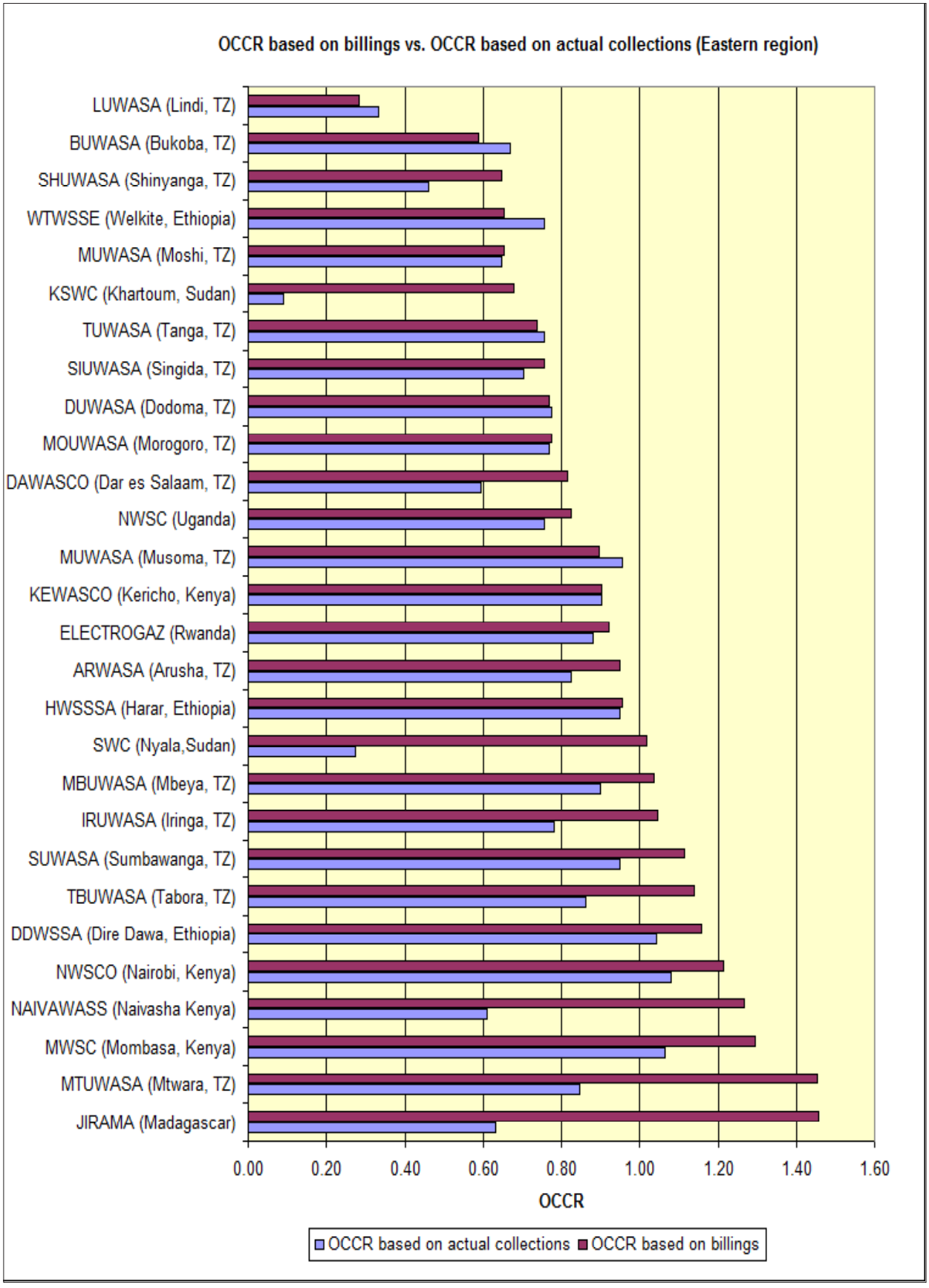


Figure 2.37: OCCR based on actual revenues vs. OCCR based on billings (Western region)

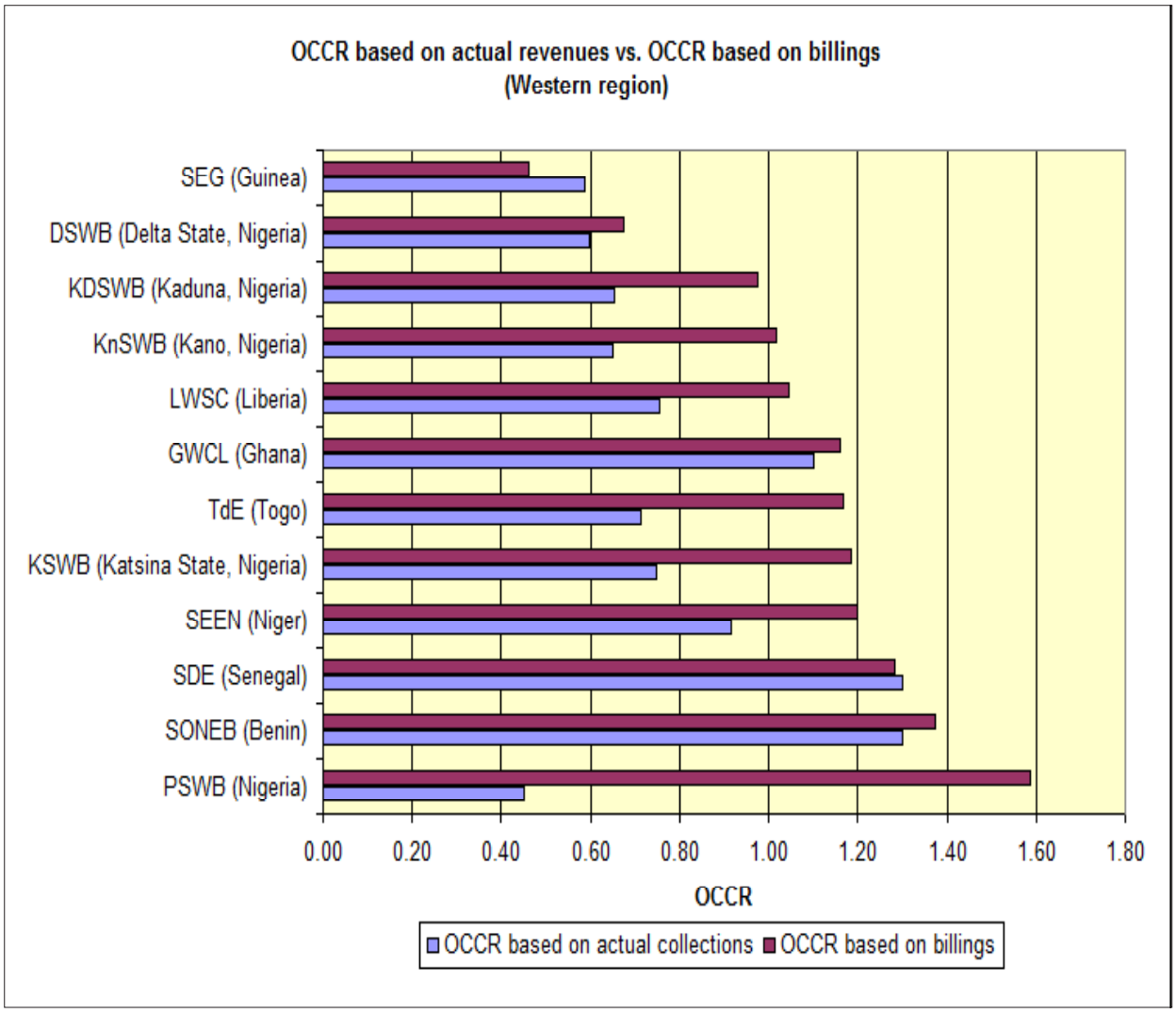
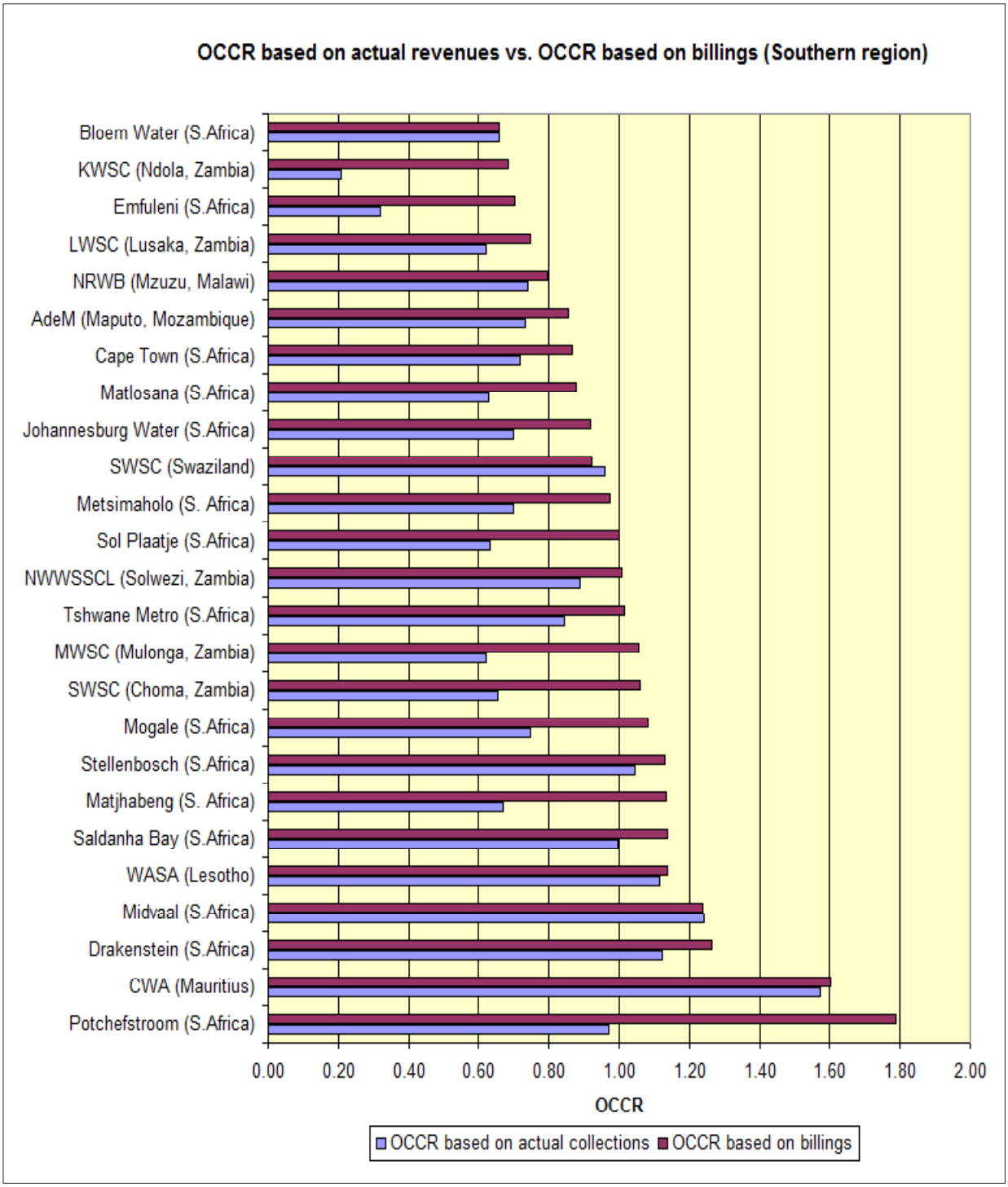


Figure 2.38: OCCR based on actual revenues vs. OCCR based on billings (Southern region)



revenues at year end compared to the total billed revenue for the year, in day equivalents and by the total amount collected as a percentage of the billed amount. A total of 78 utilities had usable base data for calculating collection ratios but only 68 utilities had data on accounts receivables. Figure 2.39 shows the regional averages for collection ratio and collection period.

Figure 2.39: Regional averages for collection ratio and collection period

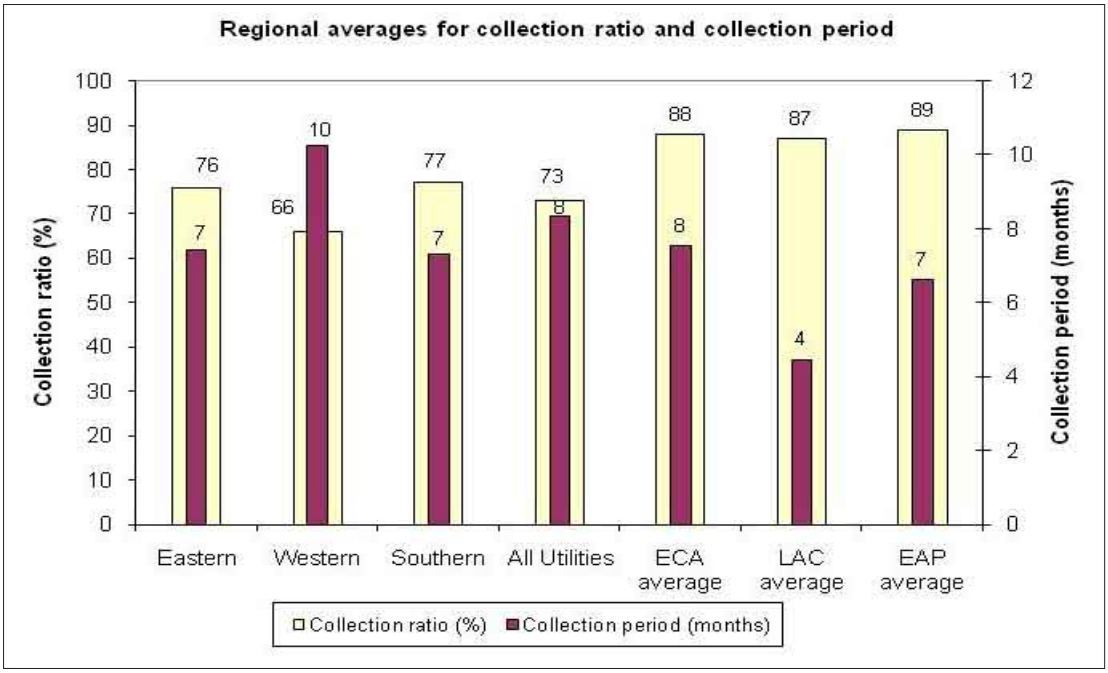


Table 2.3: Examples of Utilities Reporting Collection Ratios >100 %

Utility Name	Collection ratio (%)	Collection period (months)
SOUWASA (Songea, TZ)	152	8
LUWASA (Lindi, TZ)	117	7
MUWASA (Musoma, TZ)	107	6
GWCL (Ghana)	110	5
CWSC (Chipata, Zambia)	146	18
SWSC (Swaziland)	104	3
JTWSSSE (Jimma, Ethiopia)	134	2

On average, most utilities are only able to collect about 73 percent of their billed amounts, and it takes an average of eight months to collect outstanding revenues. There is little variation in average performance between regions. In addition the performance of this sample of African utilities is not substantially different from other world regions, such as ECA and EAP where utilities report an average collection ratio of 88 and 89 percent and a collection period of seven and eight months, respectively.

Figures 2.40-2.45 show individual utility performance on collection indicators. Based on the performance of the top 25 percent of all utilities, reasonable cut-off points for identifying strong performers are 93 percent and 3 months for collection ratio and collection period respectively. The target for collection period is consistent with the best practice level for developing countries as proposed by Tynan and Kingdom (2002). A few utilities report collection ratios of over 100 percent - which may simply reflect a drive to collect arrears from earlier periods. Table 2.3 lists the utilities that report collection rations above 100 percent.

In the Southern region, CWSC (Chipata, Zambia) reports a collection ratio of 146 percent, but data on collection period suggests that it takes the utility 18 months to collect its outstanding revenues. The same applies to SOUWASA (Songea, Tanzania) which reports a collection ratio of 152 percent and a collection period of 8 months. KIWASCO (Kisumu) reports a collection ratio of 100 percent, but data on collection period suggests that the utility takes 17 months to collect its outstanding bills. This implies that the reported good performance may actually be in collection of arrears rather than actual bills issued in a particular period.

For purposes of identifying strong and weak performers the two indicators - collection ratio and collection period - should be examined together. Only one utility (HWSSSA, Harar Ethiopia) in the Eastern region then emerges as a strong performer on collections (see Figures 2.40 and 2.41). However, even at this level of performance on collections, the utility barely covers its operating costs. In such a case, an increase in tariff above the current level (average US$0.26) might be warranted. Similarly, in the Western region, only SDE (Senegal) would be considered a good performer based on collections indicators as it collects 99 percent of its billed revenues in under three months. The good performers on collections in the Southern region are Bloem water (S.Africa), Stellenbosch (S.Africa) and NRWB (Mzuzu, Malawi).

Finally, the review undertaken during the regional workshops showed that in many countries public sector entities accounted for a significant part of uncollected bills. This emerged as a systemic issue requiring structural reform related to: (i) who has

Figure 2.40: Bill collection ratios for utilities in the Eastern region

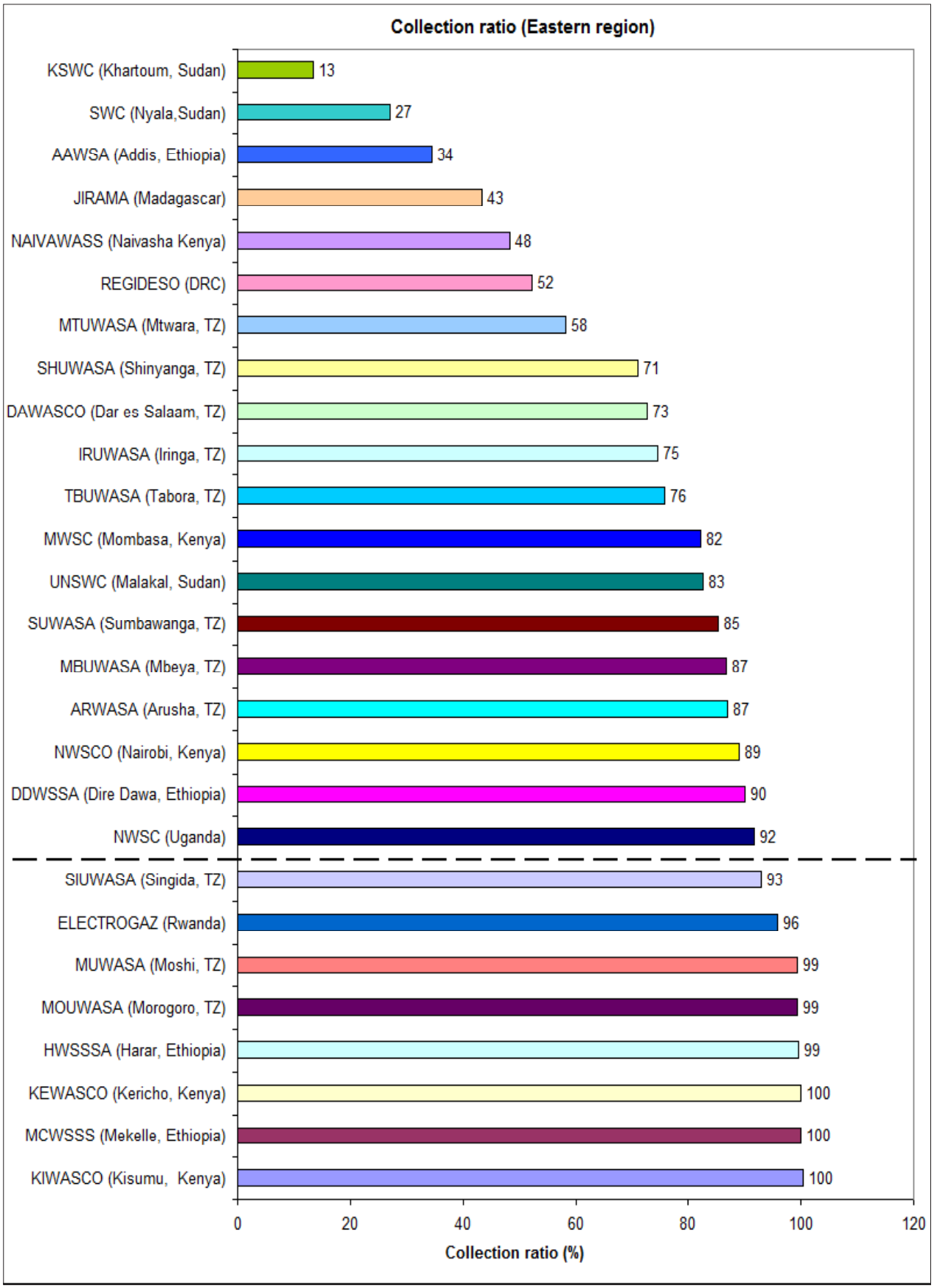


Figure 2.41: Collection period for utilities in the Eastern region

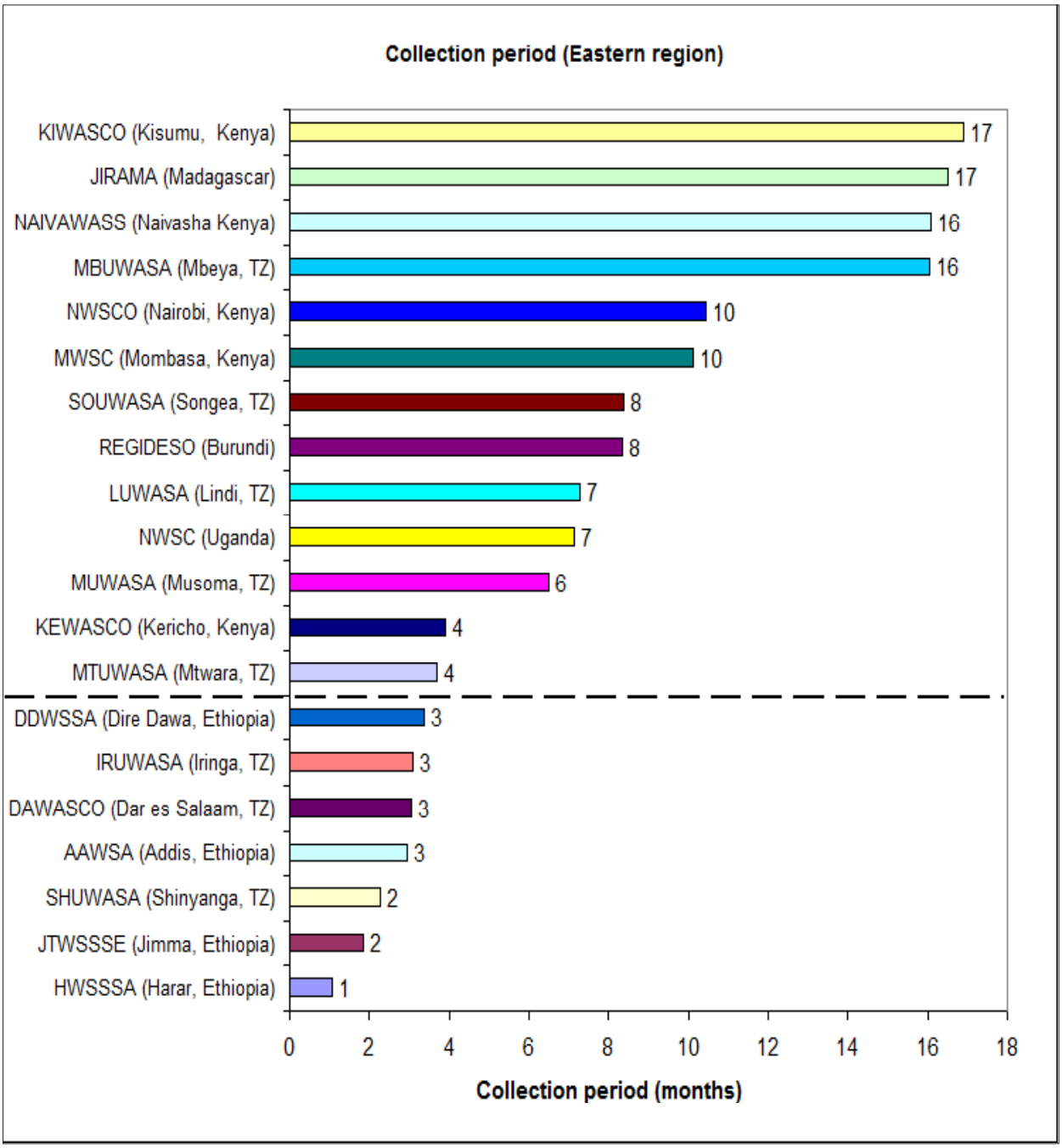


Figure 2.42: Bill collection ratios for utilities in the Western region

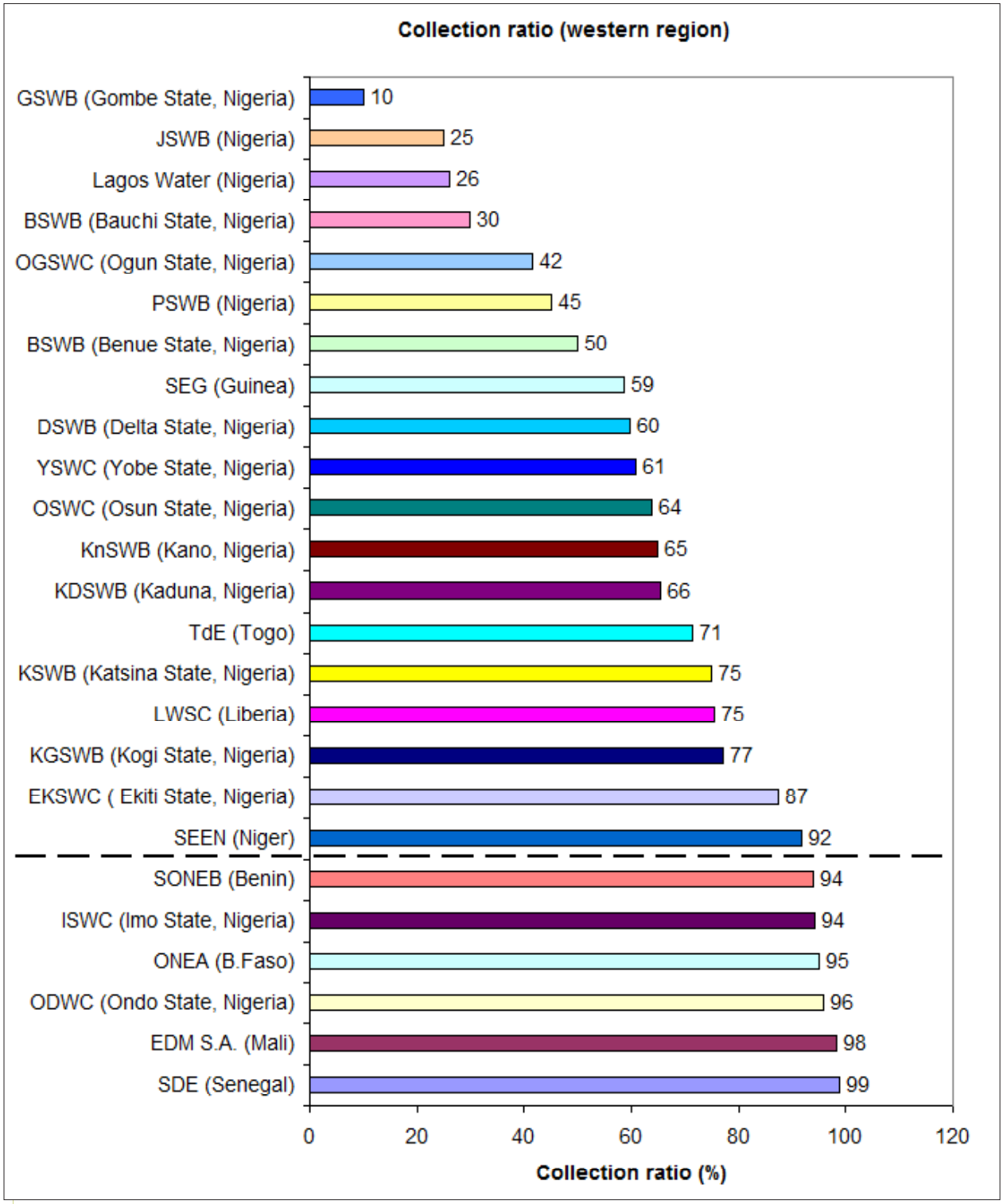
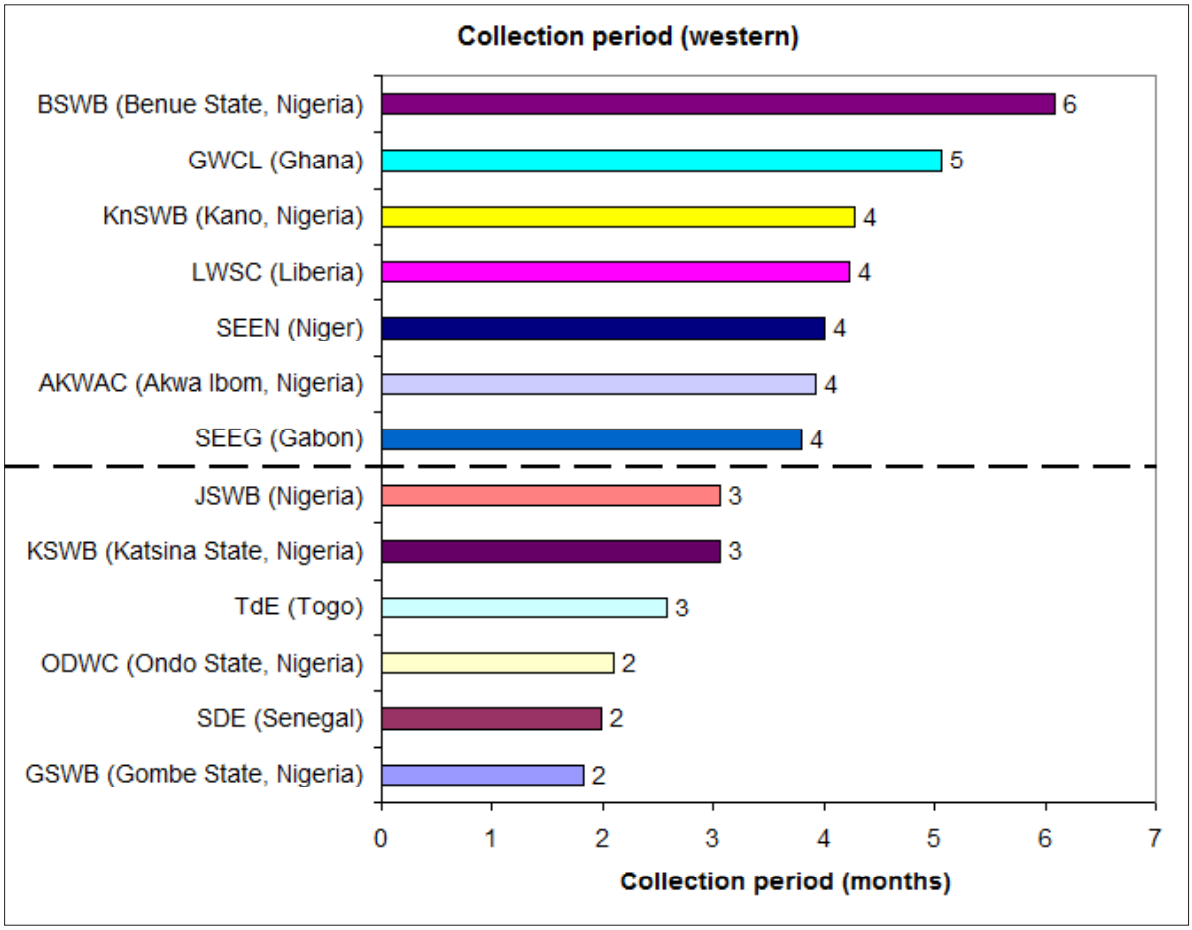


Figure 2.43: Collection periods for utilities in the Western region



their water paid for by the State, (ii) how payment for water bills is provided for in state budgets, (iii) whether payments are made off the top from treasury or left to the discretion of the entities; and (iv) who has the authority to disconnect delinquent accounts. The workshops showed that all successful reformers had tackled these issues and there was significant demand for knowledge exchanges on this subject.

2.1.3 Overall efficiency indicator

The discussion on financial performance takes a partial look at different aspects of operational performance with some utilities performing well on some indicators and worse on others. It is however difficult to tell which ones are the most efficient and we cannot reach any overall conclusions on performance. One way of providing a global indication of utility

Figure 2.44: Bill collection ratios for utilities in the Southern region

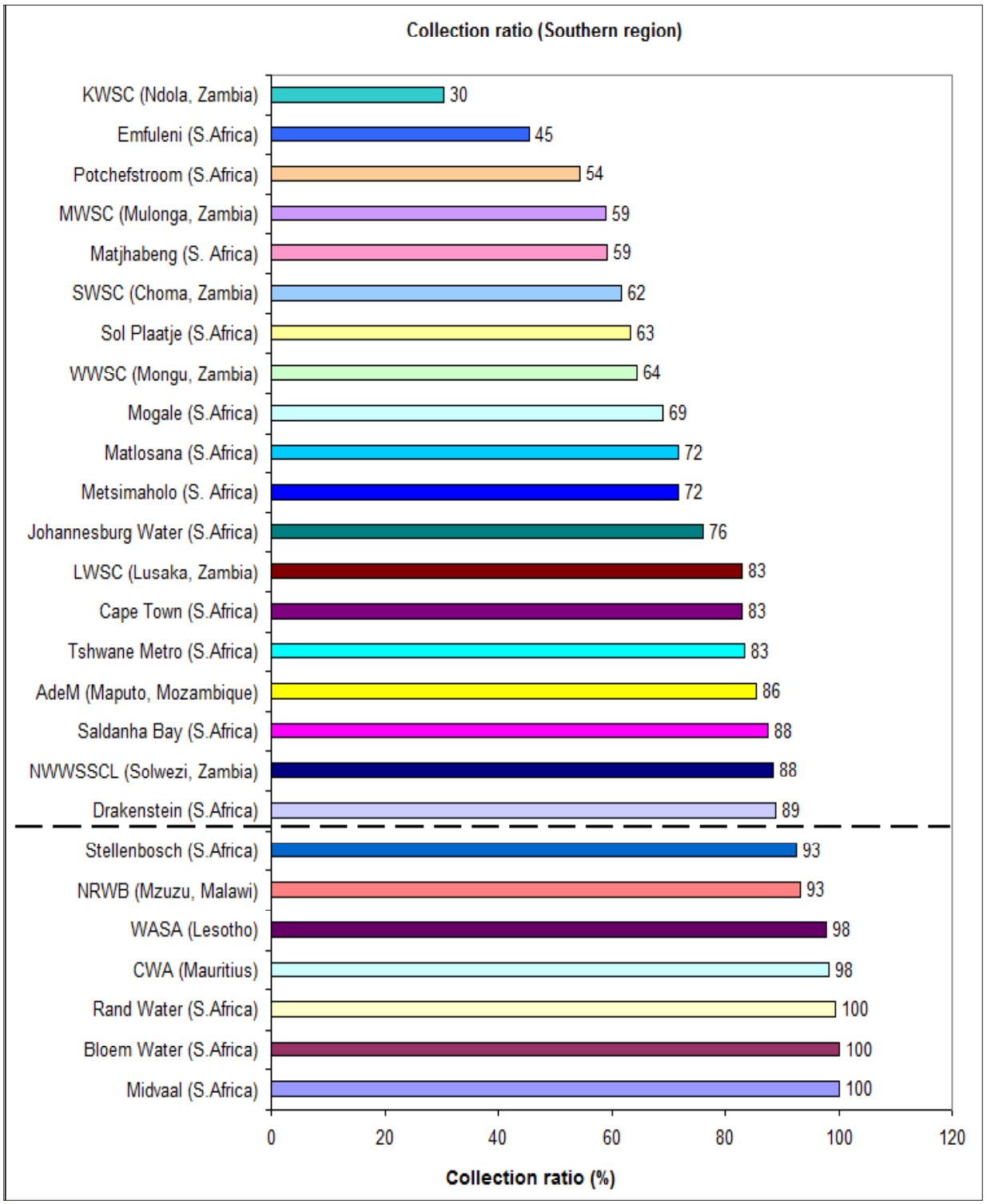
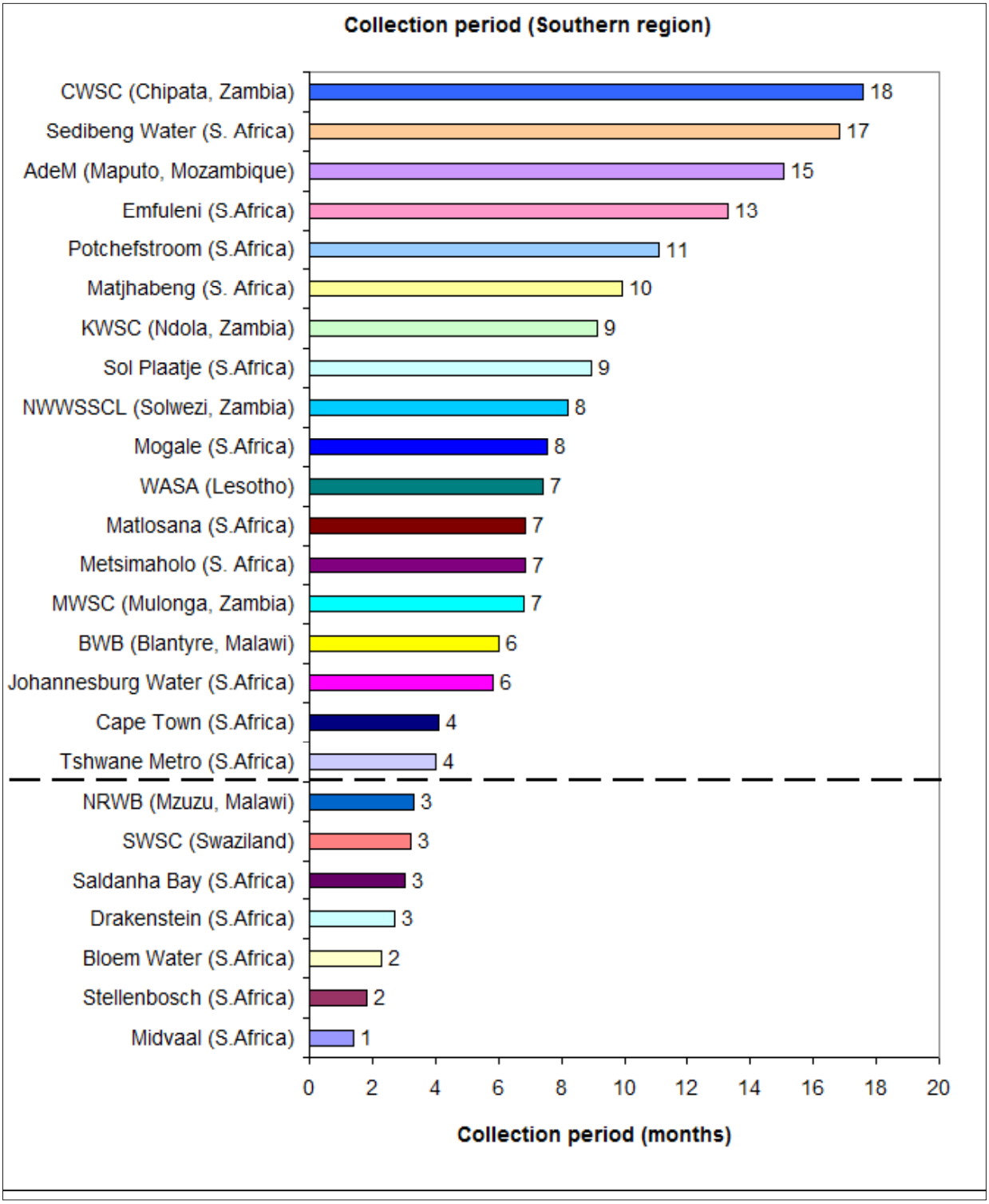


Figure 2.45: Collection periods for utilities in the Southern region



efficiency is to compare the volume of water for which the utility collects revenue and the total volume it produces. This comparison leads to a formulation of an overall efficiency indicator (OEI) given as: [(1-NRW)* Collection ratio] in percentage. A total of 78 utilities had data to enable the calculation of OEI. Figure 2.46 shows the regional variation. The results clearly show the extent of inefficiencies in African water utilities. On average, all utilities in the sample get revenue for only half (52 percent) of the water they produce. Eastern utilities perform slightly worse than the other two regions, because of the generally higher levels of water losses in the region.

Individual utility data presented in Figures 2.46-2.48 confirms this picture. In the Eastern region OEI ranges from as low as 7 percent (KWSC, Khartoum, Sudan) to 83 percent (Welkite, Ethiopia). Based on the performance of the top quartile of all utilities, a reasonable target for OEI for this sample is 66 percent; utilities should be able to get revenue for at least 66 percent of the water they produce. This is the efficiency achieved by the top 25 percent of all utilities in the sample. Based on this criterion, only 20 utilities (out of 78) can be considered efficient overall. The Eastern and Southern regions are each represented by six utilities in this group, while the Western region is represented by eight utilities. These results

Figure 2.46: Regional variation in utility overall efficiency

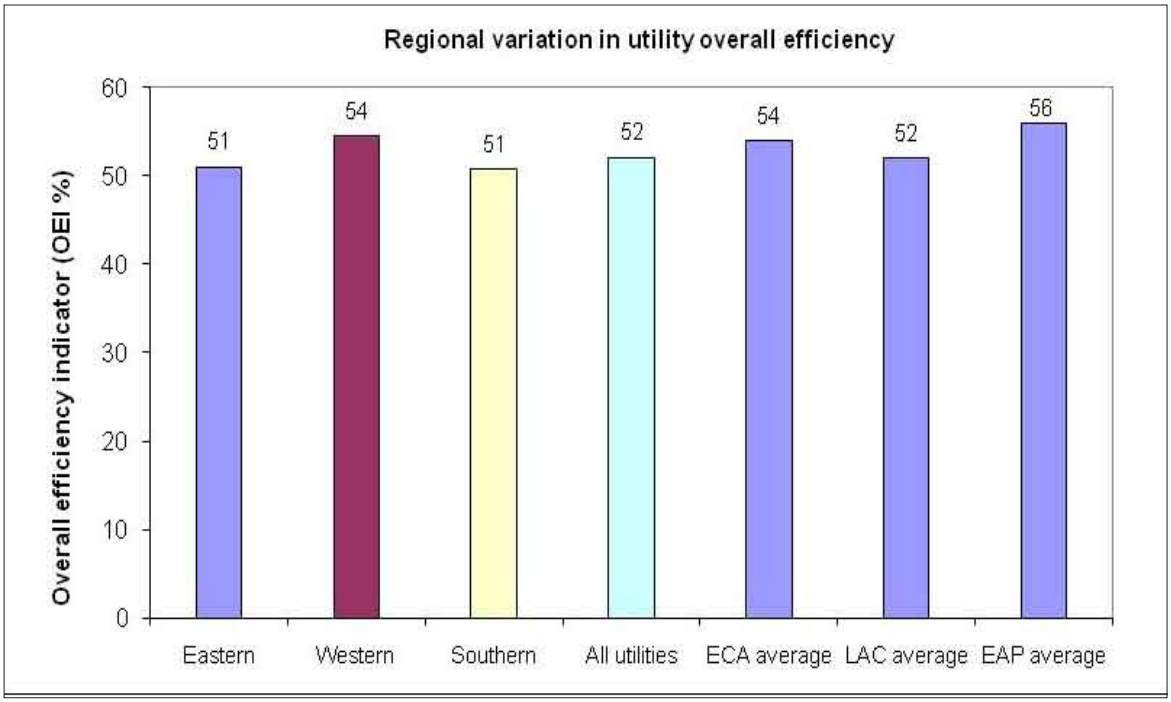


Figure 2.47: Overall efficiency indicator (Western region)

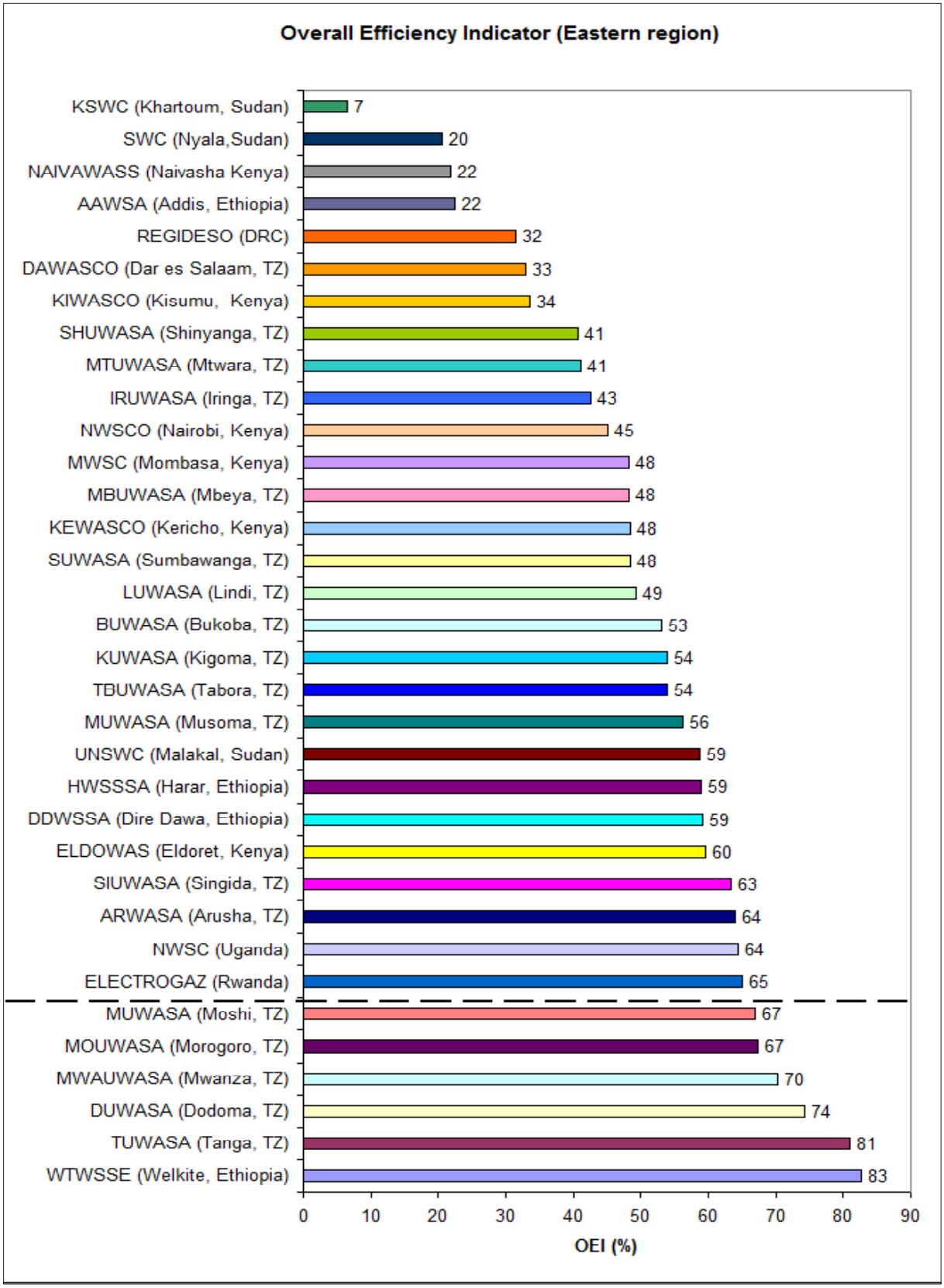
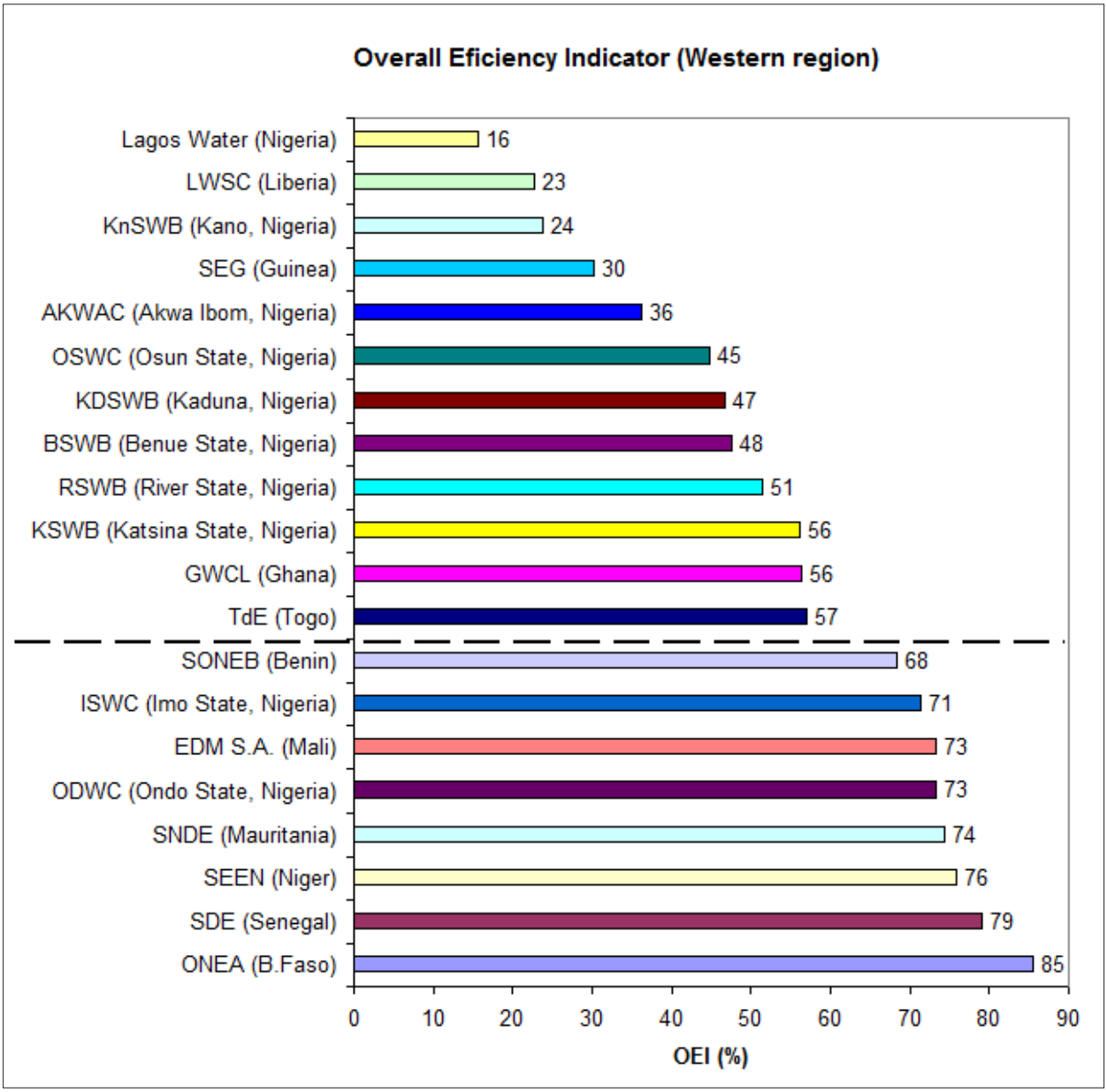


Figure 2.48: Overall efficiency indicator (Southern region)



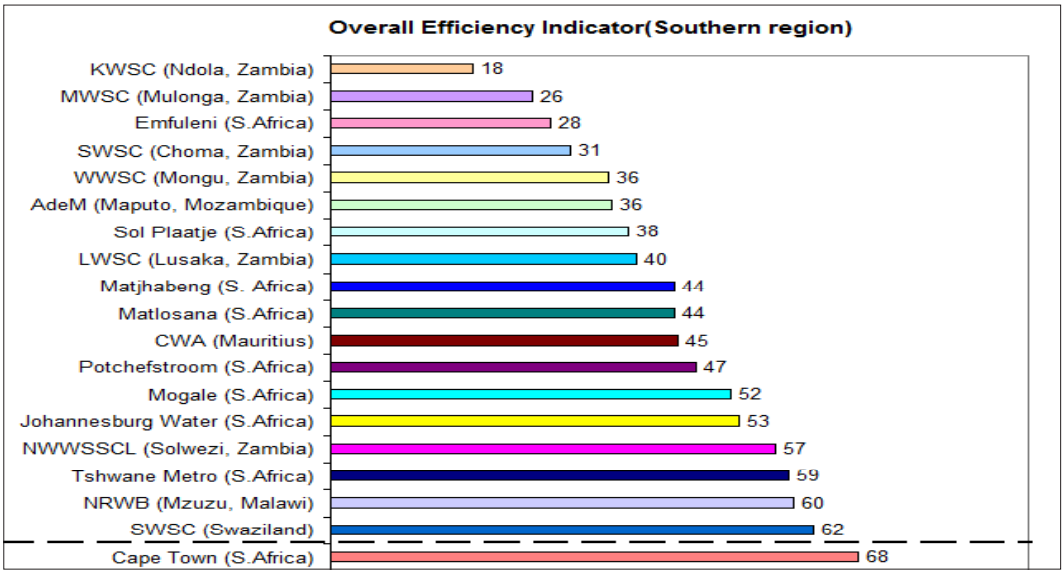
point to the need for utilities to significantly reduce NRW levels and also improve their collection efficiency.

2.1.4 Quality of MIS

Improving the quality of utility management information systems is a key priority of the WOP- Africa program. Without a strong MIS, utilities cannot carry out monitoring and evaluation (M&E) or performance assessments, neither can they participate in benchmarking initiatives aimed at continuous improvement. A key indicator for judging the quality of a utility's MIS is the level of response to the questions in the USAQ tool used in this assessment exercise. This is considered a fair indicator because the USAQ tool required utilities to provide a huge amount of data and in a highly disaggregated format. It is assumed that only utilities with well functioning information systems would be able to provide such data on demand[5]. However, the indicator does not tell us anything about the quality of information provided and therefore may not be a reliable indicator of a well-functioning MIS. At the moment it is the only available indicator for gauging whether a utility has some sort of information system for collecting relevant operational data and whether that system is responsive. Other indicators used include presence of internal M&E systems and involvement in benchmarking, both of which assume a functioning MIS.

The USAQ response rate indicator applies to only those utilities that provided data through the USAQ tool. We have no way

Figure 2.49: Overall efficiency indicator (Southern region)



[5]Not all utilities are expected to have data in all the categories. For example, some utilities are not required to collect data on assets since the responsibility may lie with an asset holding company (e.g. in Senegal, Cote d'Ivoire and Kenya)

Figure 2.50: Regional variation in mean USAQ response rate

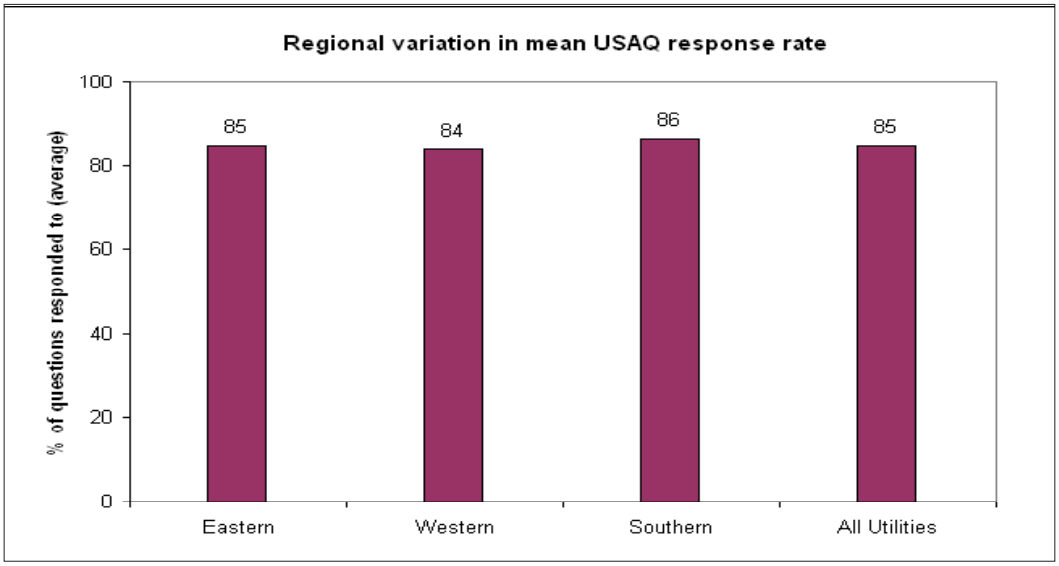


Figure 2.51: USAQ response rate for utilities in the Western region

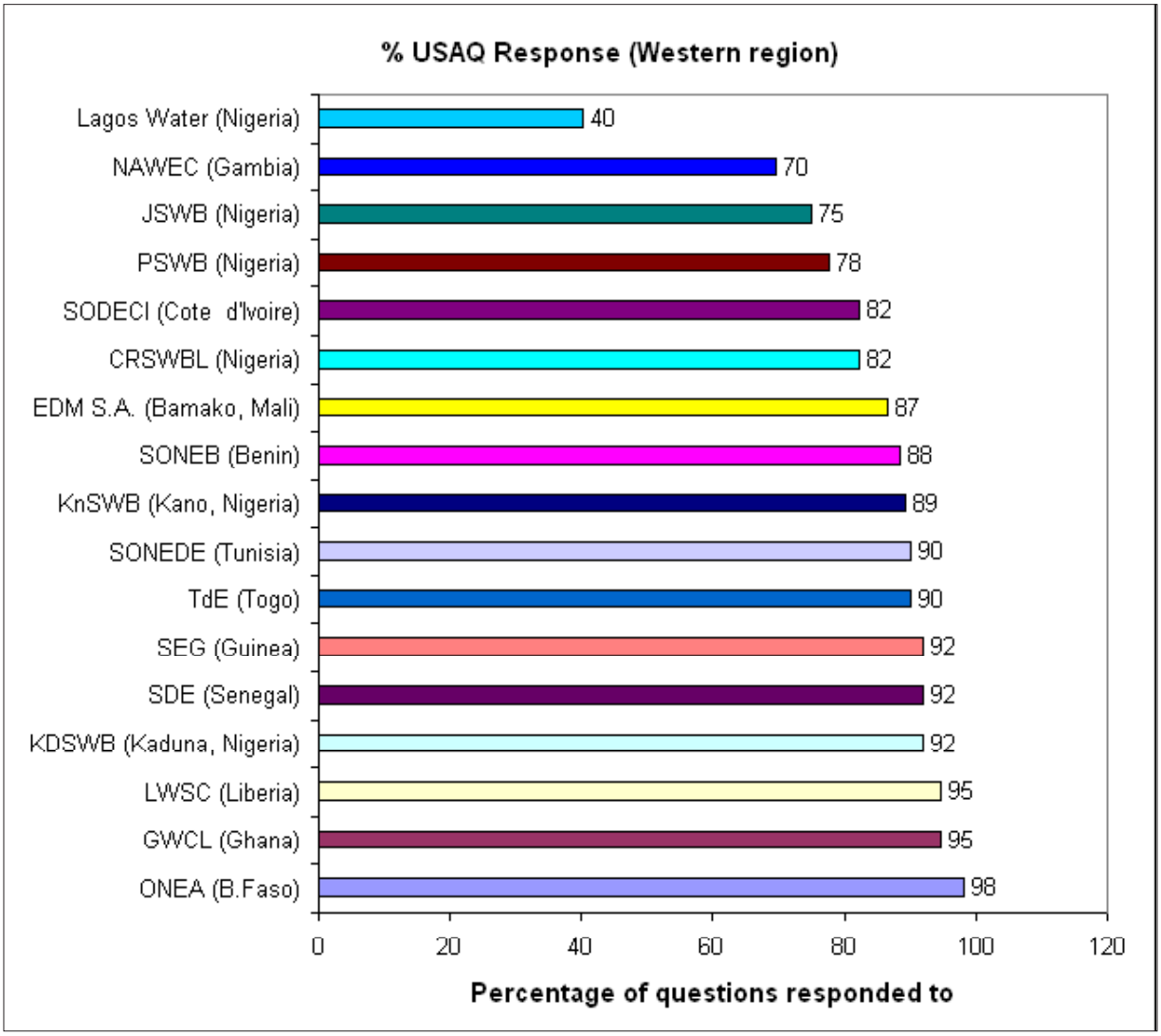
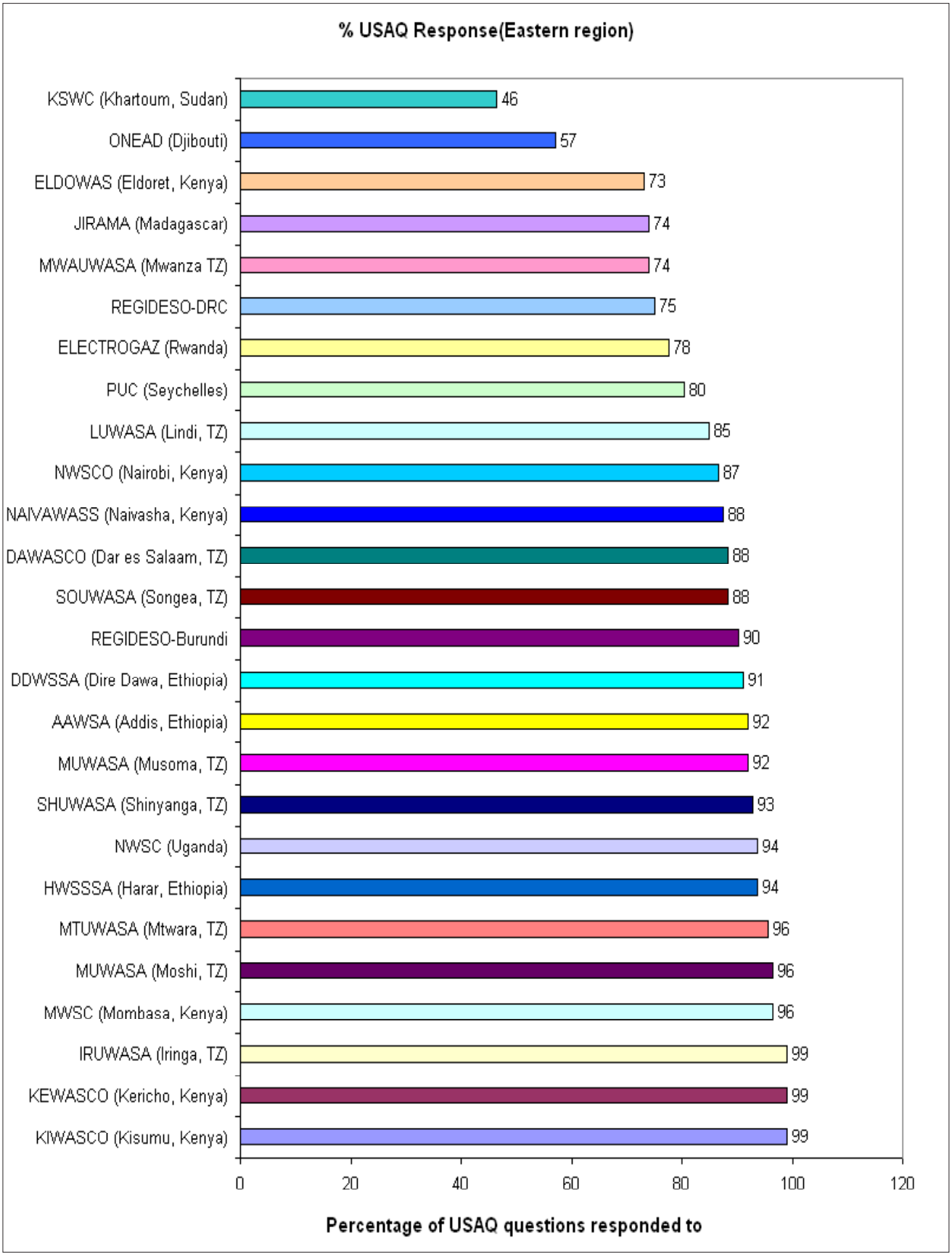


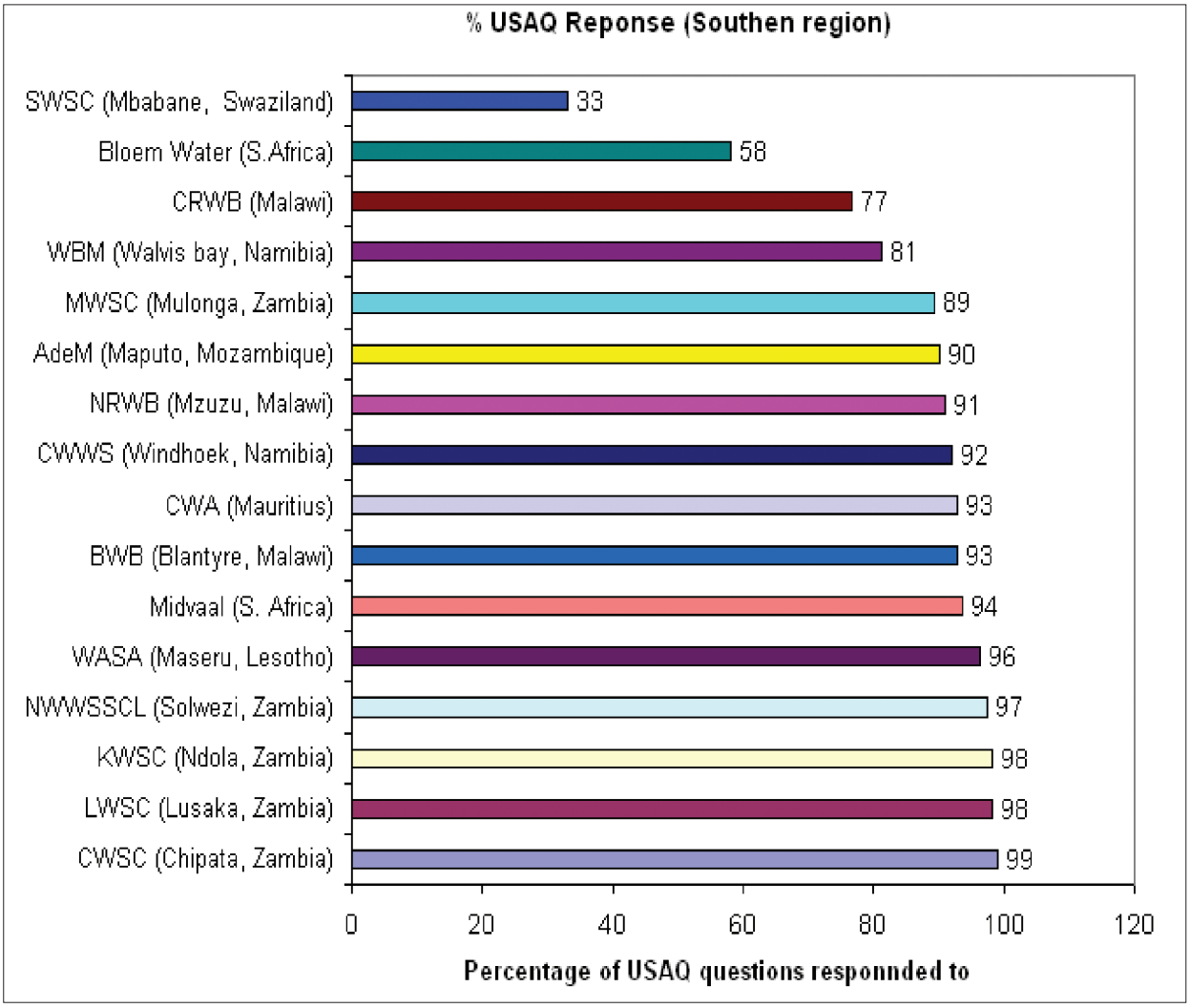
Figure 2.52: USAQ response rate for utilities in the Eastern region



of assessing the quality of MIS for those utilities whose data was obtained from external sources. Figure 2.49 shows the regional variation in the mean USAQ response rate. On average, all utilities provided responses to about 85 percent of the questions in the USAQ tool. There are no significant differences in response rate between regions, suggesting that all regions may generally be at the same level in terms of the quality of management information systems.

However, a closer look at individual utility response rates provides some rough indication of which utilities have relatively well-functioning MIS and which ones would certainly need help in strengthening

Figure 2.53: USAQ response rate for utilities in the Southern region



their systems. This individual utility data is presented in **Figures 2.50-2.52.** In the Eastern region **(Figure 2.51)**, utilities such as KSWC (Khartoum, Sudan) and ONEAD (Djibouti) have very low response rates compared to the rest. It is likely that this level of performance is a manifestation of inadequate or non-existent utility management information systems. The same applies to SWSC (Mbabane, Swaziland) and Bloem water (S.Africa) in the Southern region, as well as Lagos water (Nigeria) in the Western region. Zambian utilities have the highest USAQ response rates (above 95 percent). This could be due to the presence of a relatively strong regulatory system whose reporting requirements puts pressure on utilities to strengthen their information systems.

Table 2.4: Profile of utilities with high USAQ response rates (above 94 percent)

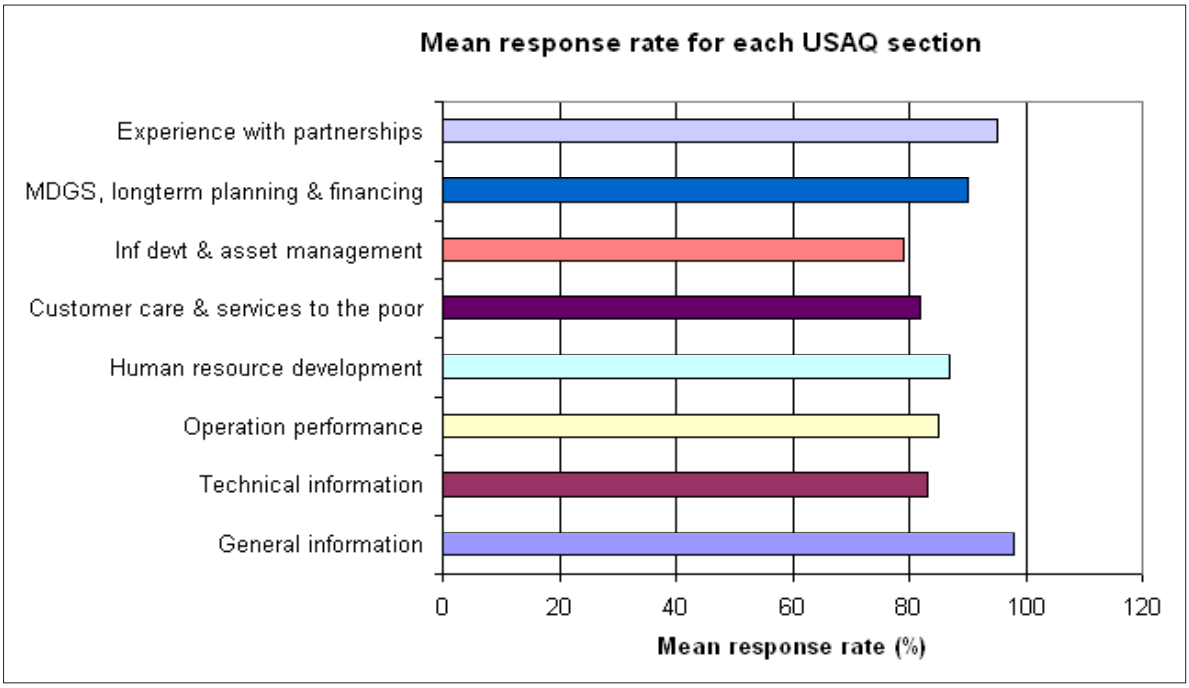
Utility name	M&E systems	Benchmarking experience			
		In country	In region	Within utility	Membership of benchmarking group
KIWASCO (Kisumu, Kenya)	Yes	Yes	No	No	No
KEWASCO (Kericho, Kenya)	Yes	Yes	Yes	Yes	Yes
IRUWASA (Iringa, TZ)	Yes	Yes	Yes	Yes	Yes
MWSC (Mombasa, Kenya)	No	No	No	No	No
MUWASA (Moshi, TZ)	Yes	Yes	Yes	No	Yes
MTUWASA (Mtwara, TZ)	Yes	Yes	No	No	No
HWSSA (Harar, Ethiopia)	No	No	No	No	No
NWSC (Uganda)	Yes	Yes	Yes	Yes	Yes
ONEA (Burkina Faso)	Yes	No	Yes	No	No
GWCL (Ghana)	Yes	No	No	Yes	No
LWSC (Liberia)	Yes	No	No	Yes	No
CWSC (Chipata, Zambia)	Yes	Yes	No	No	Yes
LWSC (Lusaka, Zambia)	Yes	Yes	No	Yes	No
KWSC (Ndola, Zambia)	No	Yes	No	Yes	Yes
NWWSSCL (Solwezi, Zambia)	Yes	Yes	Yes	Yes	Yes
WASA (Maseru, Lesotho)	Yes	No	No	No	Yes
Midvaal (S. Africa)	Yes	Yes	Yes	Yes	Yes

Table 2.4 gives some information on the profile of utilities with relatively high USAQ response rates (above 94 percent). With the exception of MWSC (Mombasa, Kenya) and HWSSA (Harar, Ethiopia), all the remaining utilities have functioning M&E systems as well as benchmarking experience - which further explains their relatively good scores on the quality of MIS indicator.

Beyond inter-utility comparisons it is also worthwhile examining the level of response to each section of the USAQ in order to identify focus areas for strengthening utility information systems.

Figure 2.53 shows the mean response rate for each section of the USAQ. All the data-intensive sections (e.g. technical information, operational performance and customer care) have mean response rates slightly above 80 percent. Although this is not necessarily a poor level of response, there is certainly room for improvement. Availability of data under these areas is critical for any benchmarking exercise. The section on infrastructure development and asset management appears to be the most poorly responded to (mean response rate = 79 percent) reflecting a need for support and capacity building in the area of utility asset management.

Figure 2.54: Mean response rate for USAQ section



2.1.5 Summary of operational performance

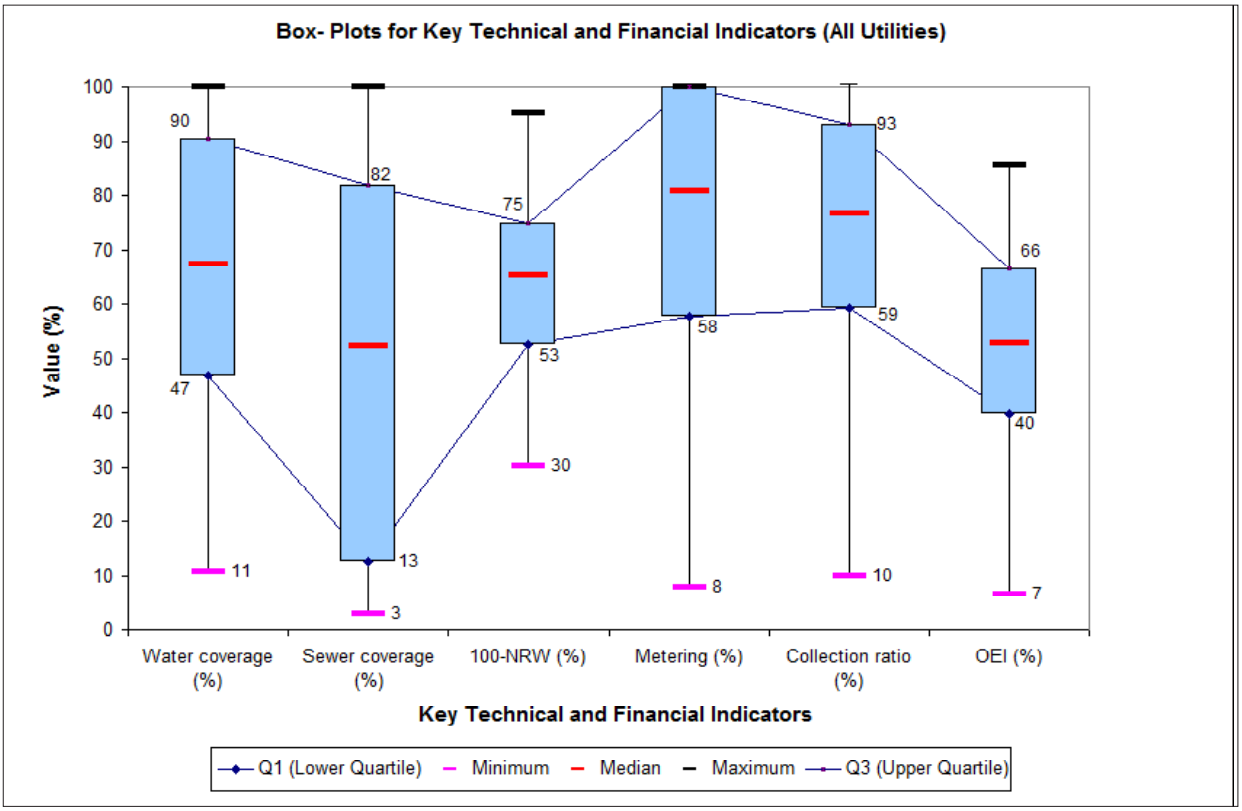
The comparison of operational performance provides insight not only on performance differences between utilities but also on regional differences. Moreover, based on the proportion of utilities making it to the best performing groups for each operational indicator (where applicable), we can identify areas where utilities are doing relatively well and areas where there is weakness. Table 2.5 and Figure 2.54 summarize the performance outlook for the entire dataset based on the set of operational indicators discussed in th previous sections. Table 2.5 shows, for each key indicator, the proportion of utilities making the best performer group from each region. This information gives us a rough idea of the areas where utilities are generally performing well or poorly and the regional differences in performance. Figure 2.54 on the other hand shows box-plots for each key operational indicator, showing the maximum, upper quartile, median, lower quartile and minimum values. The upper quartile values represent the performance targets used in identifying best performance within the sample.

Table 2.5: Proportion of utilities making the best performer group

Indicator	Target for best performance*	Valid sample			Proportion of utilities making the best performer group (%)		
		Eastern	Western	Southern	Eastern	Western	Southern
Water coverage (%)	90	42	36	40	19%	8%	55%
Sewerage coverage (%)	82	11	5	22	0%	0%	50%
Metering level (%)	100	27	14	34	11%	50%	41%
NRW (%)	25	38	24	36	10%	46%	33%
NRW (m3/km/day)	12	35	19	26	17%	42%	31%
NRW (m3/con/day)	0.3	36	23	34	25%	39%	38%
OCCR (based on billings)	1.2	32	24	35	19%	25%	23%
OCCR (based on actual revenues)	1.2	28	12	25	0%	17%	8%
Collection ratio (%)/period (month)	93/3	27	25	26	4%	8%	12%
Overall efficiency indicator (%)	66	34	20	24	18%	40%	25%

* Target is based on the performance of the top quartile (25 percent) of all utilities in the sample

Figure 2.55: Box-plot for key technical and financial indicators (all utilities)



The spread of each box-plot (that is, the distance between the upper and lower quartiles) gives us an idea of how much room or opportunity there is for utility exchanges between good performers and poor performers.

From the Table 2.5 we note that service coverage is a weak area for utilities in the East and Western region. Only eight percent of the utilities from the Western region make it to the best performing group for water coverage and none for sewerage coverage. Similarly, Eastern utilities have only 19 percent of utilities making it to the best performing group for water and none for sewerage. Aabout half of the utilities from the Southern region make it to the best performing group for both water and sewerage coverage, suggesting that utilities from the region generally perform better on both these indicators.

It is also clear from Table 2.5 that sewerage coverage generally lags behind water in all the regions. However, as shown in Figure 2.54 it is one of the areas where there is greatest opportunity for collaboration. Given the renewed focus on achieving the

MDGs targets for water and sanitation access on the continent, the evolving WOP-Africa program is well placed to connect utilities and facilitate knowledge sharing and capacity building, especially with regard to improving technical efficiency and improving cash flows - areas that are critical to improving service coverage.

Utilities in the Western region generally perform better on key technical efficiency indicators compared to the other regions. Half of the utilities in the Western region make it to the best performing groups for both metering and NRW indicators while utilities from the Eastern region are among the weakest on these two indicators. The average level of NRW in the Eastern region is around 38 percent while metering coverage is only 68 percent on average

The data shows that non-revenue water is a major weakness for most utilities in the sample. In many systems as much as a third of production is lost through physical and commercial losses. Part of this 'lost' water can be retrieved by appropriate technical and managerial actions. It can then be used to meet currently unsatisfied demand (and hence increase coverage and revenues to the utility) or to defer future capital expenditures to provide additional supply (and hence reduce costs to the utility). However, only a few utilities (mainly from the Western region) perform relatively well on all measures of non-revenue water (see Table 2.3). As such, opportunities for knowledge exchange may be limited as further illustrated in Figure 2.54.

Finally, in addition to the NRW challenge, most utilities in the sample are currently struggling to cover even their operating costs. In all regions less than half of the utilities can be considered financially viable, and for many, poor performance on collections seems to be the main problem. For instance, 23 percent of utilities from the Southern region appear to perform better on the OCCR value calculated using billed revenues.

But when you consider the OCCR value based on actual revenues, the proportion of financially viable utilities drops to 8 percent. Similarly, none of the utilities in the Eastern region can be considered financially viable due to poor performance on collection. As noted earlier, it appears that the single most important step utilities can take towards financial viability is to improve their collection efficiency. This is one of the areas where collaboration and knowledge exchange between utilities can be encouraged. Other operational areas where exchange and collaboration is possible are summarised in Box 2.1.

2.2 Human Resources Utilisation and Development

2.2.1 Human resources utilisation

Personnel costs in many water utilities in developing countries constitute a larger cost factor than usually recognised, draining resources from maintenance and other necessary operating expenses and

Box 2.1: Possible themes for utility cooperation in the area of operational performance

A. Service coverage
- How to achieve accelerated progress in increasing access to WSS and to achieve the MDGs
- Best practices on monitoring and reporting access levels

B. Metering
- Best practices on increasing metering coverage
- Best practices on meter management and maintenance

C. Non-revenue water
- Best practices on water loss monitoring, hydraulic balance
- Best practices on leak detection and repair
- Network maintenance and management, including meter maintenance
- Best practices on improving customer databases and dealing with illegal connections/customers

D. Collection efficiency
- Best practices on improving collection efficiency
- Reduction of arrears/ bad debts (how do get customers to pay their bills on time)
- Reducing arrears among public sector/government customers

E. Quality of MIS
- Best practices on setting up and maintaining a management information system. How do we get there?
- Performance monitoring and reporting
- Linking a utility's MIS with that of a national regulator (where applicable)

imposing costs on customers. Efficient utilisation of human resources is therefore a critical performance area for utilities. Two key indicators were used to assess the efficiency of human resource utilisation in participating utilities:

- **staff productivity index** - expressed as number of staff per 1000 connections; and
- **personnel or labor costs** - expressed as a ratio to total operating costs (excluding depreciation and debt service). Depreciation and debt service are excluded due to lack of uniformity in treating revaluation of fixed assets and to facilitate comparison of utilities with and without debt service obligations.

Staff productivity index (SPI) is an important measure of the efficient use of human resources in a utility. It relates the number of staff to the number of connections, with good performance manifested by a low

staff per1000 connection ratio while a high ratio may indicate inefficient use of human resources. However, the SPI ratio alone does not provide a satisfactory picture of the situation. To complete the analysis of staff productivity we must examine personnel/labor costs as well.

Data on staff productivity was available for a total of 105 utilities while only 86 utilities had data on labor costs. Figure 2.55 shows the regional variation in the mean SPI ratio and labor costs in proportion to operating costs. There is little regional variation in both the mean SPI ratio and the proportion of labor costs. However, on average, utilities from the Western region have a slightly higher SPI ratio (mainly driven by Nigerian utilities) which may reflect loose employment practices, often a result of political interference in the water company's operations. In addition, utilities from the Southern region have lower SPI ratios but a relatively high ratio of labor costs to operating costs. This suggests that utilities in the Southern region may have higher average salaries and wages than one would expect.

Individual utility performance on staff productivity is presented in Figures 2.56-2.58. A frequently used international benchmark for staff productivity is two employees per thousand connections but Tynan and Kingdom (2002) propose a benchmark of five employees per 1000 connections for developing countries. The SPI ratios achieved by the top 25 percent of all utilities in the sample suggest that a target of 7 or fewer staff per 1,000 connections is achievable. Based on this level of performance five utilities from

Figure 2.56: Regional variation in staff productivity

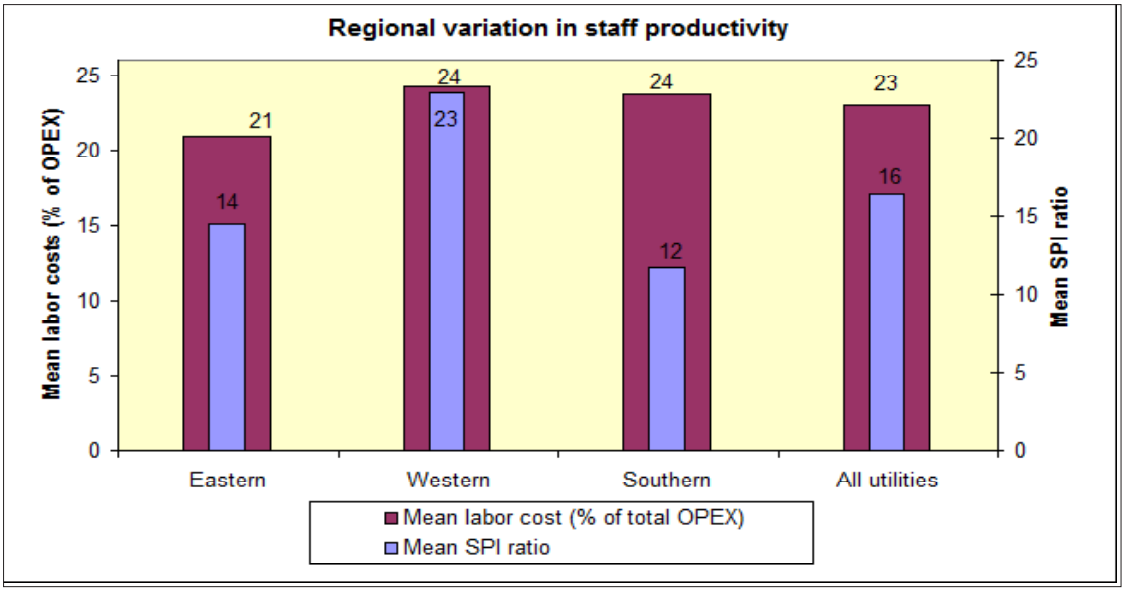


Figure 2.57: Staff productivity indices for utilities in the Eastern region

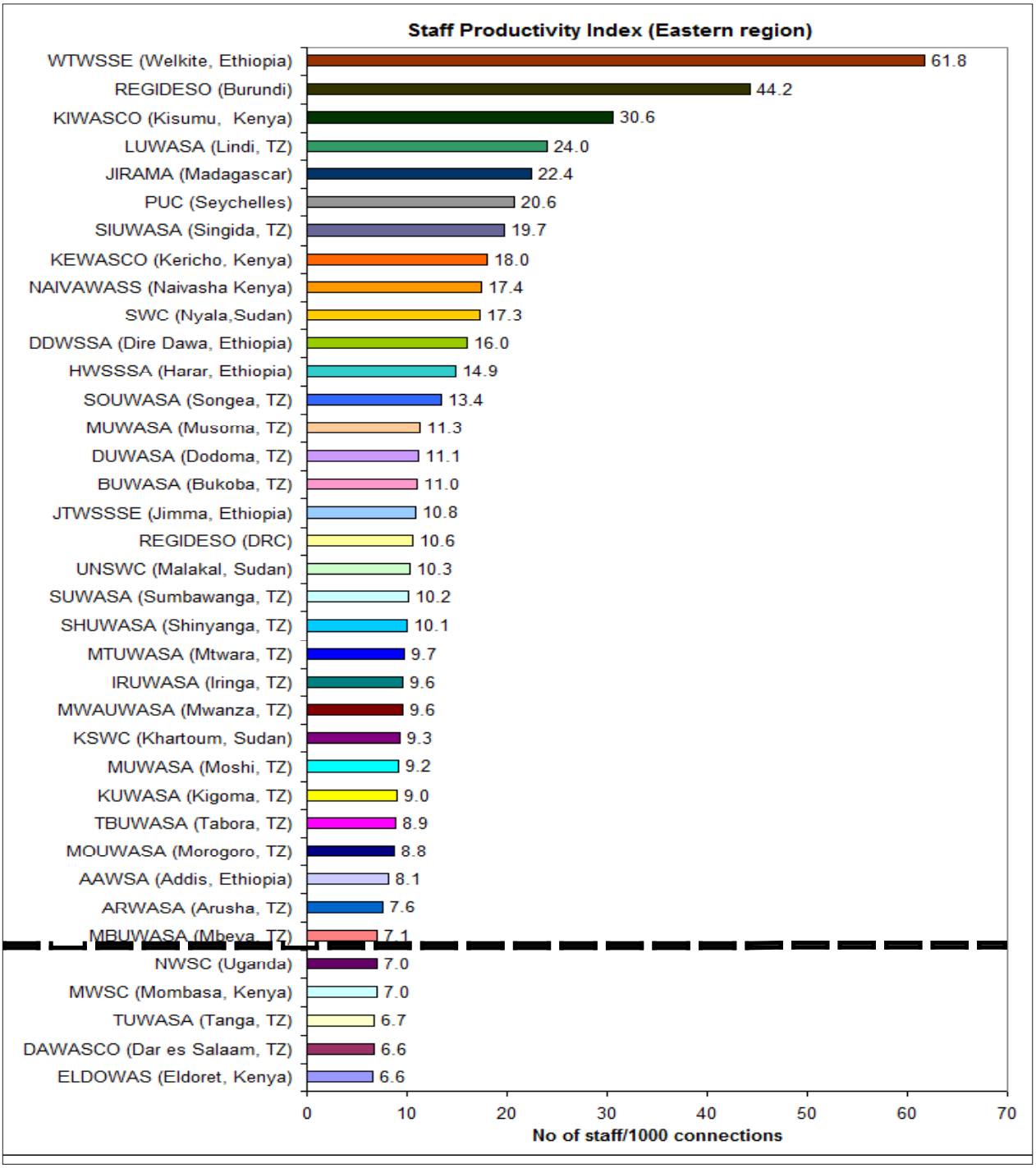


Figure 2.58: Staff productivity indices for utilities in the Western region

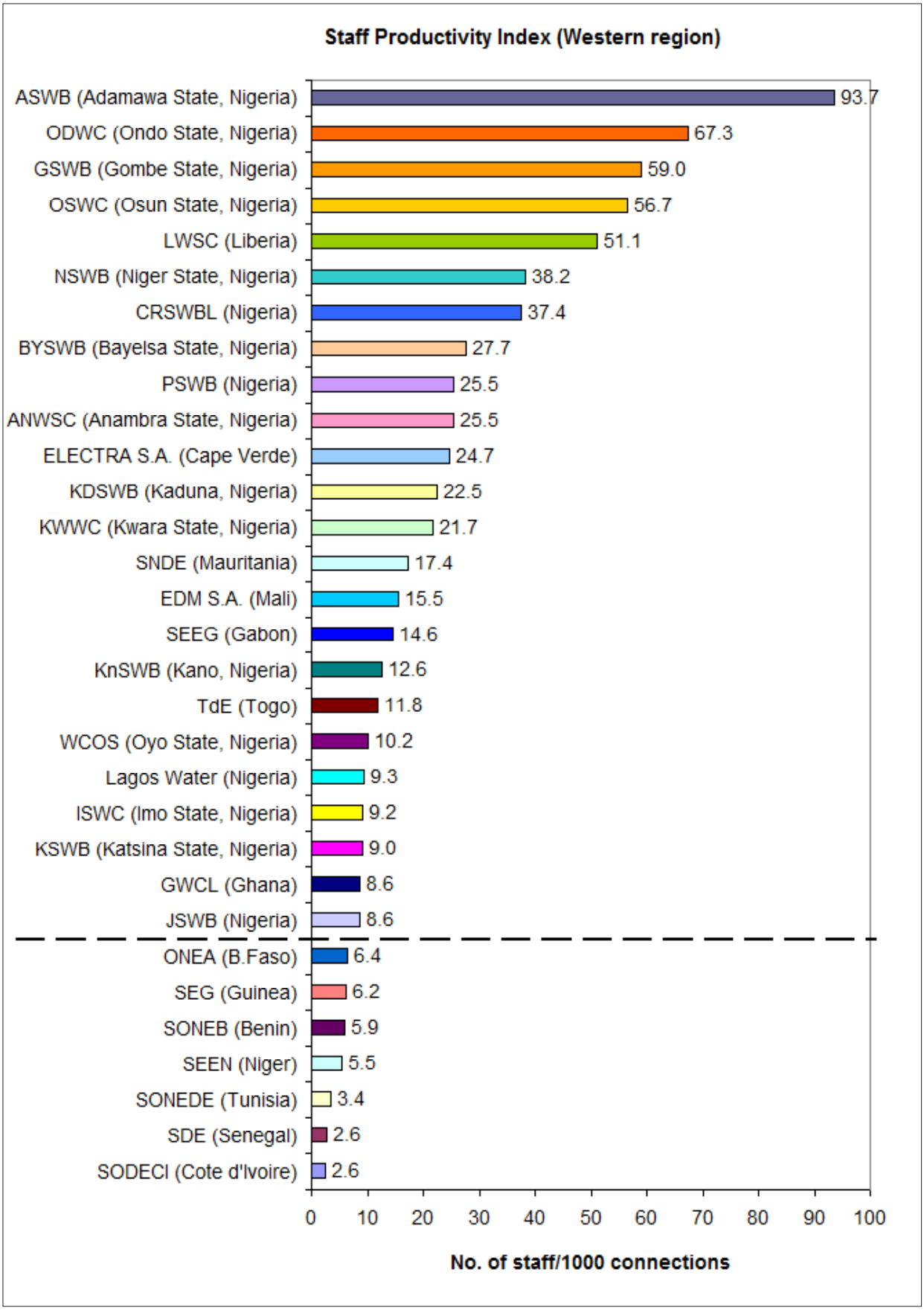
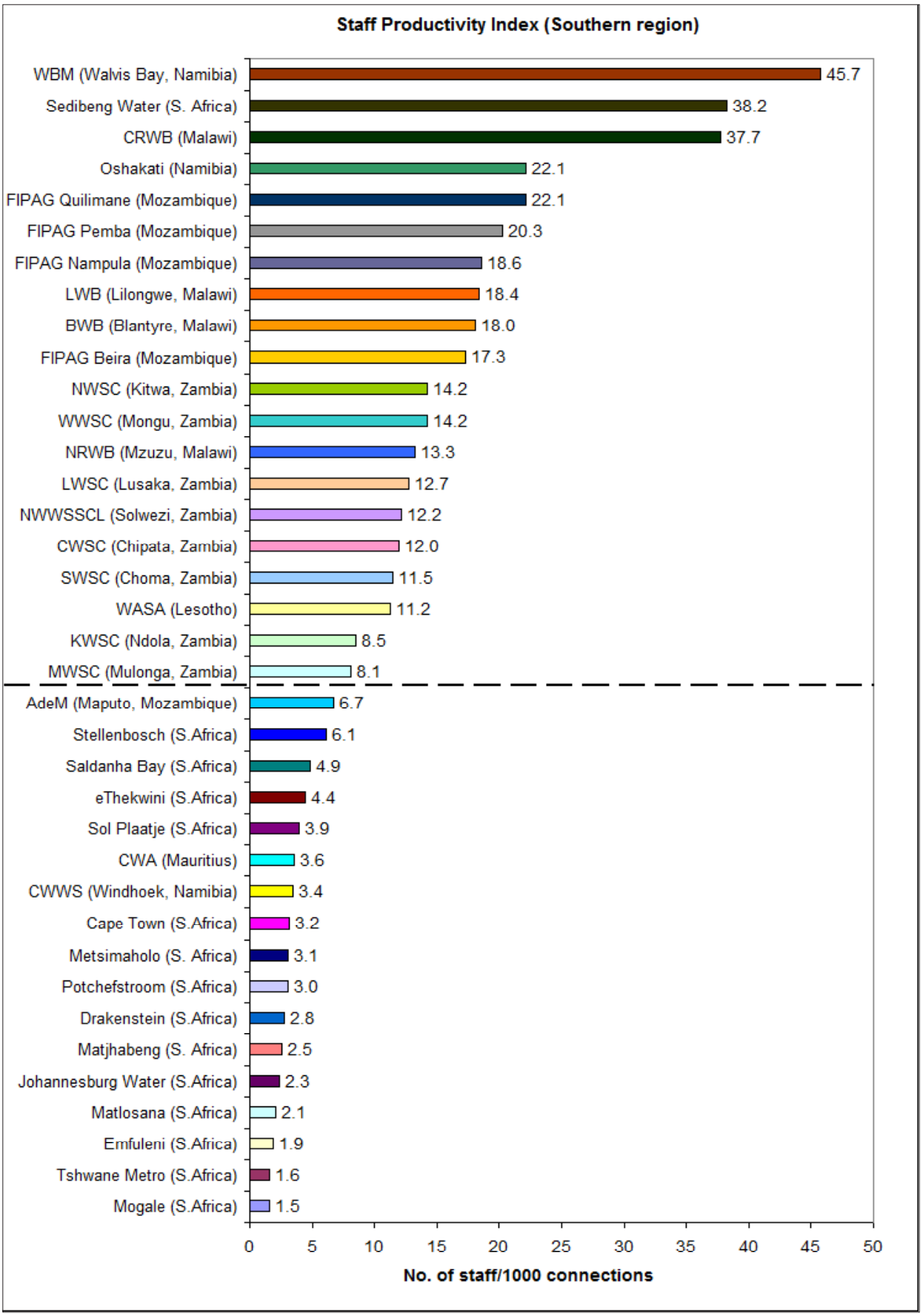


Figure 2.59: Staff productivity indices for utilities in the Southern region



the Eastern region can be said to be performing well. The Southern region dominates the best performing group with 17 utilities followed by the Western region with 7 utilities. The data also shows that, in general, utilities classified in the best performing group for SPI ratios have lower labor costs to operating costs ratios.

2.2.2 Human resource development

The WOP-Africa program considers human resource development a top priority consistent with the argument that achieving the MDGs not only requires building new infrastructure but also complementary investments in human capital. Investments in human capital include strengthening the technical and management capacity of utilities through staff training programmes. For this reason, a key indicator of utility performance on human resource development is the staff training participation rate, that proportion of staff that have participated in at least one training event.

A total of 73 utilities provided data on staff participation in training. Figure 2.59 summarises the regional variation in staff training participation rate. On average, utilities in the Eastern region have slightly more of their staff participating in training than those in the Western and Southern regions but there is little difference in the training days per employee across the three regions.

Individual utility performance on staff training participation rate is presented in Figures 2.60-2.62. The rate achieved by the top 25 percent of all utilities in the

Figure 2.60: Regional variation in staff training participation

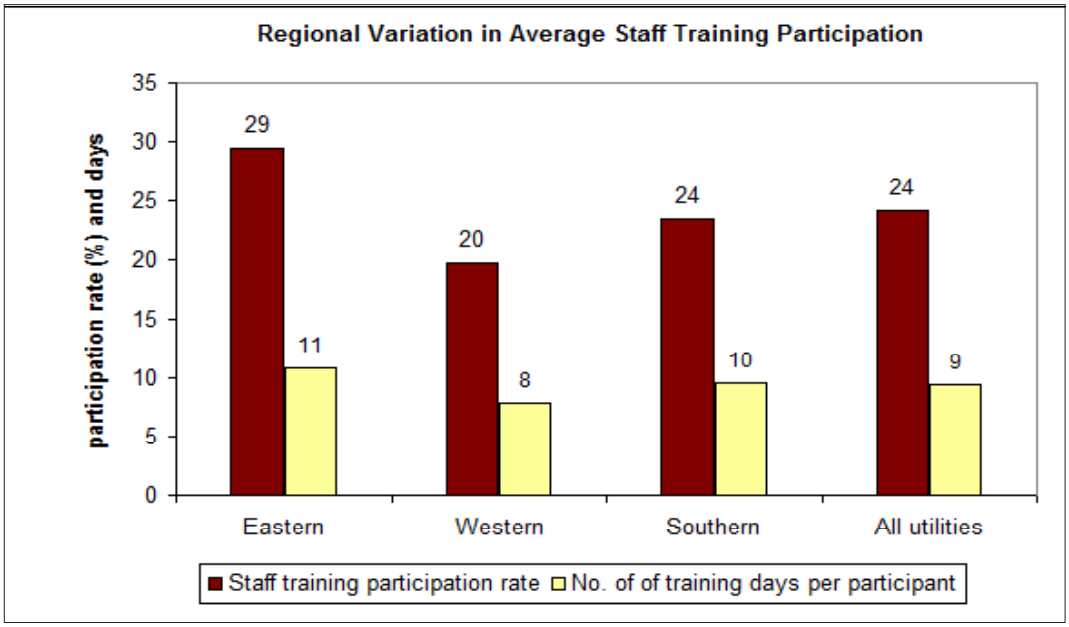


Figure 2.61: Staff training participation rate for utilities in the Eastern region

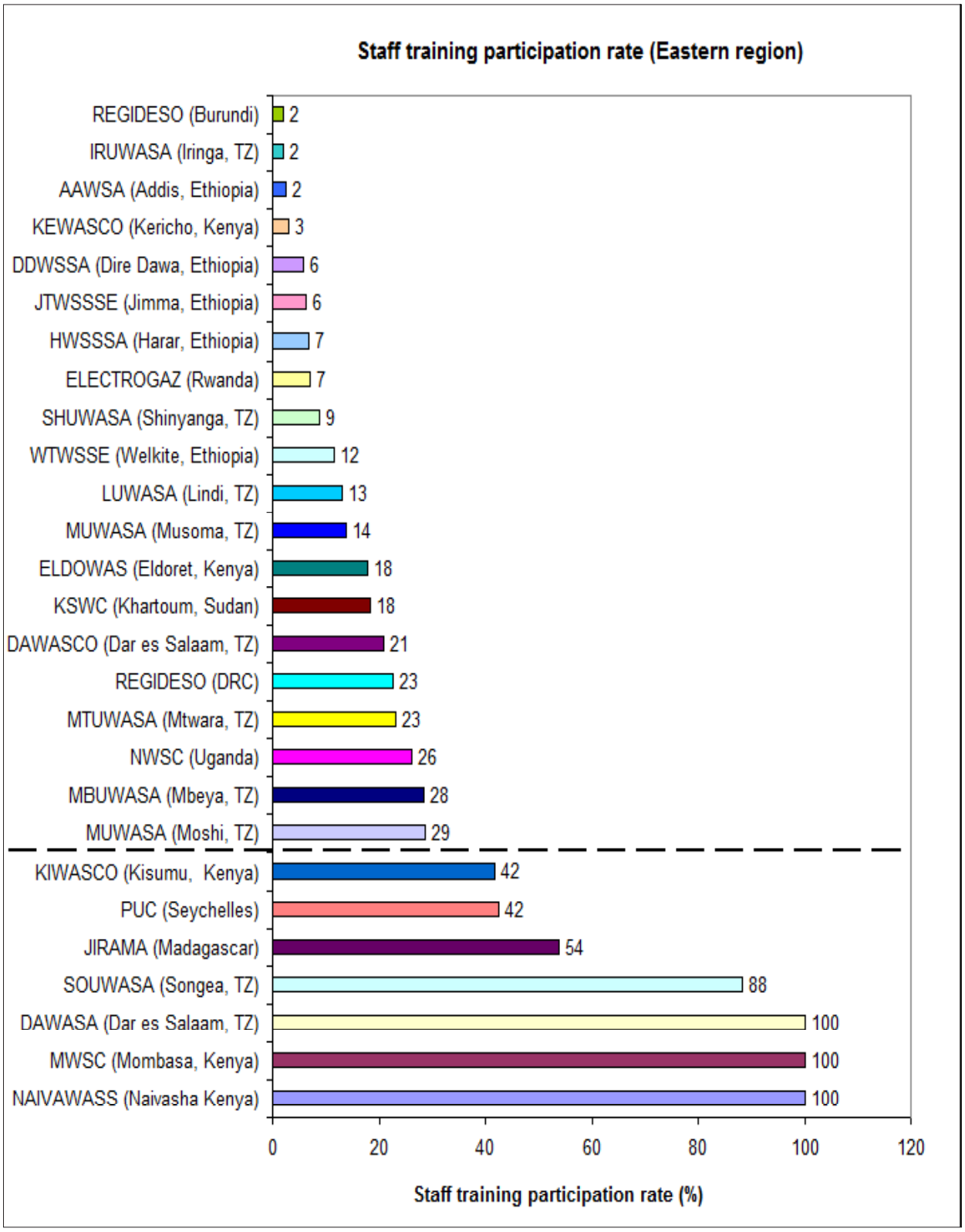


Figure 2.62: Staff training participation rate for utilities in the Western region

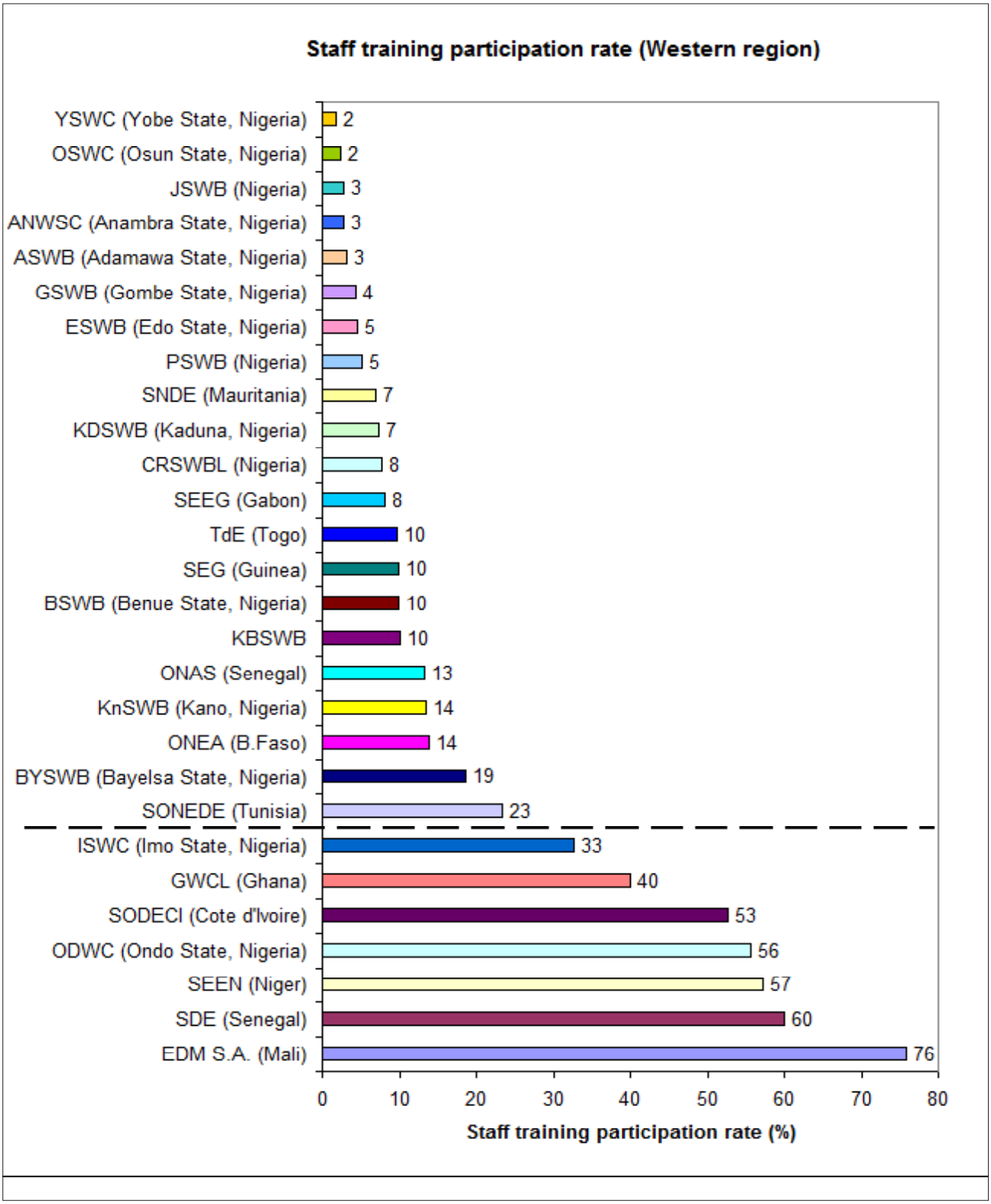


Figure 2.63: Staff training participation rate for utilities in the Southern region

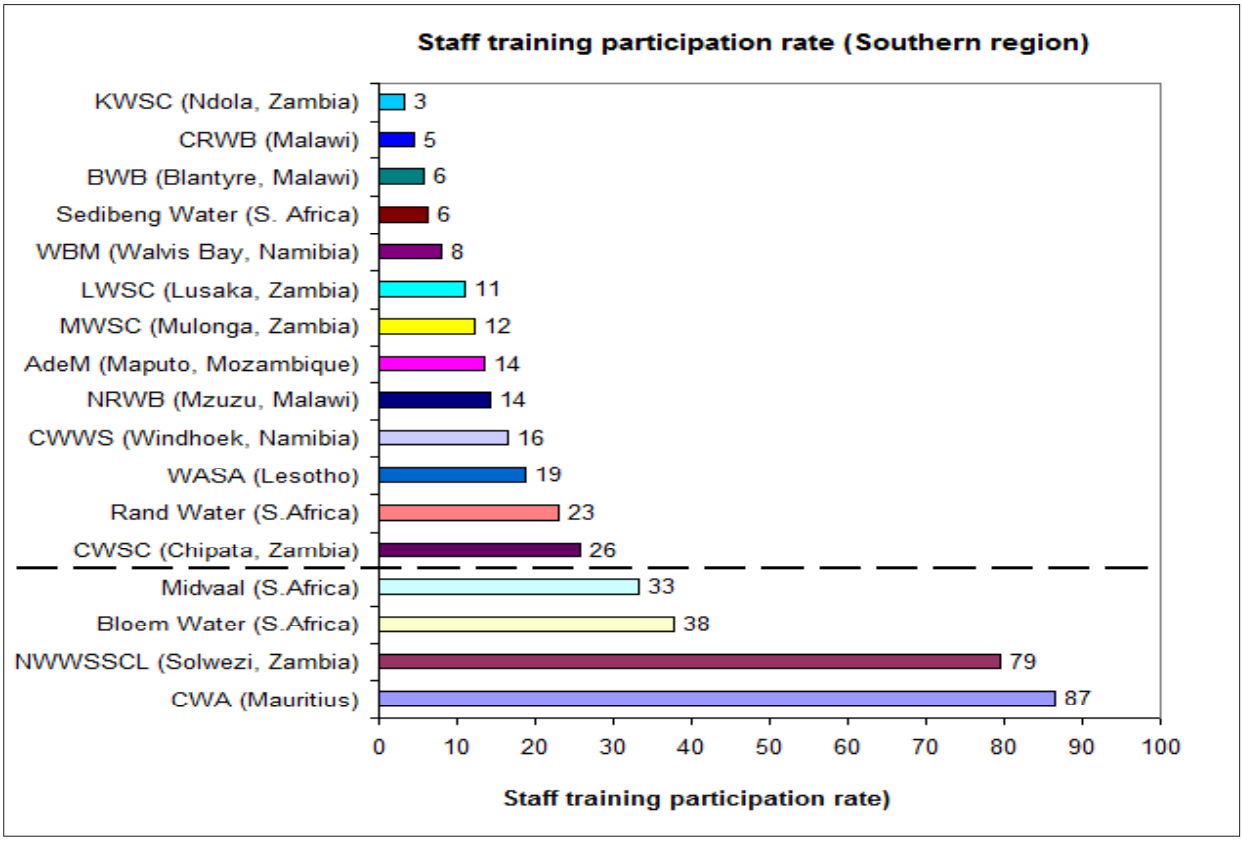


Table 2.6: Proportion of utilities making the best performer group

Indicator	Target for best performance*	Valid sample			Proportion of utilities making the best performer group (%)		
		Eastern	Western	Southern	Eastern	Western	Southern
Staff Productivity Index	7	37	31	37	14%	23%	46%
Staff Training Participation Rate (%)	30	27	28	17	26%	25%	24%

* Target is based on the performance of the top quartile (25 percent) of all utilities in the sample

Box 2.2: Possible themes for utility cooperation on human resources utilization and development

F. Staff productivity
- Staff performance management systems
- Staff performance contracts
- Effective change management (staff work culture)

G. Staff training
- Implementing an HRD/staffing training policy
- Linking training centers (either run by a utility or serving many) into a network
- Best practices on in-house training vs. outsourcing of training
- Linking a utility's MIS with that of a national regulator (where applicable)

sample suggests that a target of 30 percent per year is achievable. Based on this level of performance a total of 15 utilities can be classified in the best performing group. Eastern and Western regions dominate this group with seven utilities each. Only four utilities (CWA Mauritius; NWSSCL Solwezi, Zambia; Midvaal, S.Africa; and Bloem Water, S.Africa) from the Southern region can be considered good performers on staff training.

2.2.3 Summary of performance on human resources utilisation and development

Table 2.6 shows the proportion of utilities making the best performer group from each region for both the staff productivity and training indicators. From Table 2.6 we note that staff productivity is a weak area for utilities in the Eastern and Western regions; less than half of the utilities in these regions make it to the best performer group. Utilities in the Southern region perform relatively well with close to half making it to the best performing group on this indicator. Therefore, efficiency of staff utilisation is another area where utilities from the Eastern and Western regions can learn from their counterparts in the South.

On the other hand, staff training seems to be weak in all the regions. Less than half of the utilities in all regions make it to the best performing group. This is an important area of the proposed WOP-Africa program. In order to foster a vibrant water sector in Africa, the skill levels and number of skilled people engaging in the sector needs to increase dramatically and to be spread out amongst all the organisations and groups involved in the sector. To this end, WOP-Africa will catalyse and encourage

utility-to-utility exchange of know-how and networking on training and human resource development.

Possible themes for exchange are summarised in Box 2.2.

In the face of gross overstaffing and personnel expenditures out of line as a share of total production, many reform drives have focused on 'rightsizing' and upgrading the manpower through manpower reduction programs, such as early pension schemes and retrenchment, as well as retraining. As utility employees are relatively better off than other public workers and given their generally high degree of unionization, 'rightsizing' programs have been one of the most challenging aspects of water utility reform. The recent regional workshops have shown that there is interest in sharing experience on this theme.

2.3 Customer Care

A utility's responsiveness to its customers is usually indicated by the quality of services it provides. However, quality of service has several dimensions - water availability, water quality, water pressure, and customer relations. But the only ones for which the sample provides sufficient data is water availability as captured by the continuity of service (hours of service a day) - and customer relations - as captured by the number of customer complaints and response time it takes to address complaints.

Figure 2.64: Regional variation in continuity of service

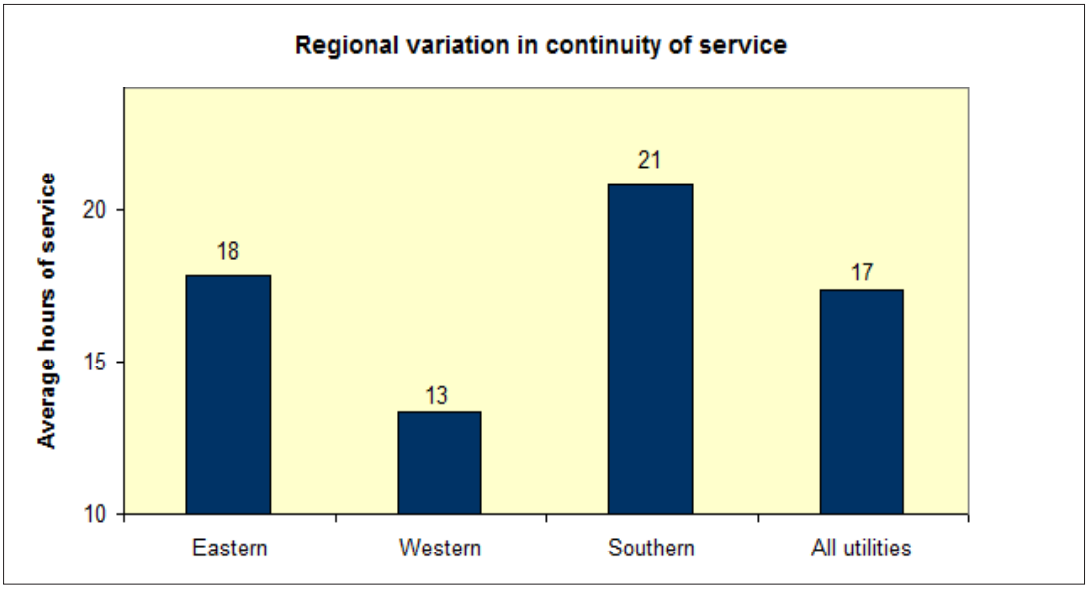


Figure 2.65: Average hours of service for utilities in the Eastern region

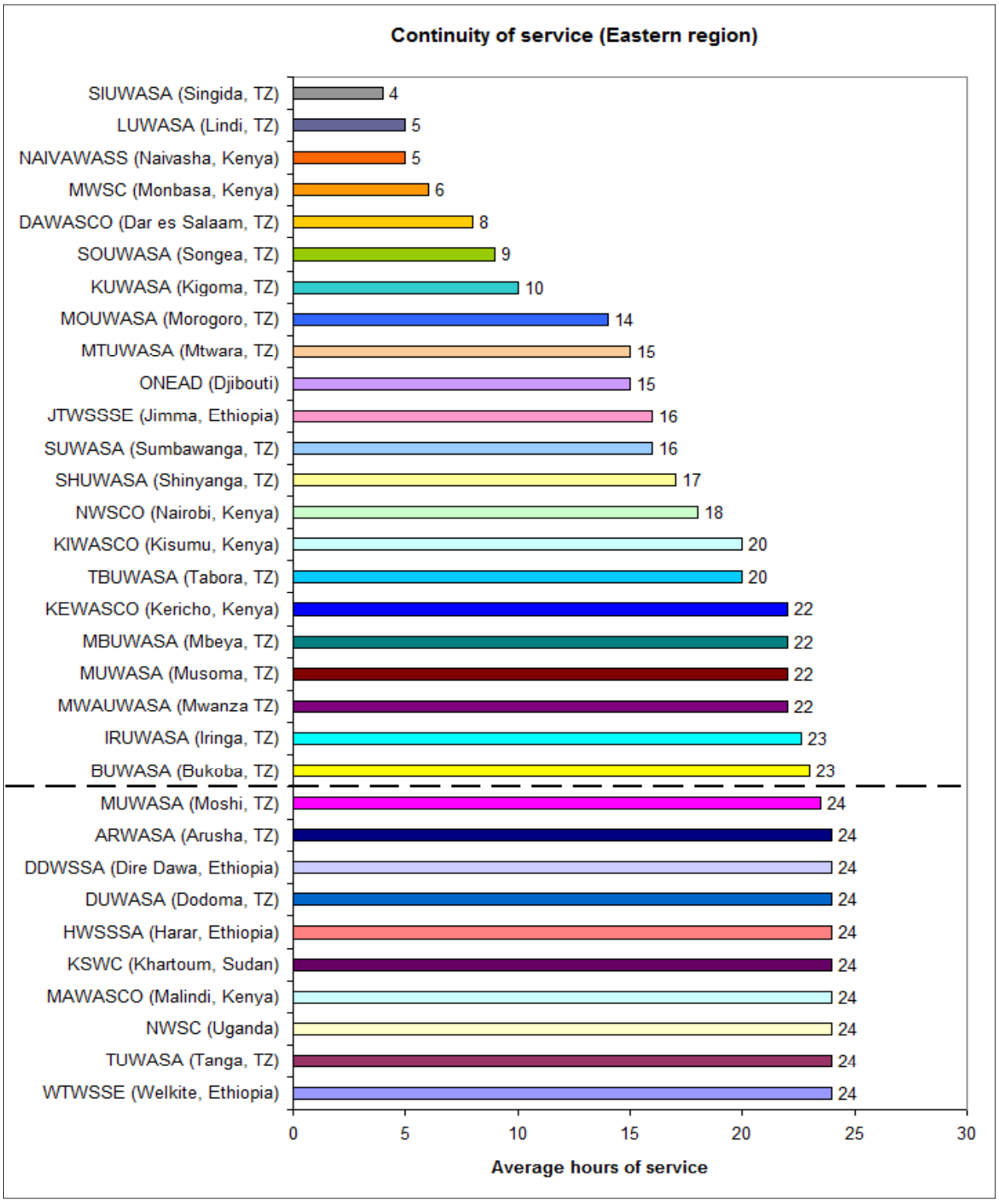


Figure 2.66: Average hours of service for utilities in the Western region

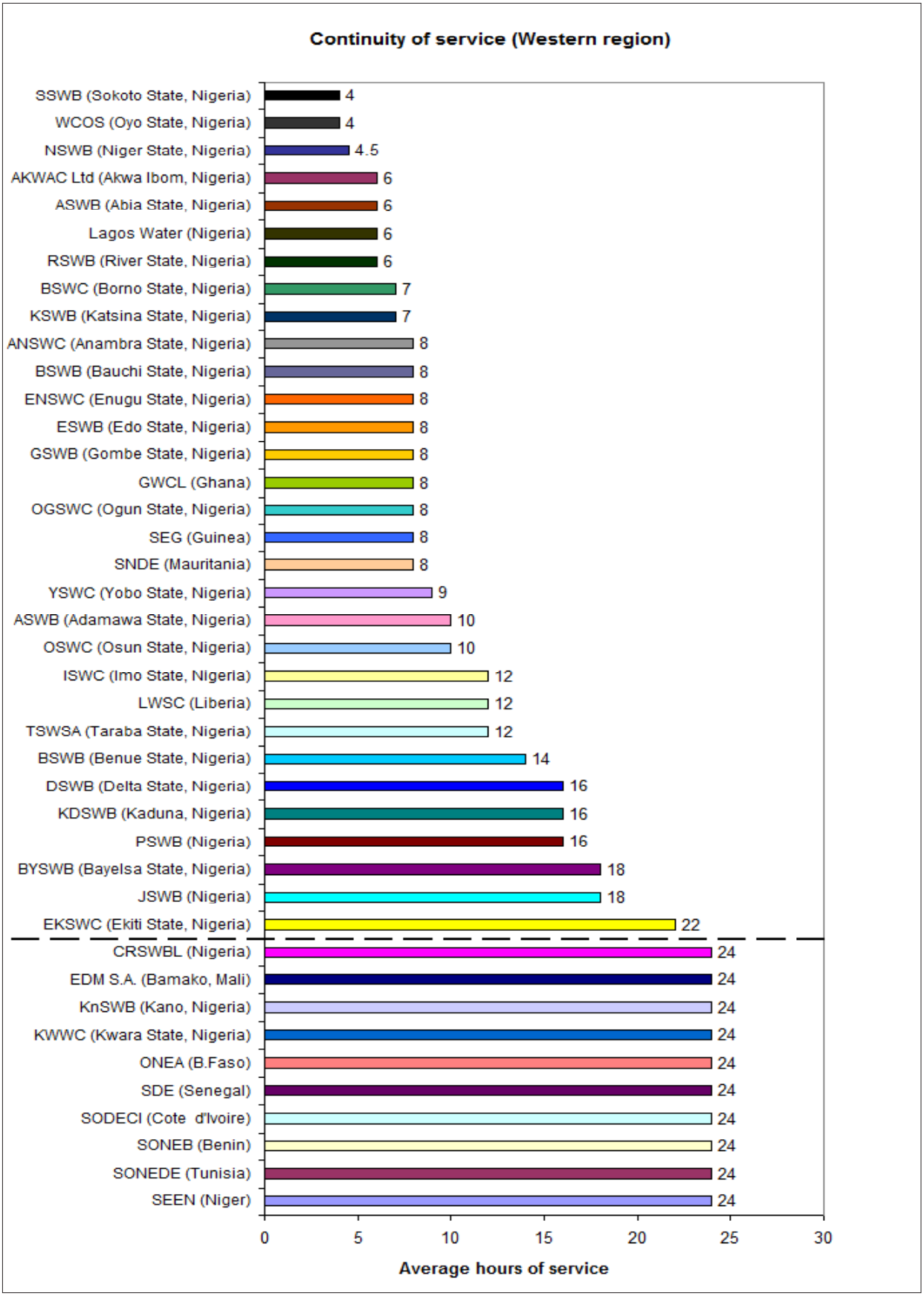
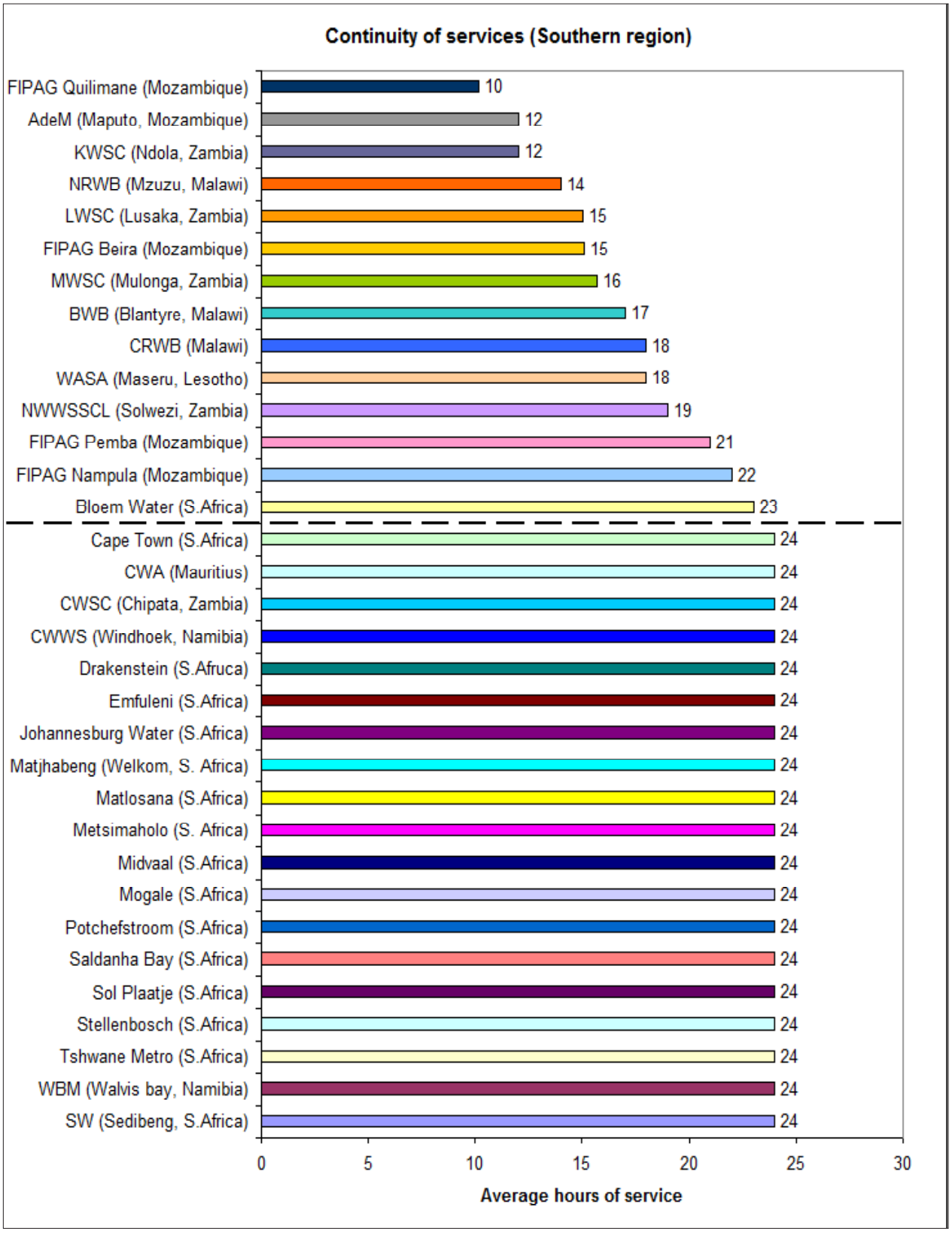


Figure 2.67: Average hours of service for utilities in the Southern region



2.3.1 Continuity of service

This is defined in terms of the average hours of service a day. This is an important customer indicator because being connected to the network does not necessarily mean a customer is receiving good quality water when they need it. Inefficiencies resulting from the poor state of repair of water infrastructure, institutional weaknesses and a lack of financial viability, often make it difficult to have potable water flowing in the pipes. Data on average hours of service was available for 106 utilities. Figure 2.63 shows the regional averages.

Individual utility data is presented in Figures 2.64-2.66. Utilities from the Southern region provide on average 21 hours of service to their customers while those in the Eastern and Western regions provide an average of 18 and 13 hours of service respectively. The low average for the Western region is heavily skewed by Nigerian utilities many of which provide less than 10 hours of service to their customers.

The average hours of service achieved by the top 25 percent of all utilities in the sample suggest that a target of 24 hours a day is achievable. Based on this level of performance, a total of 39 utilities can be classified in the best performing group. The Southern region overwhelmingly dominates the best performing group with 19 utilities while Eastern and Western regions each have 10 utilities in this group.

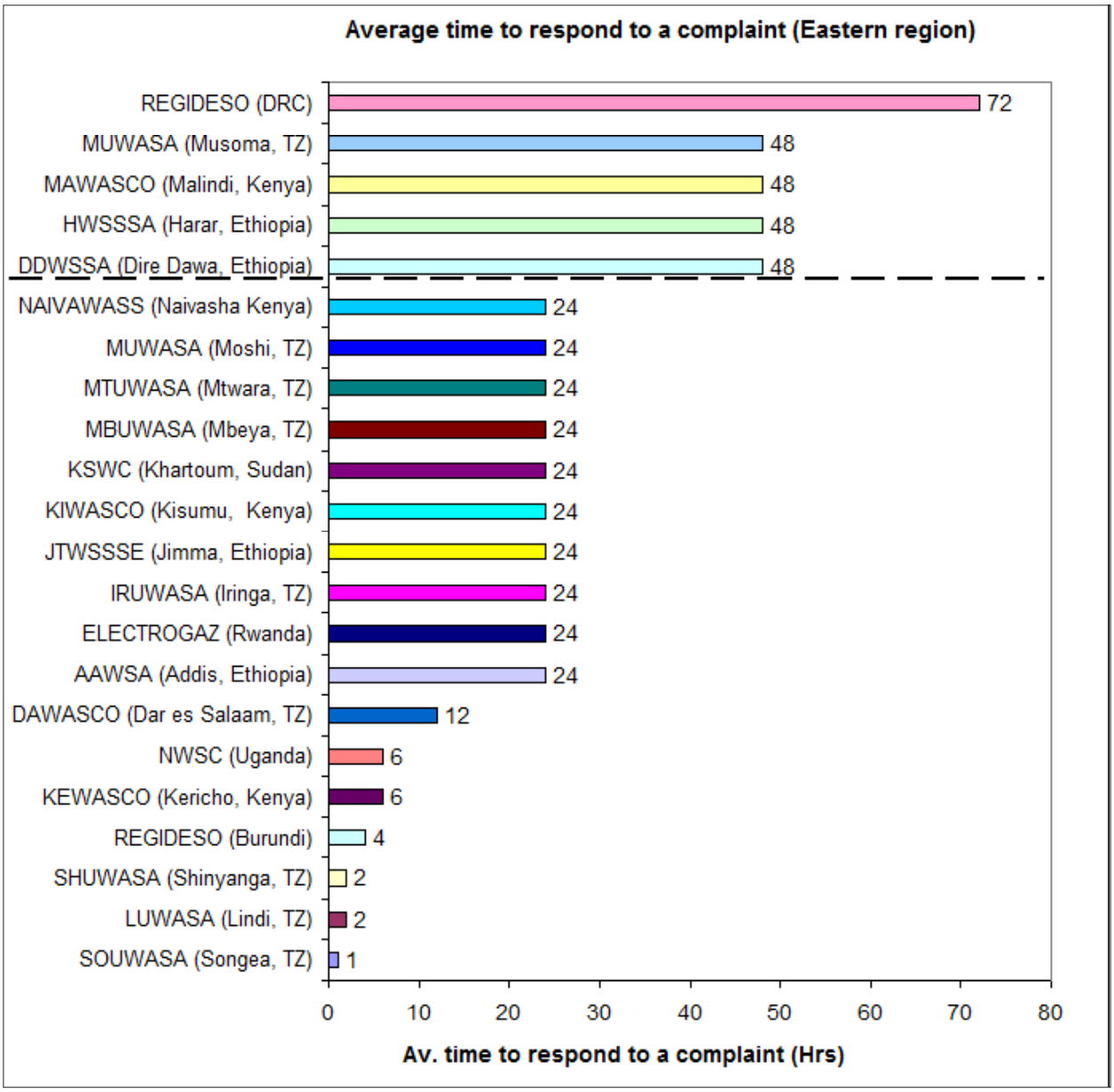
2.3.2 Customer complaints

Complaints are commonly used as an indicator of the quality of interaction with customers. Data on customer complaints was available for a total 53 utilities in the sample and this showed very clear differences in customer complaint levels, with utilities in the South and Eastern regions having generally higher levels compared to utilities in the Western region. However, while complaints are relatively easy to track, they do not tell us much about the performance of a utility on customer relations. Customers may have become accustomed to poor service and do not complain. In other instances it may be difficult for customers to report complaints.For these reasons, it is sometimes difficult to derive any meaning from the number of complaints indictor.

A very low number of complaints might indicate a utility not in touch with its customers, where relatively little interaction occurs between the utility and its customers. Such a situation should raise concern regarding other performance indicators (e.g. hours of service) that show performance levels that should be generating complaints. The other extreme is very high levels of complaints where there is dissatisfaction and customers are expressing it. Between these extremes lies an acceptable level of interaction where customers are generally satisfied but the realities of not being able keep everyone happy, continues to generate interactions.

Utilities should aim for this middle ground which for this dataset, is 53 complaints per 1000 connections. Utilities reporting less than 21 complaints per connection per year (lower quartile) may possibly be out of touch with their customers while complaint levels exceeding 140 (upper quartile) may indicate customer dissatisfaction.

Figure 2.68: Average time to respond to a complaint (for utilities in the Eastern region)



We cannot classify utilities into best and worst performing groups based on these values because a desirable level of complaints will ultimately depend on local cultural and social expectations.

It can be urged that a more useful indicator for assessing customer service is not the number of complaints per se but rather the time it takes for a utility to address the complaint. Out of the 68 utilities that provided data on customer complaints, 57 utilities also provided data on the average time it takes to address a complaint. This data is summarised in Figures 2.67- 2.69. The average time achieved by the top 25 percent of all utilities in the sample suggests that a target of 24 hours to address a complaint is achievable. Based on this level of performance, a total of 25 utilities

Figure 2.69: Average time to respond to a complaint (for utilities in the Western region)

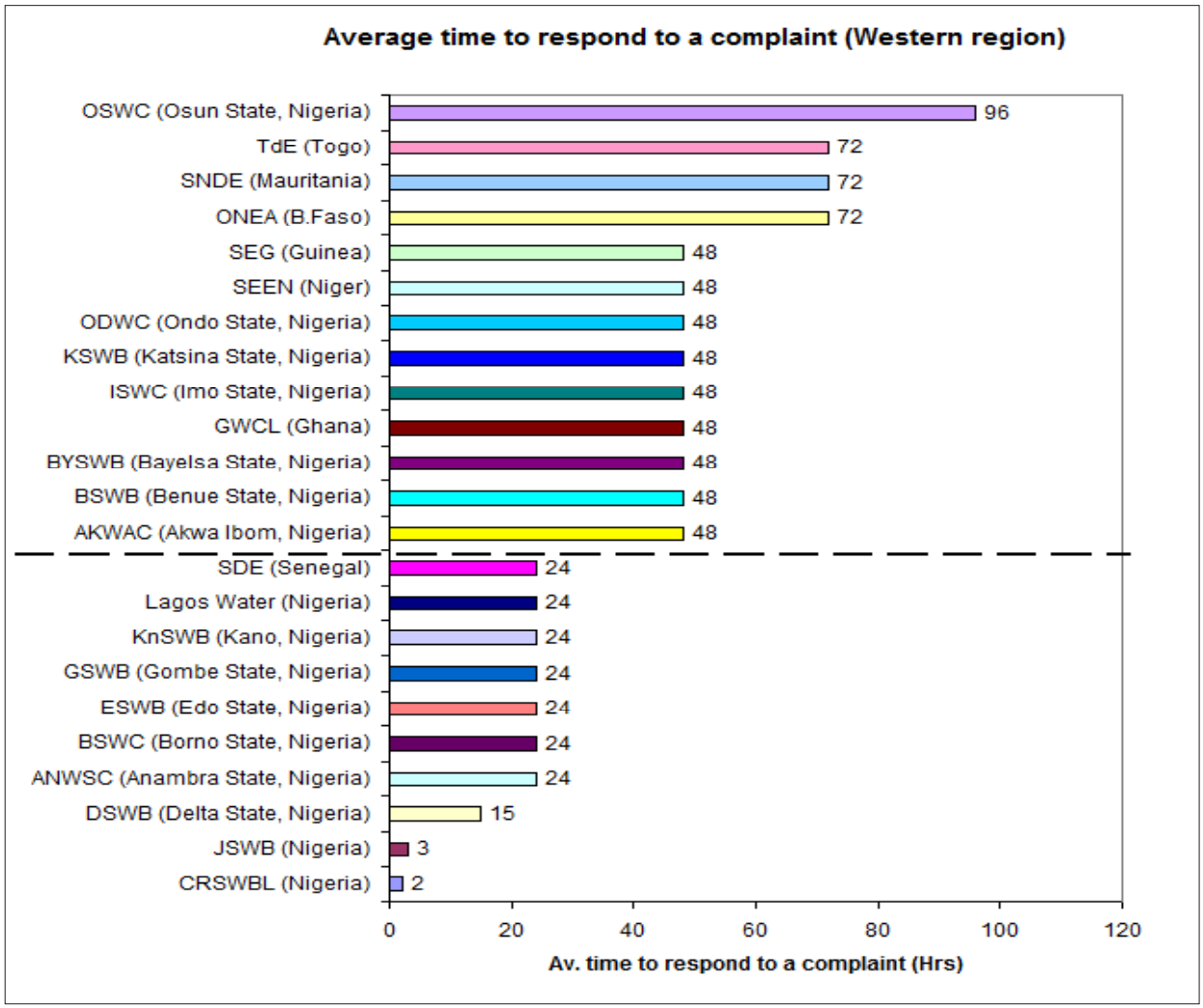


Figure 2.70: Average time to respond to a complaint (for utilities in the Southern region)

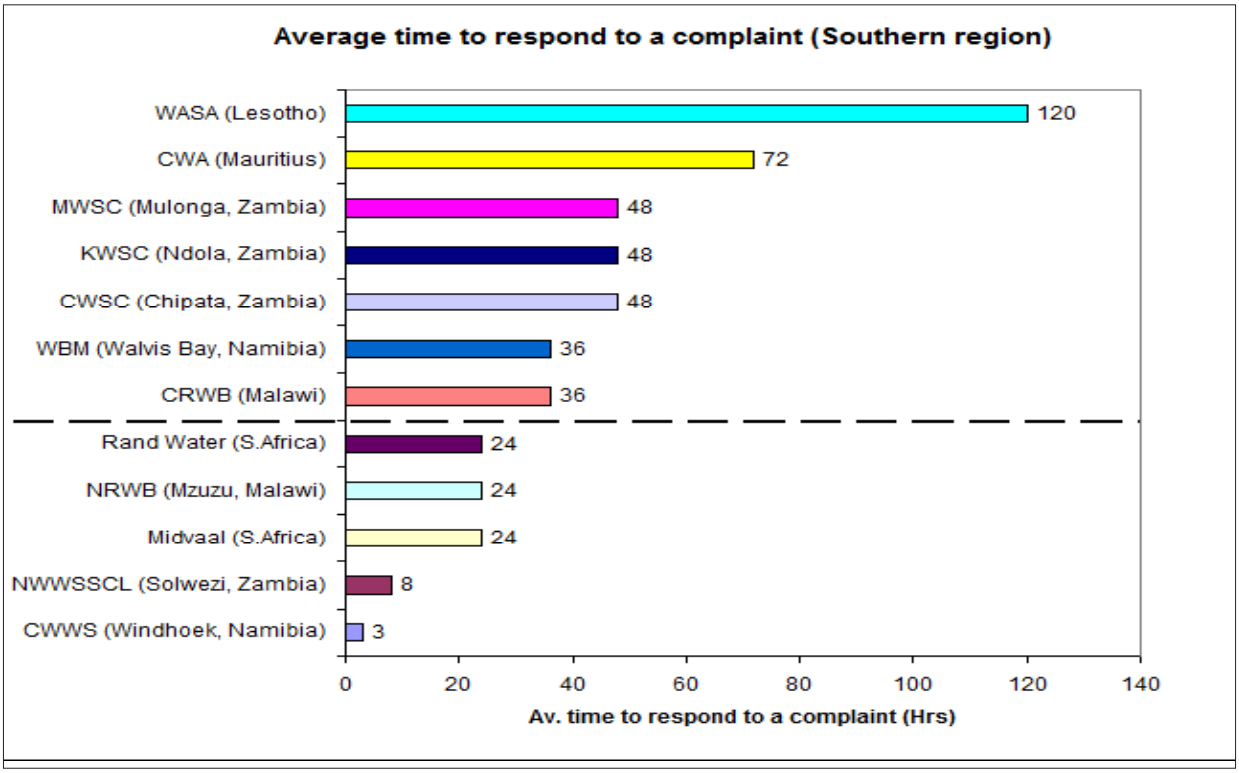


Table 2.7: Proportion of utilities making the best performer groups on customer care

Indicator	Target for best performance*	Valid sample			Proportion of utilities making the best performer group (%)		
		Eastern	Western	Southern	Eastern	Western	Southern
Continuity of service (hrs)	24	32	41	33	31%	24%	58%
Average response time to address a complaint (hrs)	24	22	23	12	77%	43%	42%

* Target is based on the performance of the top quartile (25 percent) of all utilities in the sample

can be classified in the best performing group. The Eastern region dominates the best performing group with seventeen utilities. The Western region is represented by 10 utilities while the Southern region has five utilities in the group.

2.3.3 Summary of performance on customer care

Table 2.7 shows the proportion of utilities making the best performer group from each region for both customer care indicators - continuity of service and average response time to address a complaint. From the Table 2.7 we note that Western and Eastern utilities generally perform poorly on the continuity of service indicator with only 25 percent and 31 percent making it to the best performer group as compared to 58 percent for the Southern regions. However, on responsiveness to customer complaints the Eastern region has a much higher number (77 percent) of utilities in the best performing group compared to the other two regions. Again, there seems to be a possible opportunity for exchanges in this area. Examples of customer care issues on which to base inter-utility collaboration and exchange are summarised in Box 2.3 below.

2.4 Infrastructure Development

The level of infrastructure development was assessed using a number of asset indicators as well as capital expenditure levels. The capital intensity of a utility is indicated by the gross fixed asset value per capita served. Unfortunately, utilities provided very limited information about asset values and until more emphasis is placed on this item the values derived must be treated with caution. For this reason gross fixed asset values are not presented in this report.

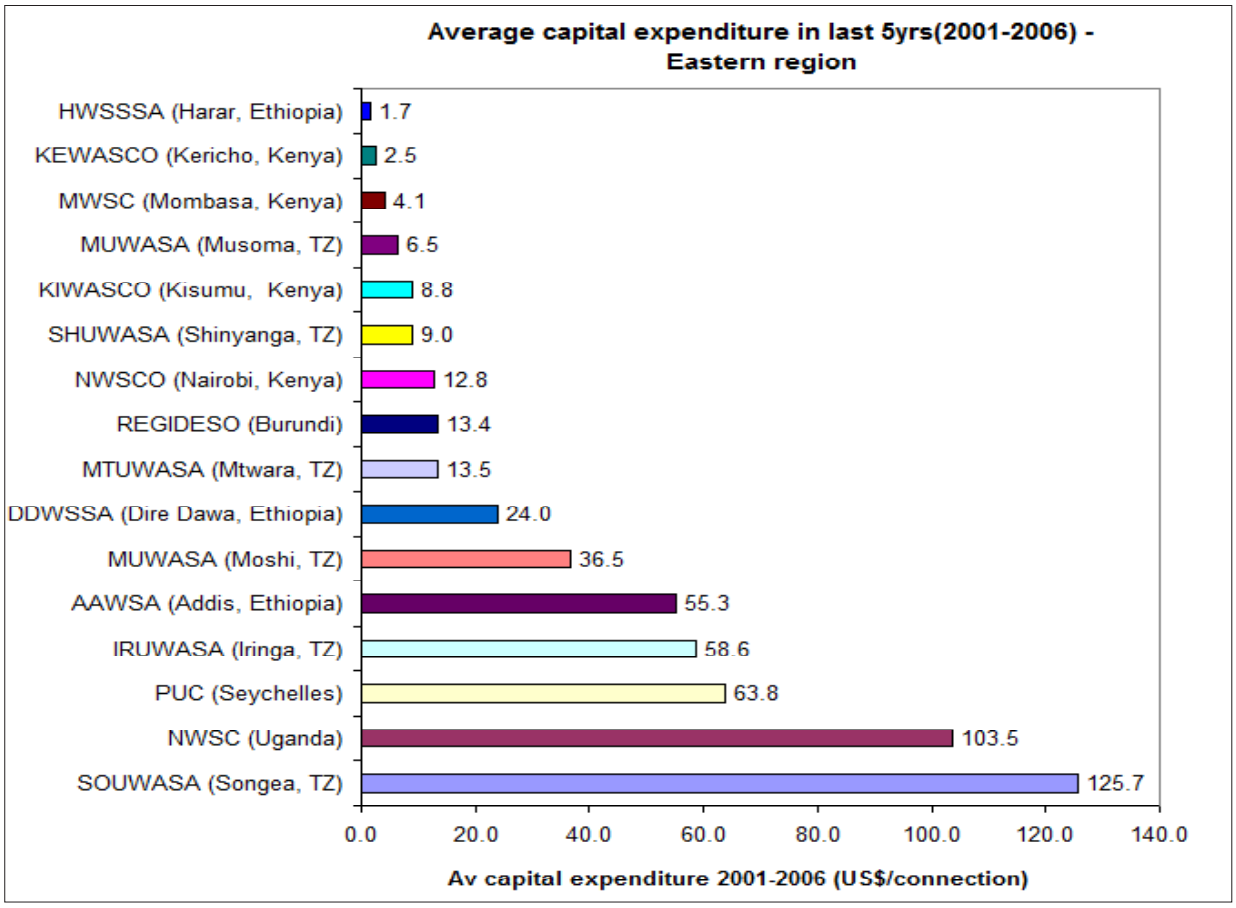
The level of capital investment was assessed using the average capital expenditure

Box 2.3: Possible themes for utility cooperation on customer care issues

H. Customer care

- Best practices in customer complaints monitoring and response (e.g. the 'Cockpit' in SDE Senegal)
- Conducting customer satisfaction surveys and using the results to improve the customer experience
- Decentralized vs. centralized customer care centers
- Call center technology – measuring and improving call center performance
- Setting up a flexible bill payment systems for customers
- Marketing utility services – what utility managers need to know about their customers

Figure 2.71: Average capital expenditure in the period 2001-2006 (for Eastern region utilities)



per connection indicator. Since capital spending of utilities can change significantly from year to year, this indicator was based on the total capital expenditure of the utility during the last five years (2001 - 2006), divided by five to get the annual average capital expenditure and then divided by the number of connections in the current year (2006). A total of 52 utilities provided data on capital expenditure during the last five years. This data is summarized in **Figures 2.70-2.72**. Capital expenditure ranges from as low as US$0.1 per connection (SEG, Guinea) to as high as US$ 659 per connection (ONEA, B.Faso).

Utilities that are spending the most per connection per year are Songea (TZ) and NWSC (Uganda) in the Eastern region; ONEA (Burkina Faso), CRSWBL (Nigeria), SPEN (Niger), TdE (Togo) and PSWB (Nigeria) in the Western region; and NWWSSCL (Solwezi, Zambia), LWSC (Lusaka, Zambia) and WASA

Figure 2.72: Average capital expenditure in the period 2001-2006 (for Western region utilities)

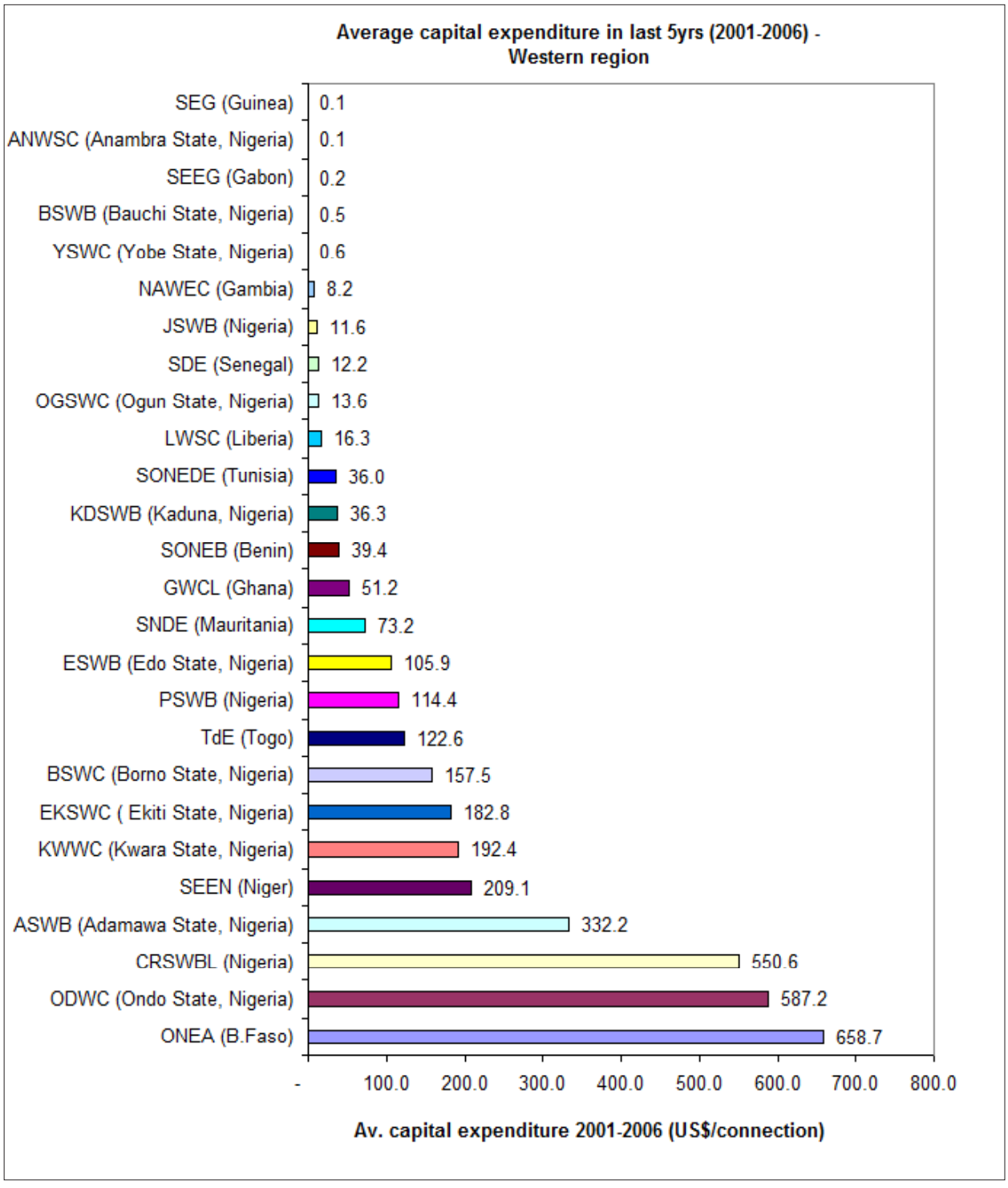
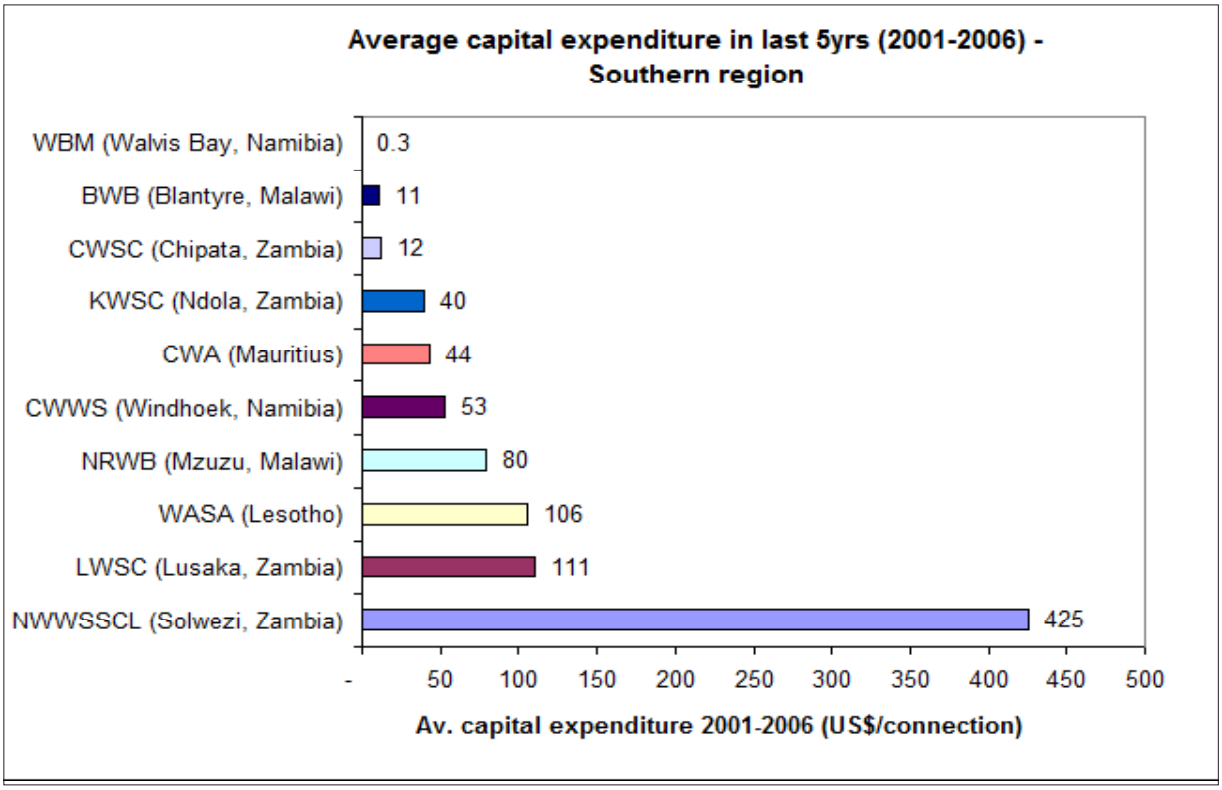
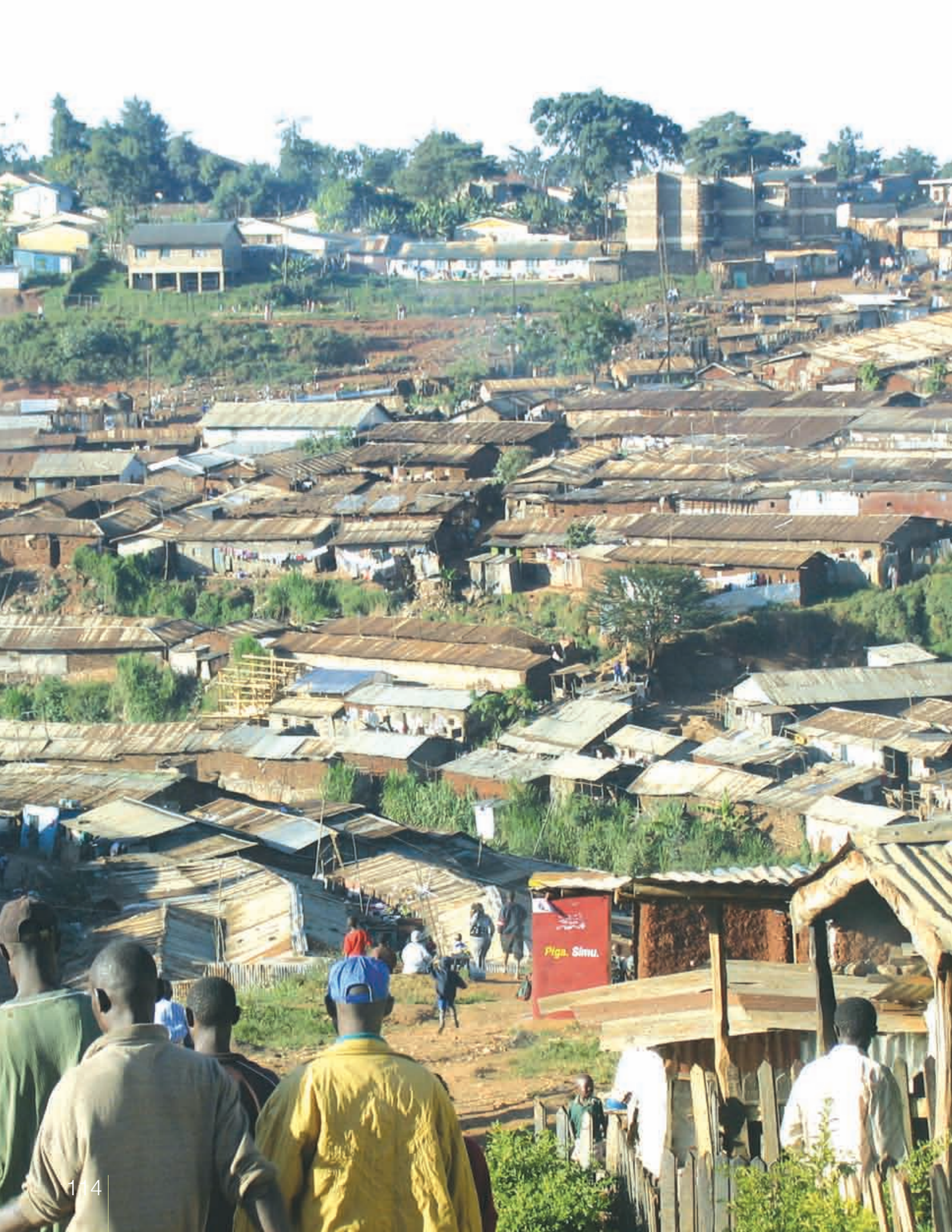


Figure 2.73: Average capital expenditure in the period 2001-2006 (for Southern region utilities)



(Lesotho) in the Southern region. It can be noted that the utilities that are spending more per connection per year on capital improvements are not necessarily national utilities, although they might be expected to have better access to financing than municipal utilities. However, small city or municipal utilities generally have the lowest capital expenditures per connection, suggesting that access to financing may be a major constraint to performance improvement for smaller utilities.


Piga. Simu.

3. Services to the Poor and Informal Settlements

Inadequate water and sanitation service provision to the urban poor remains a serious problem in many African countries. Poor households typically account for the largest share of the increase in urban population. Most live in densely populated inner city slums or in unplanned peri-urban settlements which are not served or out of the reach of water utilities. Poor households within a utility's service area cannot afford traditional piped service and have come to rely on shared connections (yard taps) or resale (HH to HH or kiosks) or, when they are available, public standpipes. Unless they rise to the challenge of expanding capacity to serve poor urban HH, utilities risk finding themselves in a situation where they will reach only a fraction of population of the cities which it is their mission to serve.

In most urban settings a pipe network is the cheapest and most effective way of supplying water - whether through individual house connections, shared yard connections or kiosks. However, as shown by the coverage data presented in Section 2.1.1, the share of households covered by pipe networks is still unacceptably low, especially among utilities in the East and Western regions. Part of the problem is that services are unaffordable to most urban residents, especially those living in informal settlements where poverty is on the increase. To capture the differences in affordability of services provided by the utilities, two key indicators were used:

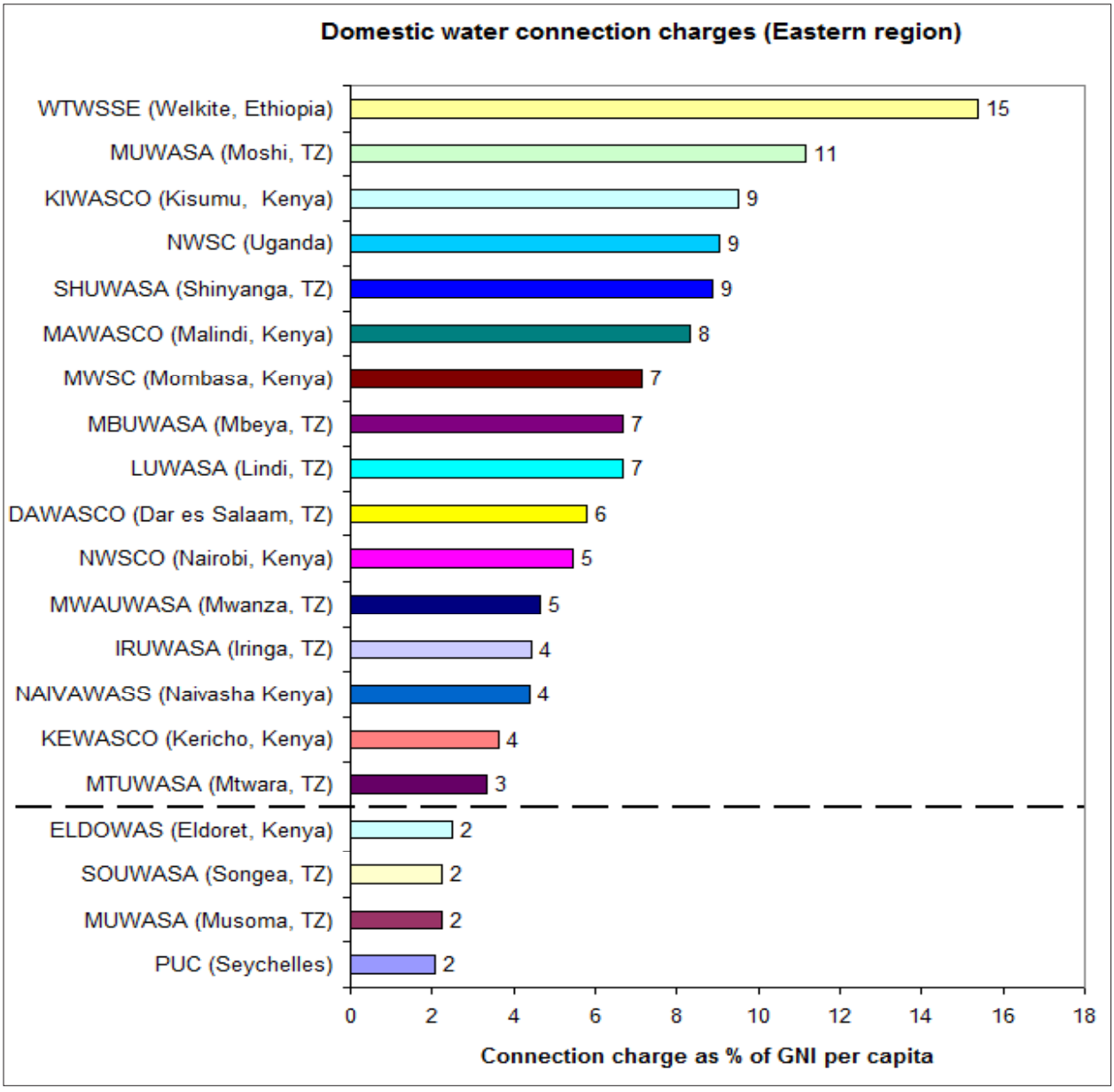
- Domestic water connection charge - expressed as a percentage of GNI per capita; and
- Monthly household bill for a household consuming 6m^3 per month - expressed as percentage of monthly GNI per capita.

Tariffs and connection charges need to be put in the perspective of affordability. Household income data, however, is not easy to obtain. These indicators are therefore expressed as a proportion of per capita Gross National Income (GNI), which reflects annual income. The GNI (Atlas method based) will be for the whole country and not reflect local variations, but is the most appropriate consistent measure currently available for most countries.

3.1 Affordability of domestic water connection charges

For many households, especially those in informal settlements, the cost of connecting to a piped network can be a significant financial hurdle. Comparing connection charges provides insights into the level to which this obstacle has been

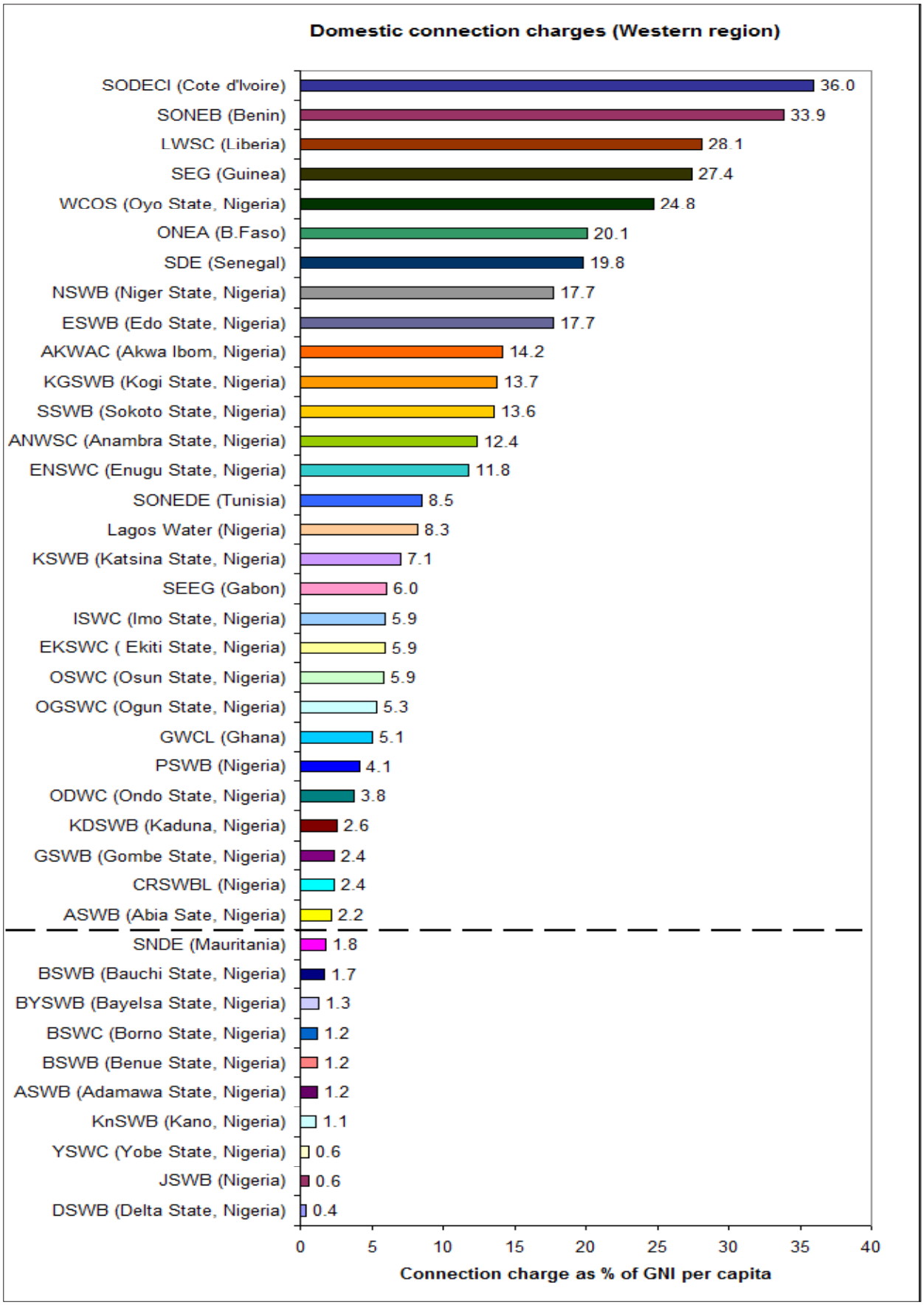
Figure 3.1 Domestic water connection charges as a share of per capita GNI (Eastern region utilities)



addressed. A total of 70 utilities provided data on connection charges and this is summarised in Figures 3.1-3.3. The data expressed as a percentage of per capita GNI, shows that for some of the utilities the connection charges are clearly unaffordable. In some cases they exceed 30 percent of per capita GNI.

The lack of trunk infrastructure as well as the connection fee is often what prevents

Figure 3.2 Domestic water connection charges as a share of per capita GNI (Western region utilities)



people from obtaining piped water supplies - once connected consumers can usually pay their water bills. Based on the performance of the top 25 percent of all utilities in the sample it appears utilities should charge connection fees equivalent to no more than two percent of per capita GNI. With this fee level, only 16 utilities can be considered to be doing relatively well on this indicator. Connection charges are generally lower among utilities in the Eastern region.

3.2 Affordability of utility water bills

Monthly household bill for a household consuming 6m³ per month: A total of 87 utilities provided data on this indicator.

Figure 3.3: Domestic water connection charges as share of per capita GNI (Southern region utilities)

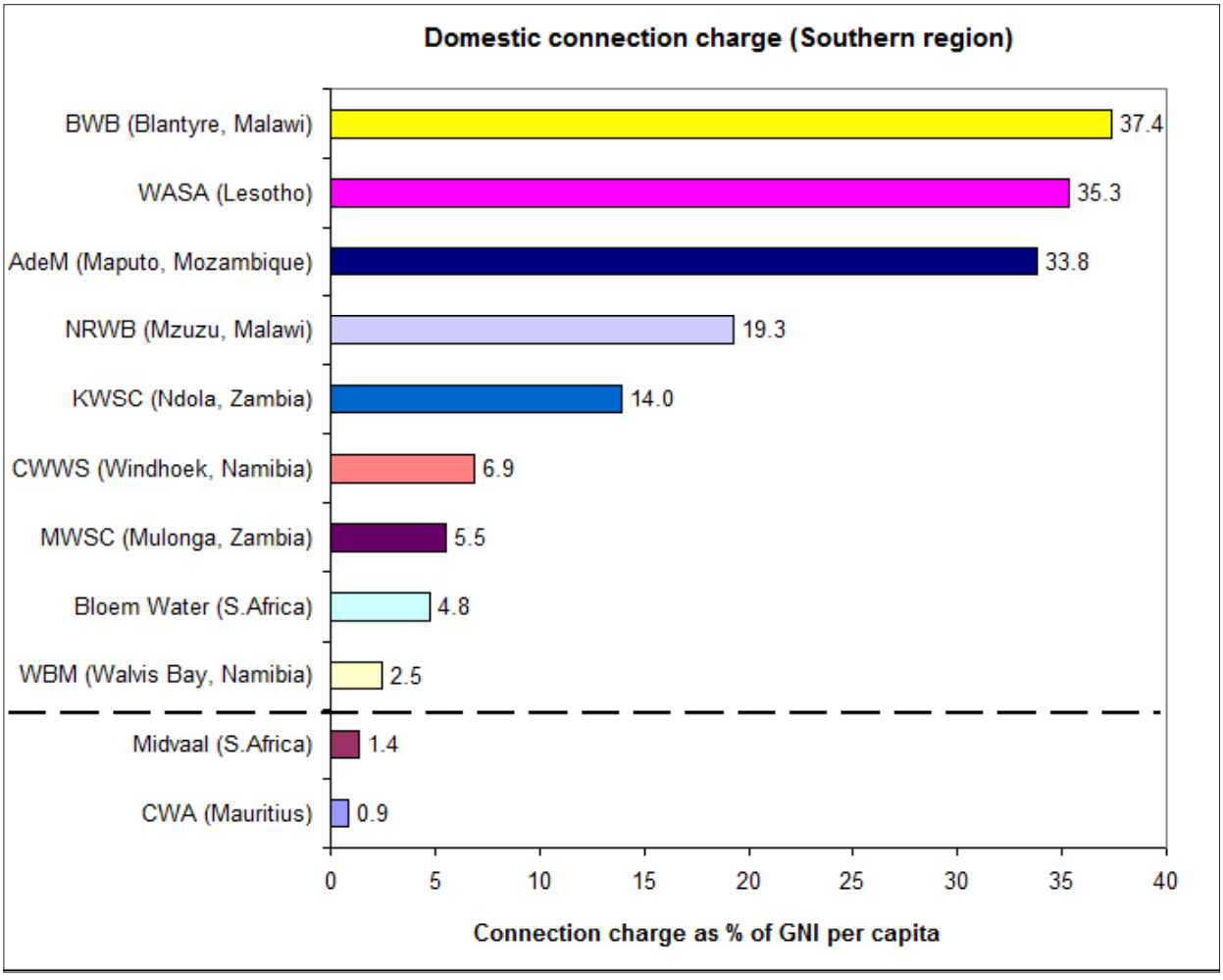
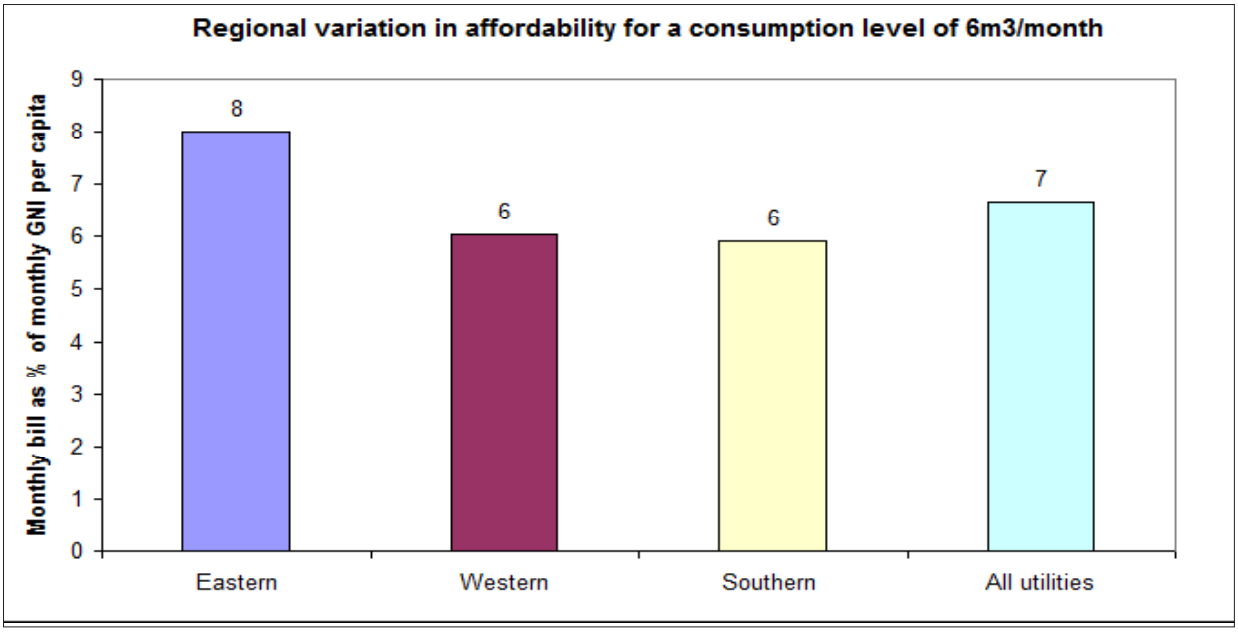


Figure 3.4: Regional variation in affordability for a consumption level of 6m3/month



However, a total of 16 South African utilities were excluded from the analysis because they cannot be fairly compared with other utilities due to the well known free basic water policy (FBW) in South Africa. The FBW policy entitles all people to a free lifeline supply of 6m^3 of water per household per month. The policy has not been implemented in any other African country other than South Africa. For all other utilities (71 utilities), **Figure 3.4** gives the regional variation in affordability for a consumption level of 6m^3/month. The data shows the annual cost of consuming 6m^3/month as a share of per capita GNI is slightly higher in the Eastern region compared to the other regions.

A look at individual utility data further reveals the differences in affordability levels. The data is summarised in **Figures 3.5-3.7.** The data shows that utility customers in Africa pay an equivalent of 0.4-18 percent of monthly per capita GNI. These results show the burden on customers and underline the need for utilities to cut costs. Based on the performance of the top 25 percent of all utilities in the sample, it appears households should pay an equivalent of no more than 3 percent of per capita GNI for 6m^3 of water per month. With this fee level, only 18 utilities (out of 71) can be considered to be doing relatively well on this indicator.

Figure 3.5: Monthly water bill for HH consuming 6m3/month as a share of per capita GNI (Eastern)

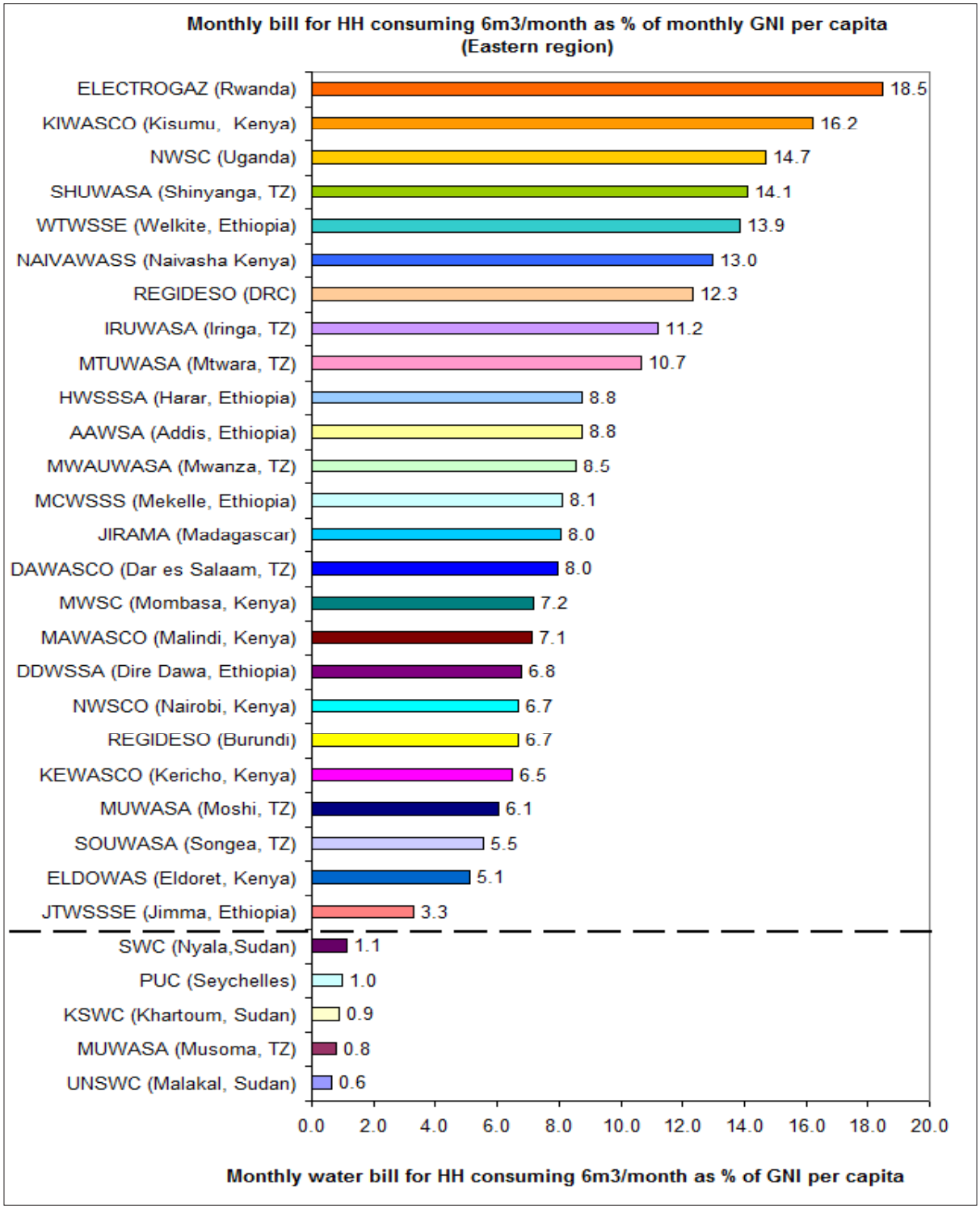


Figure 3.6: Monthly water bill for HH consuming 6m3/month as a share of per capita GNI (Western)

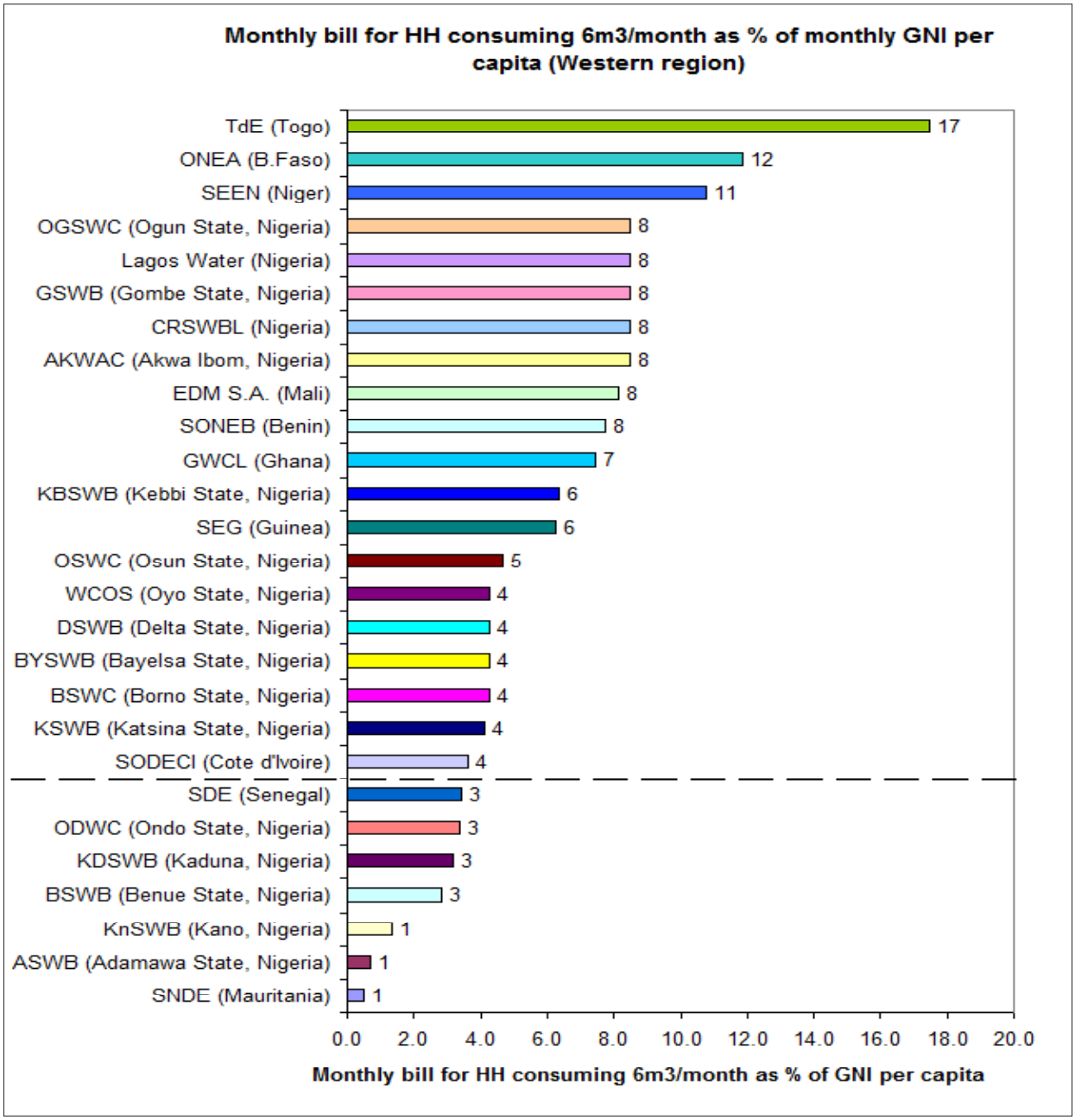
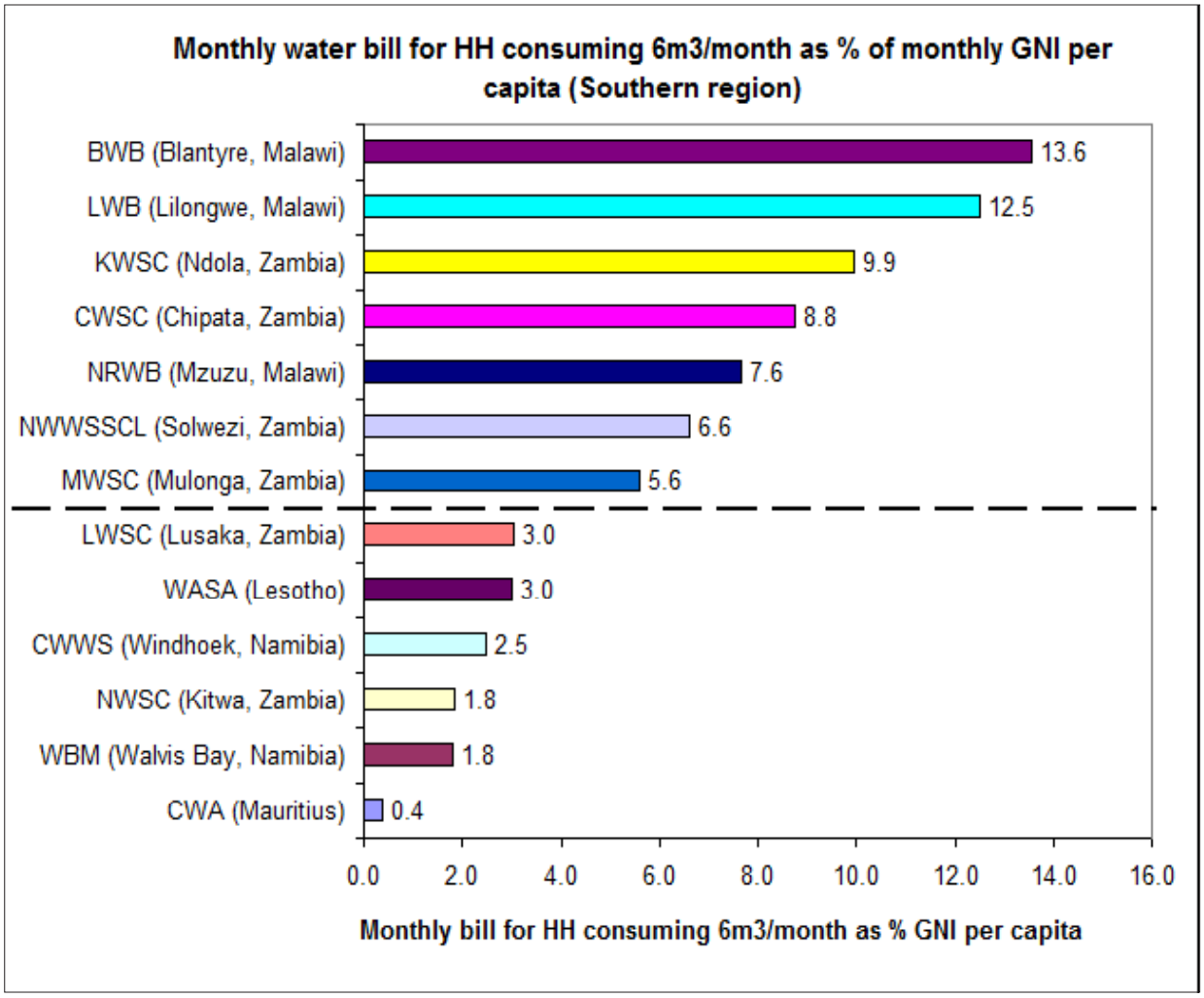


Figure 3.7: Monthly water bill for HH consuming 6m3/mon as a share of per capita GNI (Southern)



3.3 Summary of performance on affordability indicators

Table 3.1 shows the proportion of utilities making the best performing groups on key affordability indicators. On connection charges Western utilities perform slightly better than utilities from the other two regions. Twenty six percent of Western utilities make the best group compared to 20 percent for Eastern and 18 percent for Southern utilities.

Although Western utilities generally have lower connection charges, poor customers connecting to their networks are likely to pay a much higher bill. Utilities in the Southern region (even with the exclusion South Africa) perform much better in keeping the

monthly bill for poor households below 3 percent. Opportunities therefore exist for collaboration between utilities, especially on strengthening pro-poor policies and strategies that clearly define financing and operational mechanisms, as well as tariffs that ensure equitable provision of services to all urban residents. Priority issues for exchange are summarised in **Box 3.1** below.

It should be noted that most utilities are already engaged in some initiatives to improve services to the urban poor. For instance, 87 percent of utilities reported that they were engaged in formal partnerships with alternative service providers (mainly water kiosk operators), while 38 percent have formal partnerships with NGOs and other community-based organisations involved providing services to informal settlements.

Furthermore, 65 percent of utilities claim to have a pro-poor strategy and of these 20 percent report service improvements to

Table 3.1: Proportion of utilities making the best performer groups on affordability

Indicator	Target for best performance*	Valid sample			Proportion of utilities making the best performer group (%)		
Connection charges as % of GNI per capita	2	20	16	15	20%	26%	18%
Monthly bill for a consumption level of 6m3/month as % of monthly GNI per capita	3	30	27	13	17%	26%	46%

* Target is based on the performance of the top quartile (25 percent) of all utilities in the sample

Box 3.1: Possible themes for utility cooperation on serving the poor and informal settlements

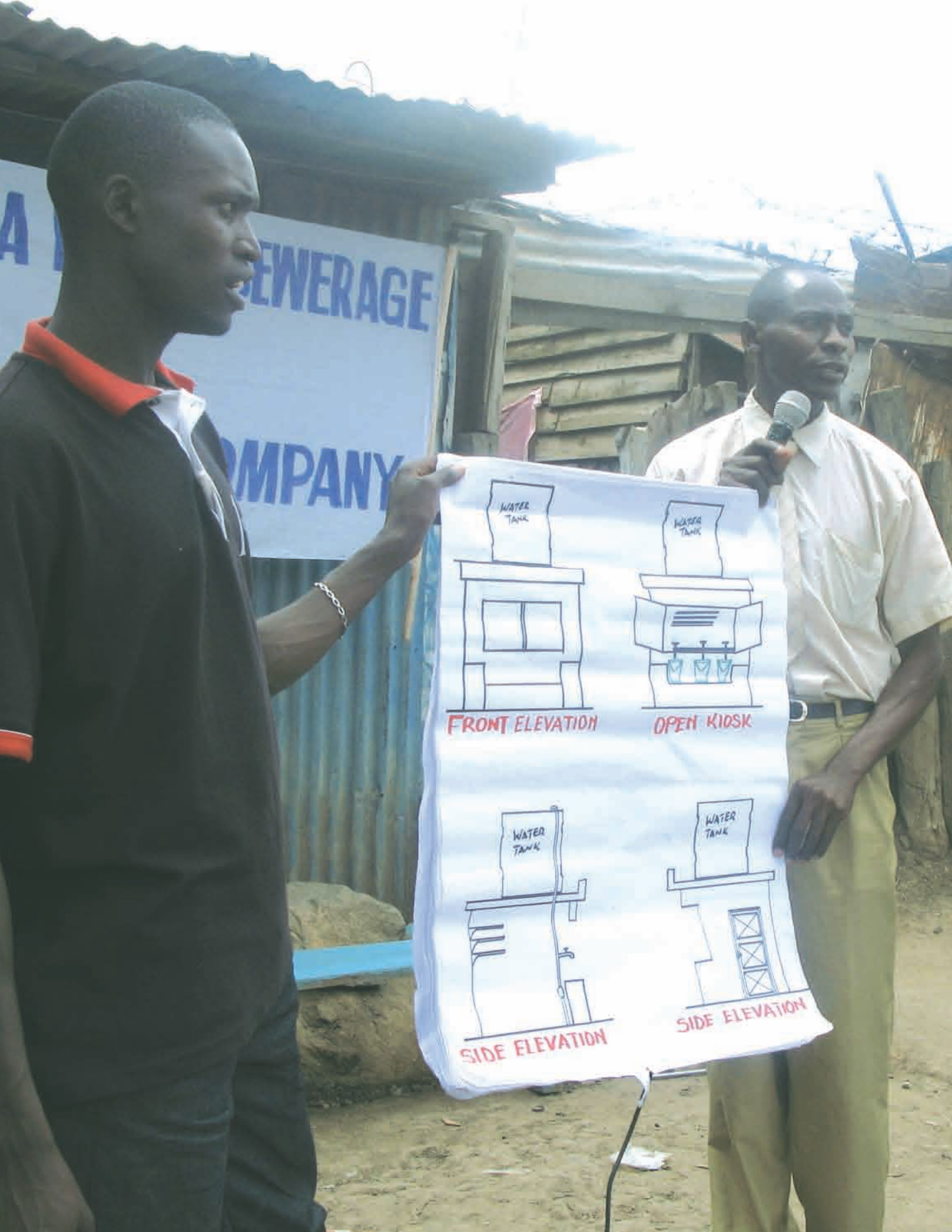
I. Services to the poor and informal settlements

- Best practices on serving the poor and informal settlement strategies (e.g. policies, dedicated unit within the utility, service options, social connections, kiosks, delegated management models and partnerships)
- Tariff reviews, subsidy targeting, cross subsidies
- Adaptation of service levels to suit the urban poor
- Partnerships with alternative service providers
- Using water and sanitation services as entry points for slum upgrading and coordination with other stakeholders

the urban poor as a result of implementing their strategies. A sizeable number of utilities (31 percent) have running social connection programmes but few (22 percent) have a dedicated peri-urban unit to manage the delivery of services to the urban poor and informal settlements. Overall, there is potential for inter-utility exchange and learning innovative ways of serving the poor.

Table 3.2: List of utilities with dedicated units/departments focusing on services to the urban poor

Utility full name	Short name	Country	Region
Kisumu Water & Sewerage Company	KIWASCO	Kenya	Eastern
Naivasha Water , Sewerage & Sanitation Company Ltd.	NAIVAWASS	Kenya	Eastern
Shinyanga Urban Water & Sewerage Authority	SHUWASA	Tanzania	Eastern
Dar es Salaam Water & Sewerage Authority	DAWASA	Tanzania	Eastern
Mwanza Urban Water and Sewerage Authority	MWAUWASA	Tanzania	Eastern
Dire Dawa Water Supply & Sewerage Authority	DDWSSA	Ethiopia	Eastern
National Water and Sewerage Corporation	NWSC	Uganda	Eastern
Plateau State Water Board	PSWB	Nigeria	Western
Bauchi State Water Board	BSWB	Nigeria	Western
Borno State Water Corporation	BSWC	Nigeria	Western
Office National de l'assainissement du Senegal	ONAS	Senegal	Western
Societe Nationale d'Exploitation et de Distribution des Eaux	SONEDE	Tunisia	Western
Societe Des Eaux De Guinee	SEG	Guinea	Western
Societe d'Energie et d'Eau du Gabon	SEEG	Gabon	Western
Malawi Northern Region Water Board	NRWB	Malawi	Southern
Mulonga Water and Sewerage Company Limited	MWSC	Zambia	Southern
Northern Western Water Supply and Sewerage Company Limited	NWWSSCL	Zambia	Southern
Lusaka Water & Sewerage Company Limited	LWSC	Zambia	Southern
Kafubu Water and Sewerage Company Limited	KWSC	Zambia	Southern
Aguas de Mozambique, S.A.R.L	AdeM	Mozambique	Southern


EWERAGE
MPANY
WATER TANK
FRONT ELEVATION
WATER TANK
OPEN KIOSK
WATER TANK
SIDE ELEVATION
WATER TANK
SIDE ELEVATION

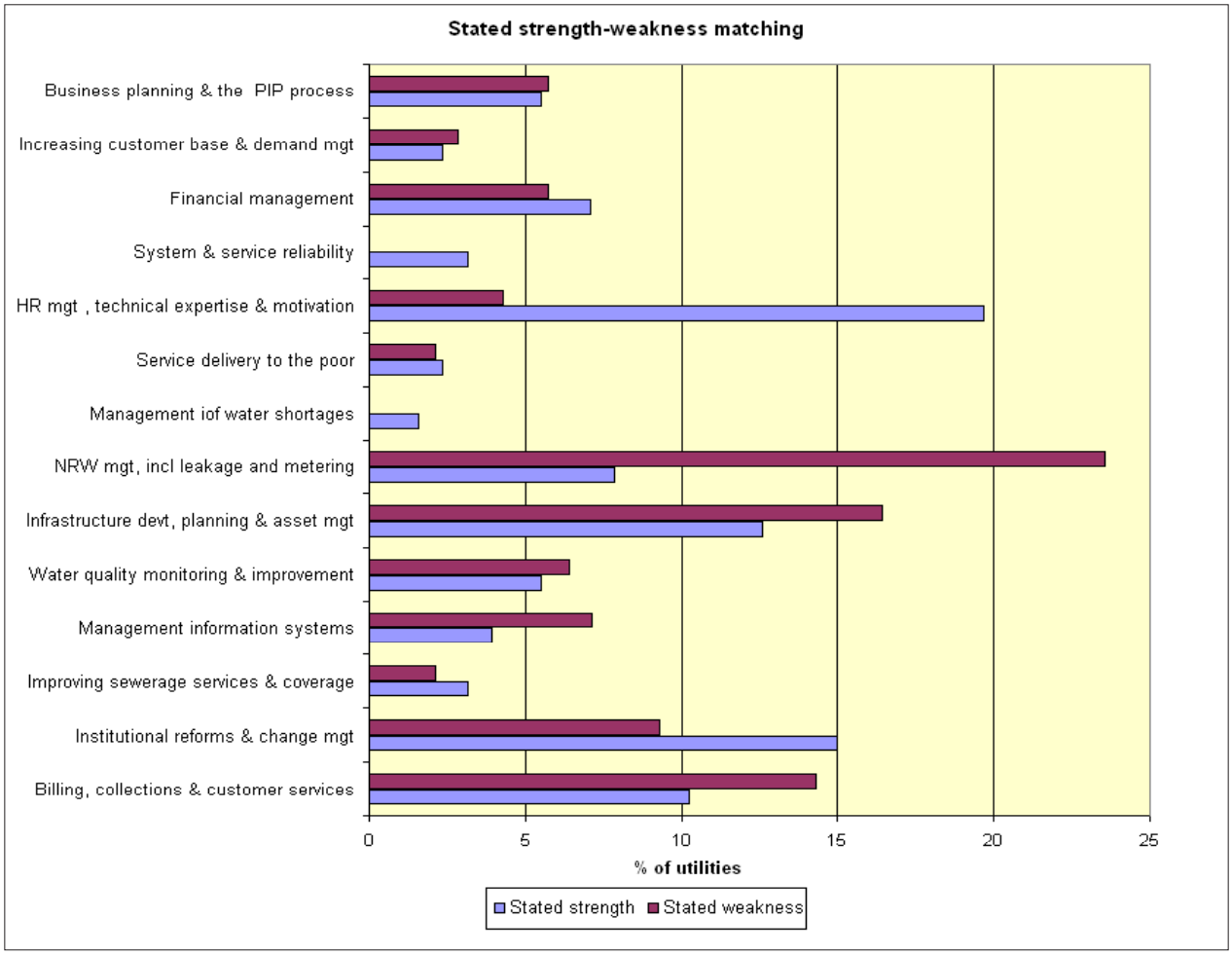
4. Potential for Peer-Support Partnerships

The foregoing performance assessment has helped identify where each participating utility lies on key performance parameters. Clearly, there are utilities that are leading the group on specific indicators and also in terms of overall performance. There are also a number of utilities that can do better. A key assumption of the WOP-Africa program is that those participating utilities that generally lag behind in performance will be motivated to learn from others that are performing relatively well where there are any lessons to learn. Although this assessment exercise did not aim to explain the reasons for any utility's performance level, the data provides a good starting point for utilities to identify potential learning partners based on the level of performance alone.

Moreover, as part of the assessment, utilities were each asked to identify their top three areas of strength, as well as the top three weaknesses or priority areas for learning from a better performing utility. The responses were coded into 14 categories with each weakness and each strength being allocated the same code to enable matchmaking. The results summarised in Figure 4.1 are quite revealing, particular on the potential for African utilities to learn from each other.

The majority of utilities (24 percent) identify non-revenue water management as their major weakness. This is fairly consistent with the performance data discussed earlier in Section 2. It is also observed that only a few utilities (8 percent) claim to be strong on non-revenue water management - a result that is again fairly consistent with the performance data discussed earlier. From these observations it would appear that African water utilities would be hard-pressed to find among themselves another utility to provide peer-support and share knowledge on this critical performance area. In such circumstances, it would be beneficial to look outside the region for proven expertise and experience. However, for other areas, there is enormous potential for utilities in Africa to learn from each other. In particular, there is potential for knowledge and skills transfer through collaborative arrangements between utilities that show superior performance on key indicators and those that lag behind. This potential for utility-to-utility partnerships (U2U) was also revealed during the regional workshops in which participants expressed interest for more than 100 specific matches (see Appendix C). As a result of the discussions and relationships forged during the regional workshops, several utilities have already initiated U2U partnerships.

Figure 4.1: Stated strength-weakness matching (all utilities)



The self-assessment also revealed that utility partnerships of this nature are not entirely new in the African water sector. There is already a rich experience of utility exchanges of experience and services. The questionnaire used in the assessment exercise captured some of these experiences. Utilities were asked whether they had been involved in any utility exchange in the past, the context under which the exchange took place, as well as funding and contractual arrangements.

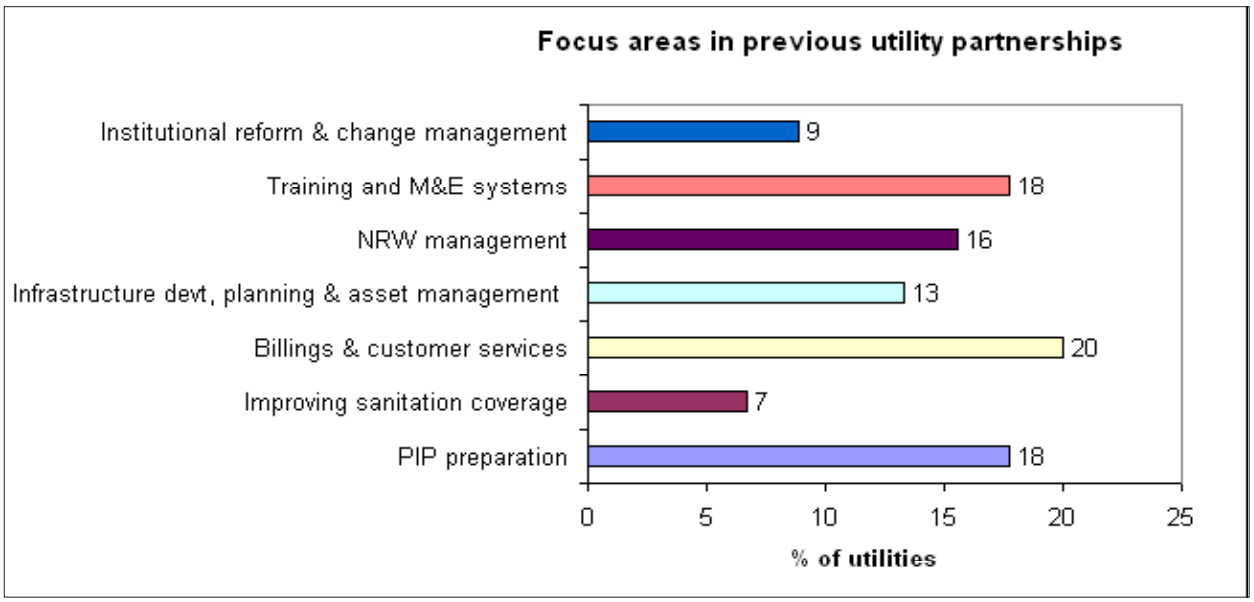
Of a total of 57 valid responses, 49 (86 percent) reported having been involved in an exchange of experiences or services with another utility. The majority of these (63 percent) have been through the utility's own initiatives, while about half (47 percent) where conducted through the former Water

Utility Partnership (WUP). The cases of U2U reviewed by the participants showed that U2U come in many shapes and forms ranging from relatively short term interventions focused on a specific theme to broader more comprehensive partnerships involving periodic joint meetings of their management teams and their boards as well as staff exchanges. For instance, NWSC (Uganda) has an external services unit within the organisation that provides a wide range of utility management advisory services to other utilities in the region. Collaboration already exists between NWSC and other water utilities, including Dar es Salaam (Tanzania), Lusaka (Zambia) and Nairobi (Kenya).

Figure 4.2 summarises the main areas of exchange in previous or existing partnerships. Most of the exchanges have focused on billing and customer services; performance improvement plans (PIP); training; monitoring and evaluation systems. Remarkably, a few of the utilities are already collaborating on ways to improve sanitation coverage - an area that was found lacking in many utilities.

As the WOP-Africa funding strategy continues to evolve, it is interesting to explore how previous or existing partnerships are being funded. Figure 4.3 summarises funding arrangements for past and existing U2U partnerships (based on 43 valid responses). The majority of utilities (44 percent) are self-financing their engagements with other utilities, implying that utilities already attach a high value to such exchanges. This is an important

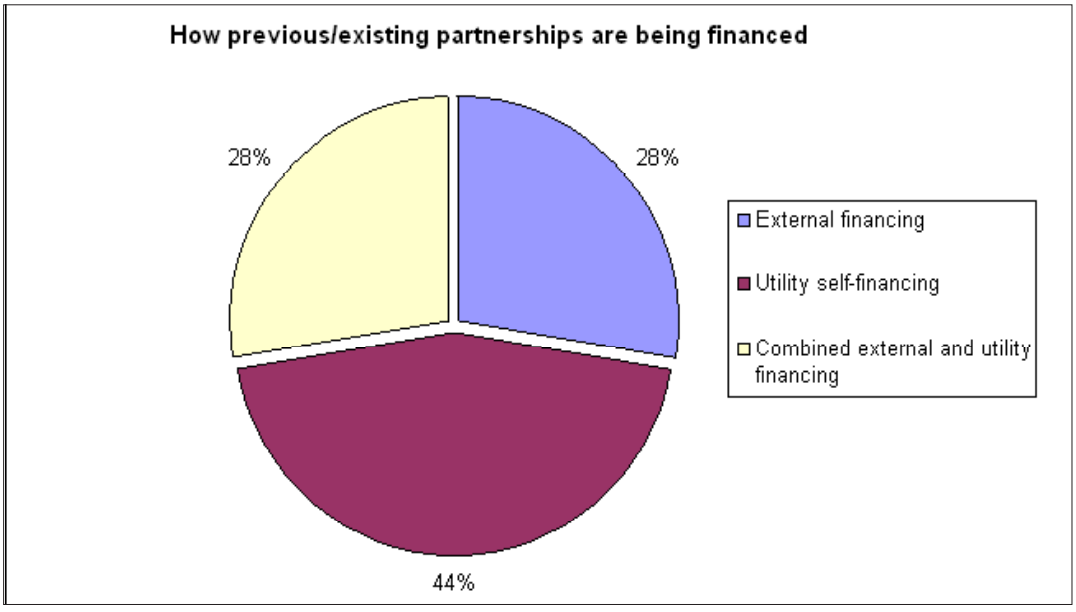
Figure 4.2: Focus areas in previous utility partnerships



finding to take on board in the evolving WOP-Africa funding strategy.

Lastly, on the question of contractual arrangements, the majority (47 percent) of partnerships are formalised through memoranda of understanding (MoUs). A sizeable number (35 percent) have used formal contracts with specific objectives. There also a number of utilities (26 percent) that report basing their exchanges on informal agreements between managers. Overall, these results suggest that there is a wealthy of experience to build on and that the WOP - Africa program should seek to enhance rather than undermine these existing arrangements.

Figure 4.3: Existing funding arrangements for utility partnerships



5. Conclusion

This report has synthesized the results of a utility performance assessment of selected African utilities and provides a basis for further development of the WOP program in Africa. The main conclusions arising from the assessment can be summarized as follows:

- The major challenge facing utilities is expanding coverage;
- Inefficiencies are a major cause of poor access to water services;
- Africa has a lot of well-performing utilities and good practices;
- There are U2U exchanges already taking place to be scaled up under WOP Africa;
- Availability and reliability of performance data is still a problem as in many cases MIS systems are either poorly designed, incomplete and/or not systematically updated.

From the data presented it is fairly clear where each utility lies on key performance indicators and the opportunities that exist for peer-support and learning. The indicators capture a broad range of performance areas for utilities but they are not comprehensive. More work is needed to provide a complete assessment of utility performance, expanding the measures to governance and accountability, to capital efficiency and to better measures of responsiveness to the needs of the poor. There is also need to institutionalise the assessment process, improve MIS at utility level and do more process benchmarking.

Invariably, indicators tend to portray an incomplete picture of a utility's performance as they often exclude other contributing factors such as accountability of institutions and incentives that are not readily quantifiable. Moreover, utilities face different social, political and financial constraints which need to be taken into account when evaluating performance. For these reasons, the indicators presented in this assessment should not be interpreted rigidly. Rather they should be taken as indicative of the strength or weakness of a utility relative to its peers.

Lastly, the results show enormous potential for scaling-up inter-utility partnerships in Africa. Contrary to popular perception, the region is not entirely short of well-performing utilities to emulate. Many countries have improved their institutional framework making it possible for utilities to shift from crisis management to strategic planning and performance improvement, which can be emulated by those that are lagging behind. However, improvement by emulation requires that utilities are found that exhibit superior performance and have objectives or specific strengths to match the weaknesses of utilities seeking improvement. This assessment has provided some indication of who the superior performers might bebut more work is needed to confirm their ability to provide peer-support. The assessment and the WOP Africa regional workshops have also confirmed the interest in peer-to-peer support partnerships.

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ANNEX A: List of all participating utilities

	Utility full name	Utility Short Name	Country	Region	Principal towns/ Cities	Nature of service area	Source of data	Executive head of the utility
1	Abia State Water Board	ASWB	Nigeria	Western	Umuahia	Regional utility	USAQ	Igwe Eme Ogwo, Abia State Water Board, PMB 7311 Umahia, Abia State , Nigeria, Tel: 08034639715, Email:igweogwo@yahoo.com
2	Adamawa State Water Board	ASWB	Nigeria	Western	Yola	Regional utility	USAQ	Cornellius Hapsa, General Manager, Adamawa State Water Board, P.M.B.2088, Yola Adamawa State, Nigeria. Tel: +2348036156110, Email; engrhapsa@yahoo.com
3	Addis Ababa Water & Sewerage Authority	AAWSA	Ethiopia	Eastern	Addis Ababa	Urban (single city/ municiaplity)	USAQ	Getachew Eshete, P.O. Box 1505 Addis Ababa , Ethiopia, +251 116623902, +251 116623924, aawsa.ha@ethionet.et
4	Aguas de Mozambique, S.A.R.L	AdeM	Mozambique	Southern	Maputo	Urban (single city/ municiaplity)	USAQ	Manual Thomaz, Av. Eduardo Mondlane, 1352, 5 andar CP n 2952, Maputo Mozambique, +258 21 302431/2, + 258 21324675,mthomaz@aguamoz.co.mz
5	Akwa Ibom Water Company	AKWAC Ltd	Nigeria	Western	Uyo, Oron ikt Ekpene, Abak, itu, ikot Abasi, Eket, Etihan	Regional utility	USAQ	Bassey Efiong Ating, Akwa Ibom Water Company Limited, P.M.B 1132 , Uyo, Akwa Ibom State, Nigeria. Tel: 085 203109, fax: 085203109, Email: basseyating@yahoo.com
6	Anambra State Water Corporation	ANSWC	Nigeria	Western	Awka	Regional utility	USAQ	Godfrey I. Mgbemena, 61 Ifite Road P.M.B 5028, Awka, Tel: 08037076375, Email: vichinel@yahoo.com
7	Arusha Urban Water and Sewerage Authority	ARWASA	Tanzania	Eastern	Arusha	Urban (single city/ municiaplity)	National Regulator	Assi A Munisi. P.O Box 13600. Tel +255 027 2504153. Email. auwsa@habari.co.tz
8	Bauchi State Water Board	BSWB	Nigeria	Western	Bauchi Town and 19 LGA Headquaters	Regional utility	USAQ	Abubakar Adamu , 15 Gombe Road, G.R.A P.M.B 0055, Bauchi, 23477542457,/8088526408/8023632817, Email: harunaalfa2003@yahoo.com

	Utility full name	Utility Short Name	Country	Region	Principal towns/ Cities	Nature of service area	Source of data	Executive head of the utility
9	Bayelsa State Water Board	BYSWB	Nigeria	Western	Yenengoa	Regional utility	USAQ	James C. Ala, Bayelsa State Water Board P.M.B 38, Yenagoa, Bayelsa State, Tel: +234 08038828834, Fax:089 490328 , Email: alajamescornelius@yahoo.com
10	Benue State Water Board	BSWB	Nigeria	Western	Markurdi,Otukpo, Gboko, Kala	Regional utility	USAQ	RA Chenge,Benue State Water Board Headquarters, PMB 102072, Makurdi ,Nigeria, 044 533608, 08032354796
11	Blantyre Water Board	BWB	Malawi	Southern	Blantyre	Urban (single city/ municiaplity	USAQ	Owen Kankhulungo, Blantyre Water Board, P.O. Box 30369, Chichiri, Blantyre 3, Malawi, (+265) 01872000, (+265) 01872026, bwb@ bwb.mw or okankhulungo@african-online.net
12	Bloem Water	Bloem Water	South Africa	Southern	BloemFontein,Red dersburg, Thaba, Nchu, Botshelo, Dewetsdorp,Eden burg,Bethulie,Wep ener,Springfontein ,Trompsburg,Philip polis, Gariep	Regional utility	USAQ	Nolene Morris, P.o Box 30121, Pellissier 8322, +051 4030800, +051 4225333, nolenem@ bloemwater.co.za
13	Borno State Water Corporation	BSWC	Nigeria	Western	Maidugri	Regional utility	USAQ	Imam Mohamed, Mohammed Monguno Road, P.M.B 1188, Maiduguri, Borno State, +234 76233364, +234 76 23 6030
14	Bukoba Urban Water and Sewerage Authority	BUWASA	Tanzania	Eastern	Bukoba	Urban (single city/ municipality)	National Regulator	Chaggaka Kalimbia. P.O Box 81. Tel +255 028 2221744. Email. buwasa@bukobaonline. com
15	Cape Town Metro	Cape Town	South Africa	Southern	Cape Town	Urban (single city/ municiaplity)	IBNET	Mr Mosai. Tel +27 21 400 4859. Email.sipho. mosai@capetown.gov.za

	Utility full name	Utility Short Name	Country	Region	Principal towns/ Cities	Nature of service area	Source of data	Executive head of the utility
16	Central Region Water Board	CRWB	Malawi	Southern	20 Towns, Major Kasungu scheme, Head Office Lilingwe City	Regional utility	USAQ	Ziddy Medi, Private Bag 59, Lilongwe, Malawi, + 265 1 757045, +265 1758178, crwb@malawi.net
17	Central Water Authority	CWA	Mauritius	Southern	Island Wide	National utility	USAQ	Harry Booluck, CWA Headquarters, St. Paul , phoenix, Mauritius, +230 6015000/ 2595586, +230 6967111, booluck_h@cwa.intnet.mu
18	Chipata Water & Sewerage Company	CWSC	Zambia	Southern	Chipata	Urban (single city/ municiaplity)	USAQ	Bernard Mwewa, Chipata Water and Sewerage Company, P.O. Box 510464, Chipata, Zambia, (+260) 977773807, (+260) 6221403, cwsc@zamtel.zm
19	City of Windhoek Water Services	CWWS	Namibia	Southern	Windhoek	Urban (single city/ municiaplity)	USAQ	Piet du Pisani; PO Box 59 Windhoek; 264.61.2902334; pdp@windhoek.org.na
20	Cross River State Water Board Limited	CRSWBL	Nigeria	Western	Calabar, Akamkpa, Ugep/Ediba	Regional utility	USAQ	Elemi B. Etowa,Administartive Headquarters, Ndidem Usang Iso Road, PMB 1177, Calabar, Nigeria. 087 234243, 238912, 238036708465, 087 234240, info@Crswaterboard.com,elemiet@yahoo.com
21	Dar es Salaam Water & Sewerage Authority	DAWASA	Tanzania	Eastern	Dar es Salaam	Urban (single city/ municiaplity)	USAQ	Archard Mutalemwa, P.O. Box 1573, Mulanga/Dunga street, Dar es Salaam, Tanzania, +255 0 222762479,+22 0 22 2762480, kasigab@dawasa.co.tz
22	Dar es Salaam Water & Sewerage Corporation	DAWASCO	Tanzania	Eastern	Dar es Salaam	Urban (single city/ municiaplity)	USAQ	Alex Kaaya, P.O. Box 5340, Dar es salaam Tanzania,+255 22 2131191,+255 22 211931,alex.kaaya@dawasco.com
23	Delta State Urban Water Board	DSWB	Nigeria	Western	Asaba	Regional utility	USAQ	Jonathan Omotutu, General Manager, Tel: 08023284941

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24	Dire Dawa Water Supply & Sewerage Authority	DDWSSA	Ethiopia	Eastern	Dire Dawa	Urban (single city/ municiaplity	USAQ	Mesfin Miligeta Alemu, P.O. Box 446 , Dire Dawa , Ethiopis, +251 251113496/915734950, +251 25111 4987/251111072, mesfinmlgt@yahoo.com
25	Dodoma Urban Water and Sewerage Authority	DUWASA	Tanzania	Eastern	Dodoma	Urban (single city/ municiaplity)	National Regulator	Peter Mokiwa. P.O Box 431. Tel. +255 026 232 42 45. Email. duwasatz@yahoo.com
26	Drakenstein Local Municipality	Drakenstein	South Africa	Southern	Paarl	Urban (single city/ municiaplity)	IBNET	Mr Blignaut. Tel '+27 21 8074725. Email.hanre@drakenstein.gov.za
27	Edo State Urban Water Board	ESWB	Nigeria	Western	Benin City	Regional utility	USAQ	Monday Umane, IB, Owobu Way , Off Obasuyi str. P.O Box 5579, GRA Benin City, Nigeria. Tel: 08028445025, 07035402274
28	Ekiti State Water Corporation	EKSWC	Nigeria	Western	Ado-Ekiti	Regional utility	USAQ	Olutoba Anise , PMB 5350 Ado-Ekiti, Nigeria, Tel: 08035070552, Email: 2008olutoa@yahoo.com
29	Eldoret Water & Sanitation Co. Ltd.	ELDOWAS	Kenya	Eastern	Eldoret	Urban (single city/ municiaplity	USAQ	Reuben Arap Tiuei, P.O. Box 8418 Eldoret, Tel: +254 53 2061915, +254 53 63556, Email:info@eldowas.org
30	ELECTRA S.A. - Empresa de Electricidade e Agua	ELECTRA S.A	Cape Verde	Western	National Utility	National utility	IBNET	Dr. Rui Eduardo Ferreira Rodrigues Pena. Tel + 238 230 30 30. Email. comercial@electra.cv
31	Emfuleni Local Municipality	Emfuleni	South Africa	Southern	Van der Bijl Park	Urban (single city/ municiaplity)	IBNET	Mr Duvenage. Tel.'+27 16 986 8313. Email.hennied@emfuleni.gov.za
32	Energie du Mali S.A.	EDM S.A.	Mali	Western	Bamako	National utility	USAQ	Sekou Alpha Djieteye; Energie du Mali S.A. BP 69 Bamako, Mali; 223 222 3020; 2232223060 fax 223222 8430; Email: sdjiteye@edmsa.net

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33	Enugu State Water Corporation	ENSWC	Nigeria	Western	Enugu, Nsukka and other towns in Enugu state	Regional utility	USAQ	Obrien Ofordu , Enugu State Water Corporation Road, GRA Enugu, Nigeria
34	Etablissement de Production, de Transport et de Distribution d'Electricite, d'Eau et de Gaz	ELECTROGAZ	Rwanda	Eastern	Kigali	National utility	USAQ	Jean Bosco Kanyesheja; BP 537; Kigali; +250 598 260; jbkanyesheja@electrogaz.co.rw
35	eThekwini Metro	eThekwini (S.Africa)	South Africa	Southern	Durban	Urban (single city/ municiaplity)	IBNET	Mr Msweli. Tel +27 31 311 1113. Email. EdnickMs@dmws.durban.gov.za
36	FIPAG Nampula	FIPAG Nampula	Mozambique	Southern	Nampula	Urban (single city/ municiaplity)	IBNET	
37	FIPAG Beira	FIPAG Beira	Mozambique	Southern	Beira	Urban (single city/ municiaplity)	IBNET	
38	FIPAG Pemba	FIPAG Pemba	Mozambique	Southern	Pemba	Urban (single city/ municiaplity)	IBNET	
39	FIPAG Quilimane	FIPAG Quilimane	Mozambique	Southern	Quilimane	Urban (single city/ municiaplity)	IBNET	
40	Ghana Water Company Limited	GWCL	Ghana	Western	National utility	National utility	USAQ	Cobbie Kessie JNR, P.O. Box M 194 Accra, Ghana, +23321662037, +23321663552,gwcl@africaonline.com
41	Gombe State Water Board	GSWB	Nigeria	Western	Gombe	Regional utility	USAQ	Umar B. Ahmed , Pantami Road, P.B.M 085 Gombe, Gombe State, +2348027322480, 2348036483937, Fax: 072-221522 Email:umar.bashirahmed@yahoo.com
42	Harar Water Supply & Sewerage Services Authority	HWSSSA	Ethiopia	Eastern	Harar	Urban (single city/ municiaplity)	USAQ	Teweleda Abdoshi Ahmed,P.O Box 198 Harar, Ethiopia,+251256663360, +2512566666518,teweleda@yahoo.com

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43	Imo State Water Corporation	ISWC	Nigeria	Western	Owerri	Regional utility	USAQ	Chima Keke, PMB 1146, Okigwe road, Owerri, imo State,Nigeria.Tel: 0803230512, 08033309332, Email: imowatercorpimostate@yahoo.com
44	Iringa Urban Water Supply and Sewerage Authority	IRUWASA	Tanzania	Eastern	Iringa	Urban (single city/ municiaplity	USAQ	Marco Mfugale, P.O. Box 570, Uhuru Avenue, Iringa, +255 26 2700017, +255 26 2700017, iruwasa2003@yahoo.com
45	Jigawa State Water Board	JSWB	Nigeria	Western	Dutse	Regional utility	USAQ	Abba Hassan,PMB 7012 Shuwarin Dutse, Nigeria, +234 8037005370, abbaihassan@ yahoo.com, garungabas@yahoo.com
46	Jimma Town Water Supply and Sewerage Services Enterprise	JTWSSSE	Ethiopia	Eastern	Jimma	Urban (single city/ municiaplity)	USAQ	Abdu Mohammed Foggi, imma P.O. Box 92, +251917550034, +2551471116509, abdumohammed19@yahoo.com
47	Jiro SY Rano Malagasy	JIRAMA	Madagascar	Eastern	Antananarivo	National utility	USAQ	Bernhard Rohman, 149 Rue rainandriamampandry Ambohijatovo -101 Antananarivo.Madagascar, +261 20 2220031/ 202267415, +261 2022 30386, dg@jirama.mg
48	Johannesburg Water	Johannesburg Water	South Africa	Southern	Johannesburg	Urban (single city/ municiaplity)	IBNET	Mr Eales. Tel +27 11 274 3350. email. kea@iafrica.com
49	Kaduna State Water Board	KDSWB	Nigeria	Western	Kaduna	Regional utility	USAQ	Hassan Mohammed, General Manager, Chief Olesegun Obasanjo house (Secretariat Annex), Yakubu Gowon Way, P.M.B. 2133 Kaduna. Nigeria, +234 62 247960,/247959,8 033111597, +234 62237958, kdswb@yahoo. com,yarojam@yahoo.com

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50	Kafubu Water and Sewerage Company Limited	KWSC	Zambia	Southern	Ndola	Urban (single city/ municiaplity	USAQ	Ian Banda, Plot B12 , Vitanda street, Town Center, P.O. Box 71278, Plot B12 , Ndola , Zambia, +260212622425/622168, +260212622177, iannzalibanda@yahoo.com
51	Kano State Water Board	KnSWB	Nigeria	Western	Kano Metropolis	Regional utility	USAQ	Eng. Yahya Bala Karaye, Managing Director, Kano State Water Board, Gidan Ruwa, emor's palace road, PMB 3501, Kano City, +234 0 64634705, +234 0 64641263, knswb@yahoo.com, engryb_karaye@yahoo.co.uk
52	Katsina State Water Board	KSWB	Nigeria	Western	Katsina	Regional utility	USAQ	Eng. Aliyu Jari, Katsina State Water Board P.M.B 2027 , Katsina, 23465430940, 234654 32575,08035921664, Email: aliyujari@yahoo.com
53	Kebbi State Water Board	KBSWB	Nigeria	Western		Regional utility	USAQ	Umar Abubaka Bena, Kebbi State Water Board, No 1 Muritala MOH Way, Birnin Kebbi, Nigeria. 08030927563
54	Kericho Water and Sanitation Company limited	KEWASCO	Kenya	Eastern	Kericho	Urban (single city/ municiaplity	USAQ	John Cheruiyot, P. O Box 1397-20200 Kericho, +254 05220602, kewascoltd@yahoo.com
55	Khartoum State Water Corporation	KSWC	Sudan	Eastern	Khartoum	Urban (single city/ municiaplity	USAQ	Khalid Ali Khalid, +249912392312,+2491837 77675, kswcop@yahoo.com,
56	Kigoma Urban Water and Sewerafe Authority	KUWASA	Tanzania	Eastern	Kigoma	National Regulator	National Regulator	Eng M.J. Magori. P.O Box 812. Tel. +255 028 280 3621. Email. uwasakigoma@yahoo.com
57	Kisumu Water & Sewerage Company	KIWASCO	Kenya	Eastern	Kisumu	Urban (single city/ municiaplity	USAQ	David Onyango; PO Box 3210-40100; Kisumu; 254.057.2024100; md@kiwasco.co.ke

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58	Kogi State Water Board	KGSWB	Nigeria	Western	Lokoja	Regional utility	USAQ	Theophilus Olukotun, General Manager, Kogi State Water Board , P.M.B 1059 ,Lokoja, Kogi State , Nigeria. 08035988190, Email: kgwaterboard@yahoo.com
59	Kwara State Water Corporation	KWWC	Nigeria	Western	Ilorin	Regional utility	USAQ	Tunde omoniyi Yahaya, PMB 1358 , ilorin , Kwara State, Tel: 031 221748, 08034468682
60	Lagos Water Corporation	Lagos Water	Nigeria	Western	Lagos	Regional utility	USAQ	Olushayo Holloway,P.O. Box 555, Marina Lagos, 01 4746040-1
61	Lesotho Water & Sewerage Authority	WASA	Lesotho	Southern	Maseru	National utility	USAQ	Refiloe Tlali ,P.O. Box 426, Maseru 100, Lesotho, +266 22322996, +266 22310006, tlalir@wasa.co.ls
62	Liberia Water and Sewer Corporation	LWSC	Liberia	Western	Monrovia and 9 other cities	National utility	USAQ	N. Hun-Bu Tulay, King Sao Boso Street Monrovia, 1000 Liberia 10 , West Africa, 231 77 923082/231 6517356, aqualwsc@yahoo.com, nhunbu@yahoo.com
63	Lilongwe Water Board	LWB	Malawi	Southern	Lilongwe	Urban (single city/ municiaplity)	IBNET	Robert Hanjahanja. Tel. +265 01750366. Email. rhanjahanja@lwb.mw
64	Lindi Urban and Sewerage Authority	LUWASA	Tanzania	Eastern	Lindi	Urban (single city/ municiaplity)	USAQ	Daudi majani, P.O. Box 175 Lindi, +023 220 2402,+023 220 2117, Luwasa2005@yahoo.com
65	Lusaka Water & Sewerage Company Limited	LWSC	Zambia	Southern	Lusaka	Urban (single city/ municiaplity)	USAQ	George Ndogwe, P.O. 50198, Lusaka , Zambia. 00 260211251712, 00260 211 250667,gndogwe@lwsc.com.zm
66	Malawi Northern Region Waterboard	NRWB	Malawi	Southern	Mzuzu	Regional utility	USAQ	Titus Mtegha, Kawiluwilu house, Private Bag 94, Mzuzu,+265 1 310617, +2651 310254,+265 1 310082, chisumbu@nrwb.org.mw

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67	Malindi Water and Sewerage Company Ltd.	MAWASCO	Kenya	Eastern	Malindi	Urban (single city/ municiaplity)	USAQ	Moses Kinya, P.O. Box 410-80200 Malindi, Kenya. +254 042 31037/21132/30923 ; +254 04231206, mawasco@africaonline. co.ke, mkinya@mawasco.com
68	Matjhabeng Local Municipality	Matjhabeng	South Africa	Southern	Welkom	Urban (single city/ municiaplity)	IBNET	Mr Faber. Tel +27 57 9164028. Email.janf@matjhabeng.co.za
69	Matlosana Local Municipality	Matlosana	South Africa	Southern	Klerksdorp	Urban (single city/ municiaplity)	IBNET	Mr Els. Tel '+27 18 406 8358. Email.civil@klerksdorp.org
70	Mbeya Urban Water and Sewerage Authority	MBUWASA	Tanzania	Eastern	Mbeya	Urban (single city/ municiaplity)	USAQ	Eng. S.M. Sahuri. P.O Box 2932. Tel + 255 025 2504298. Email. mbeyauwsa@yahoo.com
71	Mekelle City Water Supply and Sewerage Service	MCWSSS	Ethiopia	Eastern	Mekelle	Urban (single city/ municiaplity)	USAQ	Gidena Abebe, Gidena Abbebe, Mekelle, Tigray, Ethiopia, P.O Box 266 , 251 034 4407336, 0914 300167, 251 034 4411000, gidab71@yahoo.com
72	Metsimaholo Local Municipality	Metsimaholo	South Africa	Southern	Sasolburg	Urban (single city/ municiaplity)	IBNET	Mr Tzonev. Tel +27 16 976 0029. email.dts@lantic.net
73	Midvaal Water Company	Midvaal	South Africa	Southern	Klerksdorp, Orkeny, Stilfontein (City of Matlosana)	Regional utility	USAQ	R U Khan, P.O. Box 31 Stilfontein 2550RSA, 018 482 1241/ 4821262, 018 4821110, khan@midvaalwater.co.za, ruk@intekom.co.za
74	Mogale Local Municipality	Mogale	South Africa	Southern	Krugersdorp	Urban (single city/ municiaplity	IBNET	Mr Viljoen. Tel +27 11 951 2139. Email. orgv@mogalecity.gov.za
75	Mombasa Water & Sewerage Company	MWSC	Kenya	Eastern	Mombasa	Urban (single city/ municiaplity	USAQ	Anthony Chitavi, P.O Box 1100-80100 Mombasa,+254 41 2220791/2222700, +254 412222728, mombasawater@mombasawater.co.ke

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76	Morogoro Urban Water and Sewerage Authority	MOUWASA	Tanzania	Eastern	Morogoro	Urban (single city/ municiaplity)	National Regulator	John Mtaita. P.O Box 5476. Tel +255 023 2604145. Email. uwsamg@raha.com
77	Moshi Urban Water Supply and Sewerage Authority	MUWSA	Tanzania	Eastern	Moshi	Urban (single city/ municiaplity)	USAQ	Anthony Kasonta, P.O. Box 1001, Moshi, (+255) 27-2751164, (+255) 27-2754256, anthonykasonta@yahoo.co.uk
78	Mtwara Urban Water and Sewerage Authority	MTUWASA	Tanzania	Eastern	Mtwara	Urban (single city/ municiaplity)	USAQ	Abdallah I. Matauna. Managing Director, P.O Box 141. Mtwara , Tanzania. Tel +255 023 2333079. Fax: +255 0 23 2333079 Email. mtuwasa@makondenet.com. amatauna@yahoo.com
79	Mulonga Water and Sewerage Company Limited	MWSC	Zambia	Southern	Chingola, Mufulira and Chililabombwe	Regional utility	USAQ	Manuel Mutale; PO Box 11712 Chingola, Zambia; 260. 212. 312199; mulonga@zamtel.zm
80	Municipality of Walvis Bay	WBM	Namibia	Southern	Walvis Bay & Suburbs	Urban (single city/ municiaplity	USAQ	Andre Brummer, Private Bag 5017, Walvis Bay, +264 64 214301, +264 64 214310, abrummer@walvisbaycc.org.na
81	Musoma Urban Water and Sewerage Authority	MUWASA	Tanzania	Eastern	Musoma	Urban (single city/ municiaplity	USAQ	Genes Kaduri. P.O Box 233. Musoma Tanzania Tel,. +255 028 262 2868 / 2620430 Fax: +255 28 2620172 Email. muwasa@juasun.net
82	Mwanza Urban Water and Sewerage Authority	MWAUWASA	Tanzania	Eastern	Mwanza	Urban (single city/ municiaplity	USAQ	Justus Rwetabula, Mwauwasa Makongoro Road, P.ox Box 317, Mwanza , Tanzania, +255 028 2500547/2503006/0753277247, +255 02825032331, mwauwasa@yahoo.com
83	Nairobi Water & Sewerage Company	NWSCO	Kenya	Eastern	Nairobi	Urban (single city/ municiaplity	USAQ	Francis Mugo, P.O. Box 30656-00100, +254 20 552154, 552126, Fmugo@nairobiwater.co.ke

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84	Naivasha Water , Sewerage & Sanitation Company Ltd.	NAIVAWASS	Kenya	Eastern	Naivasha	Urban (single city/ municiaplity)	USAQ	Ndiritu Daniel Mbogo, Managing Director, P.O. Box 321 -200117,Naivasha , +254 050 2020979, 0721 435005, naivawass@gmail.com , danielmndiritu@yahoo.com
85	National Water and Electricity Company	NAWEC	Gambia	Western	Banjul, greater Banjul Area, Provincial towns.	National utility	USAQ	Momodou Jallow, P.O.Box 609 , Banjul. Gambia, +2204376233/4376606/7, +220 4375990, nawec@qanet.gm
86	National Water and Sewerage Corporation	NWSC	Uganda	Eastern	Kampala (Jinja, Entebbe, Mbale, Mbarara., Masaka, Tororo, Soroti, Lira, Gulu, Arua, Kasese, Kabale, Bushenyi, Fort Portal, Lugazi, Mukono Mubende, Masindi and Hoima)	National utility	USAQ	William Muhairwe; Plot 29 Jinja Road PO Box 7053; Kampala; 265 414315100/141; william.muhairwe@nwsc.co.ug
87	Niger State Water Board	NSWB	Nigeria	Western	Minna	Regional utility	USAQ	Abdulrahaman Baba, PMB 70 Minna, 08059801745, 08039736509
88	Nkana Water and Sewerage Company	NWSC	Zambia	Southern	Kitwe	Urban (single city/ municiaplity	IBNET	BERNARD M CHIWALA. +260 222 1099.
89	Northern Western Water Supply and Sewerage Company Limited	NWWSSCL	Zambia	Southern	Solwezi	Urban (single city/ municiaplity	USAQ	Arnott S. Chilwesa, P.O. Box 110184, MEME House, Solwezi. Zambia. +260 21 8821330, +260 21 8821330, nwwater@zamnet.co.zm, arnott@zamnet.co.zm, arnottchilwesa@yahoo.co.uk
90	Office Natinale DeL'eau et de L'assainissement de Djibouti	ONEAD	Djibouti	Eastern	Djibouti Ville	National utility	USAQ	Youssouf Mirgan Barkath, BP 1914 Boelvard De la Republique djibouti Republique de Djibouti, 00 253/353107, 00 253/354423, oneadinfo@intnet.dj

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91	Office National de l'assainissement du Senegal	ONAS	Senegal	Western	Dakar	National utility	USAQ	Amadou Lamine Dieng; BP 13428 Dakar; 221338593535; onas@onas.sn
92	Office National de l'Eau et de l'Assainissement	ONEA	Burkina Faso	Western	Ouagadougou	National utility	USAQ	Yamba Harouna ouibiga, 01 BP 170 Ouagadougou 01, +226 50 431900/09, 226 50 431911, onea@fasonet.bf
93	Ogun State Water Corporation	OGSWC	Nigeria	Western	Abeokuta	Regional utility	USAQ	Cecilia Bukola Olajide, Ogun State Water Corporation Oke-Mosan, P.M.B 2074 Sapon, Abeokuta, Tel: 707055227696, 08039788362, Email: ogunwater@yahoo.com, cbolajide@yahoo.com
94	Ondo State Water Corporation	ODWC	Nigeria	Western		Regional utility	USAQ	MAO Falohun, P.O. Box 4430, Tel: 0803 3524430
95	Oshakati Municipality	Oshakati Municipality	Namibia	Southern	Oshakati	Urban (single city/ municiaplity	IBNET	
96	Osun State Water Corporation	OSWC	Nigeria	Western	Osogbo	Regional utility	USAQ	Adepoju Adegbaju, Osun State Water Corporation, P.M.B 4317, Osogbo, Osun State, +2348033847006, osunwater@yahoo.com, osunwatercorp@hotmail.com
97	Plateau State Water Board	PSWB	Nigeria	Western	Jos/Bukuru	Regional utility	USAQ	Hossana John Dajan, Plot number, BP 4097, Anglo Jos Industrial area, PMB 2198, +234 0 8036441206, hjdajan@yahoo.com
98	Potchefstroom Local Municipality	Potchefstroom	South Africa	Southern	Potchefstroom	Urban (single city/ municiaplity)	IBNET	Mr Kleinhans. Tel +27 18 299 5404. Email. kleintjiek@potch.co.za
99	Public Utilities Corporation	PUC	Seychelles	Eastern	Victoria	National utility	USAQ	Stephen Rousseau, Managing Director Water and sewerage Division), Maison De Malavois, P.O Box 34, Victoria, Mahe, Seychelles, Tel: +248 678208 Fax:+248 322127, Email: srousseau@puc.sc

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100	Rand Water	Rand Water	South Africa	Southern	Gauteng	Urban (single city/ municiaplity)	USAQ	Zvinaiye Manyere, 522 Impala road, Glenvista. 2058, P.O Box 1127, Johannesburg, South Africa., +2711 6820292, +2711 6820121, Manyere@randwater.co.za
101	Regie de Distribution d'Eau	REGIDESO-DRC	DRC	Eastern	Kinshasa	National utility	USAQ	Nicolas Manzila Ngwey; BP 12599; Kinshasa; 243 810 784 180; manzilangwey@yahoo.fr
102	Regie de Production et de Distribution d'eau et d'electricite	REGIDESO-Burundi	Burundi	Eastern	Bujumbura	National utility	USAQ	Celestin Nduwamungu; BP 660 Bujumbura; 25722222720; dgregie@cbinf.com
103	River State Water Board	RSWB	Nigeria	Western	Port Harcourt	Regional utility	USAQ	Nathan Omeh, River State Water Board, PMB 5274, Rumuola Pumping Station, Port Harcourt , Tel: 08072451417
104	Saldanha Bay Local Municipality	Saldanha Bay	South Africa	Southern	Saldanha Bay	Urban (single city/ municiaplity	IBNET	Mr Titus. Tel +'+27 22 701 7047. Email wilfredt@saldanhabay.co.za
105	Sedibeng Water	SW (Sedibeng, S.Africa)	South Africa	Southern	Welkom	Urban (single city/ municiaplity	USAQ	Makumu Ubisi, Private Bag X5 , Bothaville 9660, +27565150309, +27565150259, mubusis@sedibengwater.co.za
106	Senegalaise des Eaux	SDE	Senegal	Western	Dakar	National utility	USAQ	Mamadou Dia, BP 224 Dakar Senegal, 0022133 8393702, 00 22133 839 3720, mdaa@sde.sn
107	Shinyanga Urban Water & Sewerage Authority	SHUWASA	Tanzania	Eastern	Shinyanga	Urban (single city/ municiaplity)	USAQ	Gullam Mohamed Alli; PO Box 298; Shinyanga; 028.276.2073; majimamlakashuwasa@yahoo.com
108	Singida Urban Water and Sewerage Authority	SIUWASA	Tanzania	Eastern	Singida	Urban (single city/ municiaplity)	National Regulator	Issack Nyakonji. P.O Box 174. Tel. +255 026 2502 122. Email. suwasamaji@yahoo.com

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109	Societe de Distribution d'Eau de Cote d'Ivoire	SODECI	Cote d'Ivoire	Western	National Utility	National utility	USAQ	Basile Ebah; 01 BP 1843 Abidjan 01; +225 21 23 331 30; fax +225 21 23 3006; bebah@sodeci.ci
110	Societe de Patrimoine des Eaux du Niger	SPEN	Niger	Western	Niamey	National utility	USAQ	Salou Seyni; BP 10738; Niamey; 227.20735320; seysalou@yahoo.fr
111	Societe d'Energie et d'Eau du Gabon	SEEG	Gabon	Western	National utility	National utility	USAQ	Francois Ombanda, BP 2187 Libreville, Tel: 241 761282, Fax:241 761134
112	Societe Nationale de L'Eau	SNDE	Mauritanie	Western	Nouakchott		USAQ	Cheik Abdallahi ould houeibib, BP 796 Nouakchott, +2225241456, +222 5252331, snde@mauritel.mr
113	Societe Nationale des Eaux du Benin	SONEB	Benin	Western	National utility	National utility	USAQ	Karimou Assoua, 01 BP 216 cotonou Benin, +299 21 316258, +299 21 311108
114	Societe Nationale d'Exploitation et de Distribution des Eaux	SONEDE	Tunisia	Western	National utility	National utility	USAQ	Mohamed Ali Khouaja; Ave Slimene Ben Slimene, El Mana 2, Tunis 2092; 216.71.887.000; sonede@sonede.com.tn
115	Societe Togolaise des Eaux	TdE	Togo	Western	Lome	National utility	USAQ	Yawo Elihoho Evenya, 130153, Avenue de la Liberation, 221 221 8277, 221 221 4613, tded@togo-imet.com
116	Socociete Des Eaux De Guinee	SEG	Guinea	Western	Conakry	National utility	USAQ	Cheik taliby Sylla, B.P 150 Conakry, 00 22460215938, 0022430411822 cts@seg.com.gn
117	Sokoto State Water Board	SSWB	Nigeria	Western	Sokoto	Regional utility	USAQ	Sabo Abubakar Yabo, No 1 Illela Road, Sokoto , Tel: 060 232785, Email: Sokstawaterbd@yahoo.com

	Utility full name	Utility Short Name	Country	Region	Principal towns/ Cities	Nature of service area	Source of data	Executive head of the utility
118	Sol Plaatje Local Municipality	Sol Plaatje	South Africa	Southern	Kimberly	Urban (single city/ municiaplity	IBNET	Mr Cooper. Tel +27 53 830 6300. email. tcooper@solplaatje.org.za
119	Songea Urban Water & Sewerage Authority	SOUWASA	Tanzania	Eastern	Songea	Urban (single city/ municiaplity	USAQ	Mohamed Gayo, P.O. Box 363, +255 25 2602326, 2602294, souwasa@yahoo.com
120	South Darfur State Water Corporation	SWC	Sudan	Eastern	Nyala	Urban (single city/ municiaplity	IBNET	no response
121	Southern Water and Sewerage Company Limited	SWSC	Zambia	Southern	Choma	Urban (single city/ municiaplity	IBNET	Alfred Masupha. Tel +260 3220001/220433. Email. bomunalula@yahoo.co.uk
122	Stellenbosch Local Municipality	Stellenbosch	South Africa	Southern	Stellenbosch	Urban (single city/ municiaplity	IBNET	Mr Fourie. Tel +27 21 808 8205. Email. kobusf@stellenbosch.org
123	Sumbawanga Urban Water and Sewerage Authority	SUWASA	Tanzania	Eastern	Sumbawanga	Urban (single city/ municiaplity	National Regulator	Antipas Shirima. P.O Box 192. Tel. +255 025 2802206. Email. suwasa@yahoo.co.uk
124	Swaziland Water Services Corporation	SWSC	Swaziland	Southern	Mbabane	National utility	USAQ	Peter Bhembe, P.O. Box 20, +268 4163608, 4163617, pnbhembe@swsc.co.sz
125	Tabora Urban Water and Sewerage Authority	TBUWASA	Tanzania	Eastern	Tabora	Urban (single city/ municiaplity	National Regulator	Ramadhani Kalingoji. P.O Box 147. Tel +255 026 2604593. Emaill. tuwasa@yahoo.com
126	Tanga Urban Water and Sewerage Authority	TUWASA	Tanzania	Eastern	Tanga	Urban (single city/ municiaplity	National Regulator	Joshua Mgeyekwa. P.O Box 5011. Tel. +255 027 2644626. Email. tanga@kaributanga.com

	Utility full name	Utility Short Name	Country	Region	Principal towns/ Cities	Nature of service area	Source of data	Executive head of the utility
127	Taraba State Water Supply Agency	TSWSA	Nigeria	Western	Jalingo	Regional utility	USAQ	Asabe Mai'Angwa, Taraba state water supply Agency, P.M.B 1028, Jalingo, Tel: +2348070804102, Email:asiybras2yahoo.com
128	Tshwane Metro	Tshwane Metro	South Africa	Southern	Pretoria	Urban (single city/ municiaplity)	IBNET	Mr Mouton. Tel +12 358 8022. Email.fransm2@tshwane.gov.za
129	Upper Nile State Water Corporation	UNSWC	Sudan	Eastern	Malakal	Urban (single city/ municiaplity)	IBNET	no response
130	Water Corporation of Oyo State	WCOS	Nigeria	Western	Ibadan	Regional utility	USAQ	I.D Oyegade, Water Corporation of Oyo State Secretariat, P.M.b 5339, Ibadan, Tel: 08033271995, Email: wcoys@skannet.com
131	Welkite Town Water Supply and Sewerage Enterprise	WTWSSE	Ethiopia	Eastern	Welkite	Urban (single city/ municiaplity)	USAQ	Petros Teklewold, P.O. Box 79 , Tel: +251 113 300634, Fax: +251113308030, Email: petros621@yahoo.com
132	Western Water and Sewerage Company	WWSC	Zambia	Southern	Mongu	Urban (single city/ municiaplity)	IBNET	Akamana Mulemwa. Tel +260 7 221 856. Email. wwsc@yahoo.com
133	Yobe State Water Corporation	YSWC	Nigeria	Western	Damaturu	Regional utility	USAQ	Idi Mamman Daya, Yobe State Wtaer Corporation, PMB 1032, DamAturu Yobe State, Nigeria, 08036268917, Email:idimammanD@yahoo.com
134	Zamfara State Water Board	ZSWB	Nigeria	Western	Gusau and Garea	Regional utility	USAQ	Sani Mustapha Gasau, Zamfara State Water Board, Dansadau road Gusau. Tel: 08036418399, 08056030938, Email: Smusty2008@yahoo.com

Annex B: Glossary of Indicators

No.	Indicator	Definition	Equation	Unit
1. Service Coverage				
	Water coverage	Population with access to water services (either with direct service connection or within reach of a public water point) as a percentage of the total population under a utility's area of responsibility	Served population (connections & water points) ÷ total population within service area	%
	Sewerage coverage	Population with water-borne sewerage services (direct service connection) as a percentage of the total population under utility's area of responsibility	Population with direct sewerage connection ÷ total population within service area	%
2. Production & Consumption				
	Total water produced per person on a daily basis	Total annual water supplied to the distribution system (including purchased water, if any) expressed by population served per day	[(Volume of total system input * 10^9) ÷ (population served by piped water * 365)]	litres/person/ day
	Total water produced per connection on a daily basis	Total annual water supplied to the distribution system (including purchased water, if any) expressed by connections served on a daily basis	[(Volume of total system input * 10^9) ÷ (number of water connections * 365)]	m3/connection/day
	Total water consumption per person on a daily basis	Total annual water sold expressed by population served on a daily basis	[(Volume of total system input * 10^9) ÷ (population served by piped water supply * 365)]	litres/person/ day
	Domestic consumption per person on a daily basis		[(Total billed domestic consumption * 10^9) ÷ (population served by piped water supply * 365)]	litres/person/ day
	Domestic consumption as % of total consumption	The percentage of total billed consumption that is billed for domestic use.	(Total billed domestic consumption ÷ total billed consumption) *100	%
3. Non revenue water				
	Non revenue water (NRW)	The difference between water supplied and water sold (i.e. volume of water 'lost') expressed as a percentage of net water supplied	(Total system input in m^3 – total billed consumption in m^3) ÷ total system input in m^3 *100	%
	NRW per kilometre of network	The volume of water 'lost' per kilometre of water distribution network per day	[(Total system input in m^3 – total billed consumption in m^3) *10^6 ÷ (length of distribution network *365)]	m^3/km/day
	NRW per connection on a daily basis	The volume of water 'lost' per water connection per day.	[(Total system input in m^3 – total billed consumption in m^3) *10^6 ÷ (number of water connections *365)]	m^3/connection/day

4. Financial Performance			
Average tariff per m^3 sold	The ratio of a utility's total annual direct billed revenues to total annual water consumption (revenue from bulk water, non water sales, subsidies and interest are excluded)	Total annual direct billed revenue ÷ total annual volume of water sold	US$/$m^3$ sold
Collection ratio	The ratio of cash income (i.e. actual revenue) to total billed revenue, expressed as a percentage	Cash income ÷ Billed revenue	%
Collection period	Year-end accounts receivables as a share of annual revenues, expressed in number of days.	[(Year-end accounts receivable ÷ total annual operating revenues) *365]	# days
Operating cost coverage ratio (OCCR)	A ratio which measures the utility's ability to cover its operating and maintenance costs (excluding interest and depreciation) from revenues, without reliance on external subsidies.	Total annual billing revenues ÷ total annual operating costs	ratio
5. Costs & Staffing			
Unit operating costs per m^3 sold	The ratio of a utility's total annual operating expenses and total annual volume of water sold.	Total annual operational expenses ÷ total annual volume sold	US$/$m^3$ sold
Staff productivity index (SPI)	Total staff per 1,000 connections	Total number of employees ÷ number of water connections	# staff/connections
Labour costs as a percentage of operating costs	The ratio of lab our costs to total operating costs (does not include depreciation or debt service)	Labour costs ÷ total operating costs	%
Labour costs as a percentage of operating costs		(Number of staff that participated in one training event ÷ total number of employees) *100	%
Number of training days per participating staff		Total number of training days ÷ number of staff that participated in one training event	# days
6. Quality of Service			
Average response time to address a complaint			hours

7. Affordability of Services			
Average per capita tariff as a percentage of GNI per capita		[(Total water billing in local currency ÷ (population served by piped water supply * exchange rate to US$)) ÷ (GNI per capita in US$) * 100]	%
Monthly bill for households consuming 6 m^3 per month through a household connection or shared yard tap (does not include use of stand posts)		Cost in local currency of 6m^3 water ÷ exchange rate with US$	US$/month
Domestic water connection charge as a percentage of GNI per capita		Total annual billing revenues ÷ total annual operating costs	%
8. Assets			
Average capital expenditure in the last 5 years per connection		Total capital expenditure in the last 5 years ÷ (exchange rate to US$ *5* the number of water connections)	US$/connection
Gross total fixed assets per capita served		Total assets in local currency ÷ (exchange rate to US$ * population served by piped water supply)	US$/capita
Gross water supply assets per capita served		Gross fixed water supply assets in local currency ÷ (exchange rate to US$ * population served by piped water supply)	US$
9. Metering Practices			
Metering level	The percentage of connections with operating meters out of the total number of connections.	Total number of connections with operating meter ÷ total number of connections	%
Other			
Overall Efficiency Indicator (OEI)	The volume of water for which a utility collects revenue, expressed as a percentage of the total volume it produces.	[(1-NRW)* Collection Ratio]total number of connections	%

Annex C: Marketplace results

The marketplace results are from the three subregional meetings held in 2008. The activity gave utilities the opportunity to prioritize its learning needs (demand) and offer its expertise (supply).

MARKETPLACE: SERVICES TO THE POOR			
Supply & Demand	Country	Utility/organization	Request/offer
DEMAND	Kenya	Naivasha	Pro-poor policy
	Regional	NETWAS	Lessons from working with CBOs
	Zambia	KWSC	Payment methods
SUPPLY	Kenya	NWSCO	Lessons from working with CBOs
	Tanzania	Moshi	Lessons from working with CBOs
	Tanzania	Tanga	Lessons from working with CBOs
	Zambia	Southern Water and Sewerage Co	Lessons from working with CBOs
	Zambia	KWSC	Lessons from working with CBOs
	Sudan	Khartoum	Payment methods
	Zambia	Lusaka Water and Sewerage Co	Alternative models for managing services
	Regional	NETWAS	CBOs and informal providers
	Burkina Faso	ONEA	CBOs and informal providers
	Uganda	NWSC	Social connection policy
	Kenya	Kisumu Water and Sewerage Co	Delegated management model

MARKETPLACE: TECHNICAL			
Supply & Demand	Country	Utility/organization	Request/offer
DEMAND	DRC	REGIDESO	NRW Management
	Ethiopia	Mekelle	NRW Management
	Kenya	NWSCO	NRW Management
	Kenya	Kisumu Water and Sewerage Co	NRW Management
	Kenya	ELDOWAS	NRW Management
	Sudan	Khartoum State Water Corporation	NRW Management
	Tanzania	Mbeya	NRW Management
	Tanzania	Shinyanga	NRW Management
	Tanzania	Mtwara	NRW Management
	Tanzania	Moshi	NRW Management
	Tanzania	IRUWASA	NRW Management
	Tanzania	Mwanza	NRW Management
	Uganda	NWSC	NRW Management
	Zambia	Southern Water and Sewerage Co	NRW Management
	Zambia	Lusaka Water and Sewerage Co	NRW Management
	Zambia	KWSC	NRW Management
	Regional	NETWAS	Demand management/district metering
	Tanzania	Lindi	Demand management/district metering
	Uganda	NWSC	Demand management/district metering
	Zambia	KWSC	Demand management/district metering
	Tanzania	DAWASCO	Meter Management
	Uganda	NWSC	Meter Management
	Zambia	Lusaka Water and Sewerage Co	Network Management
	Ethiopia	Mekelle	Asset Management
	Tanzania	Tanga	Asset Management
	Tanzania	Mbeya	Operations Management
	Ethiopia	Mekelle	Static Plant Maintenance

MARKETPLACE: COMMERCIAL AND FINANCIAL MANAGEMENT			
Supply & Demand	Country	Utility/organization	Request/offer
DEMAND	Kenya	Kisumu Water and Sewerage Co	Static Plant Maintenance
	Ethiopia	Mekelle	Block Mapping
	Kenya	Naivasha Water and Sewerage Co	Block Mapping
	Sudan	Khartoum State Water Corporation	Block Mapping
	Tanzania	IRUWASA	Block Mapping
	Tanzania	Zanzibar	Project Management
	Ethiopia	Mekelle	Quality Assurance
	Kenya	Kisumu Water and Sewerage Co	Quality Assurance
	Tanzania	Mbeya	Quality Assurance
	Kenya	Naivasha Water and Sewerage Co	Investment Planning
SUPPLY	Kenya	Malindi Water and Sewerage Company	NRW Management
	Tanzania	Tanga	NRW Management
	Kenya	Malindi Water and Sewerage Company	Meter Management
	Uganda	NWSC	Network Management
	Uganda	NWSC	Operations Management
	Uganda	NWSC	Static Plant Maintenance
	Uganda	NWSC	Block Mapping
	Uganda	NWSC	Project Management
	Tanzania	DAWASCO	Quality Assurance
	Uganda	NWSC	Quality Assurance
	Uganda	NWSC	Capacity Building & Training
	Regional	NETWAS	Capacity Building & Training

MARKETPLACE: CUSTOMER CARE			
Supply & Demand	Country	Utility/organization	Request/offer
DEMAND	Kenya	Malindi	Customer satisfaction surveys
	Tanzania	Mbeya	Customer satisfaction surveys
	Regional	NETWAS	Attachment opportunities for new staff
	Kenya	Kisumu Water and Sewerage Co	General customer care
	Tanzania	DAWASCO	General customer care
	Tanzania	Mbeya	General customer care
	Tanzania	Mtwara	General customer care
	Uganda	NWSC	General customer care
	Zambia	KWSC	General customer care
	Ethiopia	Mekelle	Customer management system
	Kenya	Naivawas	Customer care policy
	Kenya	Naivawas	Culture change
	Tanzania	Zanzibar	Culture change
	Kenya	Eldowas	Customer call center
	Tanzania	IRUWASA	Staff training on customer care
SUPPLY	Uganda	NWSC	Customer satisfaction surveys
	Uganda	NWSC	Attachment opportunities for new staff
	Uganda	NWSC	Customer management system
	DRC	REGIDESO	Customer management system
	Senegal	SDE	Customer management system
	Uganda	NWSC	Customer care policy
	Uganda	NWSC	Culture change
	Uganda	NWSC	Customer call center
	Uganda	NWSC	Staff training on customer care

MARKETPLACE: COMMERCIAL AND FINANCIAL MANAGEMENT			
Supply & Demand	Country	Utility/organization	Request/offer
DEMAND	Tanzania	Mwanza	Mobilizing resources
	Tanzania	Tanga	Mobilizing resources
	Tanzania	Shinyanga	Mobilizing resources
	Tanzania	RUWASA	Billing system/database cleanup
	Tanzania	Shinyanga	Billing system/database cleanup
	Zambia	KWSC	Billing system/database cleanup
	Zambia	Lusaka Water & Sewerage Co	Billing system/database cleanup
	Zambia	Southern Water and Sewerage Co	Billing system/database cleanup
	Ethiopia	Mekele	Revenue Collection/Debt management
	Kenya	Malindi	Revenue Collection/Debt management
	Tanzania	Lindi	Revenue Collection/Debt management
	Tanzania	Moshi	Revenue Collection/Debt management
	Zambia	KWSC	Revenue Collection/Debt management
	Zambia	KWSC	Outsourcing revenue collection
	Ethiopia	Mekele	Financial management
	Tanzania	RUWASA	Financial management
	Tanzania	Lindi	MIS
SUPPLY	Kenya	NWSCO	Billing system/database cleanup
	Tanzania	DAWASCO	Billing system/database cleanup
	Uganda	NWSC	Billing system/database cleanup
	Uganda	NWSC	Revenue Collection/Debt management
	Sudan	Khartoum	Outsourcing revenue collection
	Uganda	NWSC	Financial management
	Uganda	NWSC	MIS
	Uganda	NWSC	Tariff Policy Analysis

MARKETPLACE: SECTOR POLICY & REFORMS			
Supply & Demand	Country	Utility/organization	Request/offer
DEMAND	DRC	REGIDESO	Public-private partnerships
	Kenya	Malindi	Performance contracts
	Kenya	Eldowas	Performance-based incentives
	Kenya	NWSCO	Performance-based incentives
	Tanzania	Lindi	Performance-based incentives
	Zambia	Lusaka Water and Sewerage Co	Performance-based incentives
	DRC	REGIDESO	Capacity building of management
	Tanzania	DAWASCO	Change Management
	Tanzania	Mwanza	Change Management
	Zambia	Lusaka Water and Sewerage Co	Change Management
SUPPLY	Uganda	NWSC	Public-private partnerships
	Uganda	NWSC	Performance contracts
	Uganda	NWSC	Performance-based incentives
	Uganda	NWSC	Development & implementation of PIP
	Uganda	NWSC	Change Management
	Kenya	Eldowas	ISO Certification

MARKETPLACE: HUMAN RESOURCES

Supply & Demand	Country	Utility/organization	Request/offer
DEMAND	Tanzania	Mbeya	Recruitment
	Tanzania	Zanzibar	Recruitment
	Tanzania	Mbeya	On-the-job-training
	Kenya	Naivasha	Team building
	Zambia	Lusaka Water and Sewerage Co	Performance management
	Zambia	KWSC	Performance management
	Tanzania	Zanzibar	Right sizing
	Kenya	NWSC	Right sizing
	Tanzania	Tanga	Staff motivation
	Tanzania	Zanzibar	Staff motivation
	Kenya	Kisumu Water and Sewerage Co	Capacity building
	Mozambique		Capacity building
	Sudan	Khartoum	Capacity building
	Tanzania	DAWASCO	Capacity building
	Tanzania	Mtwara	Capacity building
SUPPLY	Uganda	NWSC	Capacity building
		DRC	REGIDESO Networking and collaboration
		Regional	CAP-NET HR management
		Uganda	NWSC HR management
		Zambia	Southern Water and Sewerage Co Working with trade unions

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Prepared by: Richard Schuen and Jonathan Parkinson

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Authors: Dr. Josses Mugabi (principal author), and Vivian Castro who managed the benchmarking exercise and final production of this report

Task Team Leader: Dennis Mwanza

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Created by: Eric Lugaka

Water and Sanitation Program-Africa
The World Bank
Hill Park Building
Upper Hill Road
P.O. Box 30577 - 00100
Nairobi, Kenya

Tel: +254-20-322 6334
Fax: +254-20-322 6386
Email: wspaf@worldbank.org
Web site: www.wsp.org

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