

Kenya Water Service Provider Creditworthiness Index Report

November 2015



A publication of the Water Services Regulatory Board in collaboration with the World Bank Water Practice

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Foreword



The Constitution of Kenya ensures the provision of safe water in adequate quantities and access to sanitation as human right for the citizens. To achieve this goal, substantial investment in water supply and sanitation services infrastructure is required both for rehabilitation of existing infrastructure, as well as for expanding water supply and sewer connections to unserved areas. Given the competing demands from different sectors of the economy, it is increasingly difficult for the available public sector resources, to match investments required in the sector to meet the needs for growing population.

Partnership with the private sector is critical in plugging the finance gap for infrastructure development. Water Services Providers (WSPs), operating above full cost coverage and under an effective regulatory environment, provide an opportunity for private sector financing. This is also enhanced by the bankability of the subsector.

In 2011, to further help facilitate commercial lending into the water sector of Kenya, the Water Services Regulatory Board (WASREB), in collaboration with the Water and Sanitation Program of the World Bank, facilitated shadow credit ratings of 43 Water Services Providers in Kenya. The results of this exercise were published in the report “Financing Urban Water Services in Kenya: Utility Shadow Credit Ratings”. The report identified 13 creditworthy WSPs. The publication of the Utility Shadow Credit Ratings report was a large step towards accessing commercial financing for the water services subsector in Kenya. The report spurred interest in commercial lending to the sector among WSPs, commercial lenders and development partners. However, in spite of the advantages, the report could not easily be annually updated because of complexity around data collection and analysis and cost required for the annual update.

To resolve this problem and provide a timely and cost effective credit assessment tool, the WSP Creditworthiness Index was created. The Creditworthiness Index provides a simplified snap-shot of the financial and operational performance of WSPs in lieu of performing full shadow credit ratings analysis, which is more thorough but time consuming and expensive. The Creditworthiness Index is automated and calculated from data collected by WASREB. Going forward, the Creditworthiness Index will be incorporated into the annual Impact Reporting.

The trade off of this automation is that qualitative analysis normally performed in detailed shadow credit rating is omitted. However, there is a significant correlation between the Creditworthiness Index scores and the recently performed shadow ratings.

The Creditworthiness Index provides a useful starting point for screening the creditworthiness of the WSPs by the commercial lenders and becomes a management tool for the WSPs. It will also provide the public with insights about the capacity of the WSP to provide sustainable provision of water services and the basis for demanding a high degree of financial accountability.

This report, together with the Impact Report, provides a snapshot of the financial and operational performance of the WSPs across the sector and insights into the sector wide trends. Together with the commercial lending toolkits that have been developed, the report provides both the public and private sector with an insight of the sub-sector and the opportunities available.

I wish to acknowledge the various parties who made this exercise a success. I thank the World Bank for its partnership with the WASREB in the exercise, the WSPs for their cooperation in providing information, WASREB's staff for quality control and coordination of the exercise, and all the teams involved in the drafting and editing of this report.

Eng. Robert Gakubia
Chief Executive Officer, WASREB

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Abbreviations

AfDB	African Development Bank
Bn	Billion
CIDP	County Integrated Development Plans
GCR	Global Credit Rating Company
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GOK	Government of Kenya
JICA	Japan International Cooperation Agency
KES	Kenya Shillings
KFW	Kreditanstalt für Wiederaufbau
KPI	Key Performance Indicators
KWSIP	Kenya Water Sector Investment Plan
MDG	Millennium Development Goals
MEWNR	Ministry of Environment, Water and Natural Resources
Mn	Million
NEMA	National Environment Management Authority
NPV	Net Present Value
NRW	Non-Revenue Water
NS	No Score
NWMP 2030	National Water Master Plan 2030
OBA	Output Based Aid
O&M	Operations and Maintenance
OPEX	Operational Expenses
SLA	Service level Agreement
WARIS	Water Regulation Information System (WARIS)
WASREB	Water Services Regulatory Board
WATERCAT	Water Credit Assessment Tool
WRMA	Water Resource Management Authority
WSB	Water Services Board
WSP	Water Service Provider
WSS	Water Supply and Sanitation
WSTF	Water Services Trust Fund

Executive Summary

1.1 Rationale

The Kenya water supply and sanitation (WSS) sector has been on a long path of facilitating commercial lending to Water Service Providers (WSPs). A key component of this effort is the evolution of rating the credit risk of WSPs for local lenders. However, the trade-off in credit rating WSPs is to provide the best credit analysis to help lenders assess the creditworthiness of WSPs, yet have a system that is simple and affordable enough to replicate on an annual basis.

To solve this trade-off, the Water Services Regulatory Board (WASREB) and the Water and Sanitation Program of the World Bank have created a Creditworthiness Index for the WSPs in Kenya. In lieu of performing a full shadow rating analysis, which is much more thorough yet also more time-consuming and costly, the Creditworthiness Index provides a simplified snapshot of the financial and operational performance of WSPs. In contrast to shadow credit ratings, which have been done on WSPs in Kenya and are based on intensive analysis of separate WSPs, the Creditworthiness Index is automated and calculated from data self-reported by WSPs into the existing WASREB database, the Water Regulation Information System (WARIS).¹

The trade-off of this automation is that none of the typical qualitative analysis included in a rating assessment is captured in the Creditworthiness Index (e.g. management capacity assessments, company structure, government

In lieu of a full shadow credit rating, the Creditworthiness Index provides a simplified snap-shot of the financial performance of WSPs.

The Creditworthiness Index is automated and calculated using self-reported data in the WASREB database.

¹ For more information on WASREB data collection via WARIS, see <http://www.wasreb.go.ke/regulatory-tools/reporting-guidelines>

support, etc.). However, when compared to recent shadow ratings results of the ten most-likely-to-borrow WSPs in Kenya, the pilot Creditworthiness Index was shown to be reasonably correlated with the shadow rating results.

While not a rating, the Creditworthiness Index provides lenders with an initial overview credit screening of WSPs. It is a useful tool for lenders in determining which WSPs merit further credit review for potential loans. The Creditworthiness Index, in conjunction with WASREB's Impact Report, is designed to provide lenders a snap-shot of the financial and operational performance of WSPs across the sector and insights into sector-wide trends and their key drivers. Therefore, the Creditworthiness Index is designed to be the first stage of a lender's credit analysis and due diligence.

The Creditworthiness Index also provides WSPs with a benchmark to measure their overall creditworthiness as well as their individual financial performance against their peers. The examination of the financial and operational indicators, in comparison to the market, will assist WSPs to gauge performance and institute measures to improve business efficiency and creditworthiness.

Lastly, the Creditworthiness Index provides information to the regulator to identify financial management weaknesses in specific WSPs as well as identify systemic problems in the sector. Going forward, the Creditworthiness Index results report, as seen in chapter 5, will be included in the regulator's annual Impact Report.

1.2 Background

The financial demand to achieve water supply and sanitation access for all Kenyans by 2030 is substantial. The government seeks to close the gap by tapping into private sector financing.

Water coverage stands at 53% in areas covered by Water Service Providers in Kenya. Sewerage coverage stands at 16%.² The Government of Kenya's development plan, Vision 2030, targets 100% coverage by 2030. For the country to reach 100% coverage, substantial investment in WSS infrastructure is required for both rehabilitation of existing infrastructure, as well as, expansion of water supply and sewer connections to unserved areas. Consequently the Government of Kenya has set a policy to attract private sector financing to bridge the financing gap.

Private sector financiers, however, will only invest in the sector if the Government creates an enabling environment where the risk and reward is appropriately balanced for lending and the institutions seeking commercial finances are creditworthy.

In 2011, in order to help facilitate commercial lending to the sector, WASREB, in collaboration with the Water and Sanitation Program of the World Bank, facilitated shadow credit ratings of 43 WSPs. The results of this shadow

² WASREB, *Impact Report Issue No. 8, Performance Review of Kenya's Water Services Sector 2013 – 2014*.

credit rating review were published in a report entitled “*Financing Urban Water Services in Kenya: Utility Shadow Credit Ratings*”. The shadow ratings report identified 13 creditworthy WSPs.

The 2011 report successfully spurred initial interest in commercial lending of WSPs, lenders and donors. However, the report was not readily or continuously used by commercial lenders or WSPs and was not sustainable to produce on an annual basis. .

1.3 Creditworthiness Index

Creditworthiness is not static. Ratings of the WSPs can and will change over time and must be updated annually with the issuance of new audited financial statements. For this reason, WASREB and the World Bank created a Creditworthiness Index as a suitable and affordable alternative to the shadow rating report. An automated index is easier and cheaper to administer and provides an indicative assessment of credit risk in lieu of a full shadow rating report.

The *Creditworthiness Index* is purely based on hard data submitted by the utilities and excludes qualitative interpretations ordinarily found in a credit rating report.

The Creditworthiness Index is calculated solely from operational and financial indicators based on data that is submitted annually to WASREB by the WSPs. To allow for automation of the creditworthiness analysis, the Creditworthiness Index excludes any qualitative interpretations ordinarily found in a rating report. This automated reporting and calculation will allow WASREB to incorporate the Creditworthiness Index into the annual Impact report.

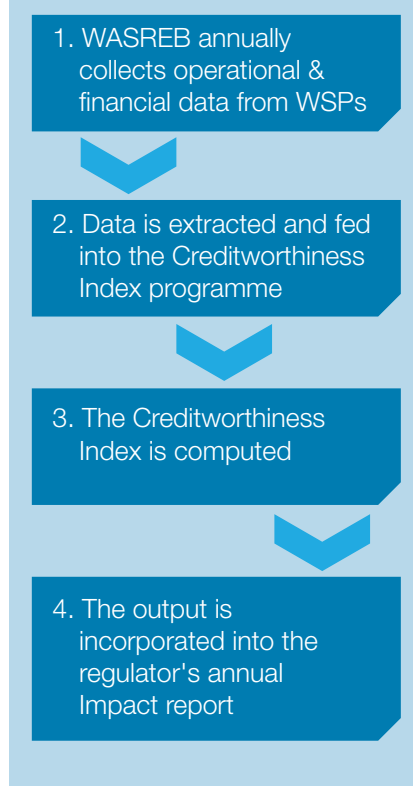
It is worth emphasising that the Creditworthiness Index is only an indication of potential creditworthiness. Commercial lending entities should carry out their own credit analysis for lending decisions. Qualitative parameters are not incorporated in the Creditworthiness Index. In particular, the index does not consider the following parameters:

- management capacity, orientation, experience and qualification;
- human resources attitude orientation and performance;
- stakeholder support and relations;
- governance issues;
- legislative and regulatory framework; and
- strength of the economic base.

1.4 The Purpose of the Index

The purpose of the Creditworthiness Index is to combine annual financial and operational data into a snapshot metric to estimate a WSP’s creditworthiness. For ease of reference and familiarity of scale, the well-known lettered rating symbols are retained. In general, it is assumed that the Creditworthiness Index scores would translate into the respective domestic credit rating. However, qualitative factors (not included in the index) can greatly affect a borrower’s credit rating.

Figure 1: *Creditworthiness Index Methodology*



The index results allow commercial lenders to quickly estimate the borrowing risk of all WSPs; while providing WASREB and the WSPs an industry benchmark to compare against and identify specific areas (ratios) of strength and weakness.

1.5 Methodology

The methodology used in the Creditworthiness Index is much simpler than the shadow rating approach used in the 2011 report. The data collection is not as extensive. The data required to compute the Creditworthiness Index indicators are provided by WSPs directly into WASREB's data management system, WARIS, and are not as extensive as the data collected in 2011. These data are then fed into the Creditworthiness Index programme to calculate the index. This process allows for automation of the index going forward.

Going forward, after the initial report, the index will be included in the regulator's annual sector Impact report, providing both an annual indication of the WSPs' operational efficiency and creditworthiness for a given year.

1.6 Summary of Findings

The *Creditworthiness Index* analysis indicates thirteen WSPs can be considered creditworthy. Fourteen of the WSPs were classified as currently not yet creditworthy but have the potential of being creditworthy with a small level of improvement. Twelve WSPs still require considerable improvement to be considered creditworthy while two were awarded a "no rating" due to lack of data to compute a reliable score and/or due to low scores (below 30).

1.7 Structure of this Report

This report summarises the draft findings, observations and recommendations on the engagement, including our understanding of the creditworthiness. The report is structured as follows:

- Section 1: Executive Summary
- Section 2: Introduction and Background to the assignment
- Section 3: Overview of Kenyan Water Sector
- Section 4: Introduction to *Creditworthiness Index*
- Section 5: Results of *Creditworthiness Index* Analysis
- Section 6: Conclusions
- Section 7: Annexures

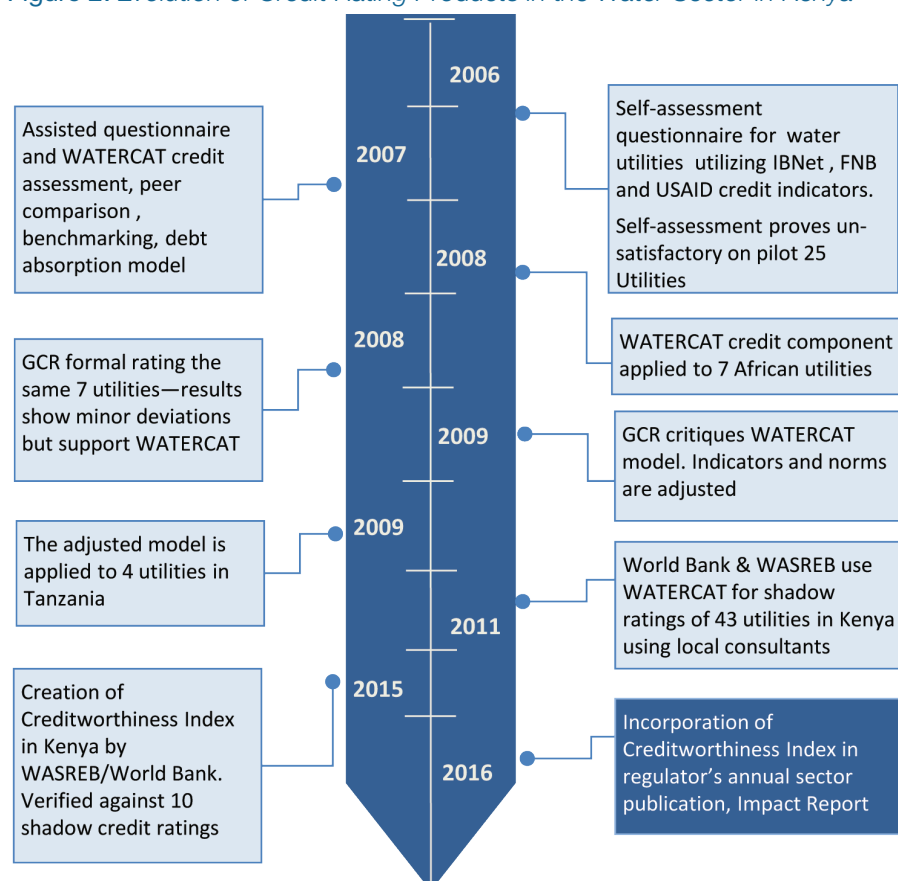
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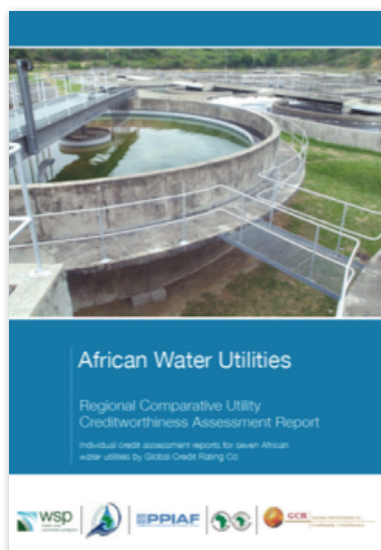
Evolution of Credit Assessment in the Water Sector of Kenya

2.1 Introduction

The process of using benchmark credit analysis in the Kenya water sector is detailed in Figure 2.

Figure 2: Evolution of Credit Rating Products in the Water Sector in Kenya





2.1.1 Background of Credit Ratings in the Water Sector in Africa

The concept of undertaking shadow credit ratings of WSPs originated with Water and Sanitation Program of the World Bank through its Mobilising Market Finance for Water Utilities in Africa program. The main purpose of this program was to facilitate private sector financing of water supply and sanitation service provision.

The first step in this evolving methodology towards determining and reporting the creditworthiness of water utilities was the development of a credit assessment questionnaire. The questionnaire was initially envisioned to be a self-administered. However, a lack of objectivity in the responses of utility management led to overly positive evaluations of credit risk. To resolve this, the questionnaire was converted into a shadow credit rating/benchmarking model.

To obtain a correlation between the predictions of the shadow rating model and what a formal rating would yield, seven African utilities were subjected to both a shadow rating review and a full formal rating. The formal ratings were performed by Global Credit Rating Company (GCR) and reported in *African Water Utilities Regional Comparative Utility Creditworthiness Assessment Report: Individual credit assessment reports for seven African water utilities*.³ The shadow rating results proved consistently correlated with the formal ratings.

African Utilities rated under the Mobilising Market Finance for Water Utilities in Africa program included:

- Athi Water Services Board, Kenya
- Nairobi City Water and Sewage Company, Kenya
- National Water and Sewage Corporation, Uganda
- Nationale de L'eau et de L'assainissement, Burkina Faso
- Senegalaise des Eaux, Senegal
- Societe Nationale Des Eaux du Senegal, Senegal
- Societe Nationale d'Epuration et de Distribution des Eaux, Tunisia

2.1.2 The 2011 Shadow Credit Rating Report

In 2011, WASREB and Water and Sanitation Program of the World Bank conducted shadow credit ratings of 43 selected WSPs in Kenya that led to the publishing of the *"Financing Urban Water Services in Kenya: Utility Shadow Credit Ratings."*⁴

³ See M. Joffe, R Hoffman and M Browne, "African Water Utilities, Regional Comparative Utility Creditworthiness Assessment Report" 2006.

⁴ <https://www.wsp.org/sites/wsp.org/files/publications/WSP-Financing-Urban-Water-Services-Shadow-Ratings-Kenya.pdf>

The shadow rating model consisted of a questionnaire with 161 questions divided into external and internal factors covering:

- The Latest financial information (not necessarily from the audited statements as often these were not available at the time);
- Face to face interviews mostly with senior management; and
- 81 multiple choice questions completed by the interviewer based on responses provided by the executive management of WSPs.

Each section of questions was weighted as outlined in Table 1 below.

The shadow rating approach had several shortcomings:

- The model is not suitable for self-assessment as sophisticated interpretative intelligence is required;
- Formal and shadow ratings employ both quantitative and qualitative assessments in evaluating past and predicting future performances. A computerised evaluation model can therefore only give an indicative shadow rating;
- The model lacks flexibility to adjust to circumstances that may be particular to a specific WSP;
- The quality of financial information should be strengthenedThe model was not synchronised with the WASREB Impact report resulting in duplication of data collection; and
- All questions regarding national government support elicited similar responses across WSPs hence did not provide any form of differentiation.

Utility Shadow Rating Report



Table 1: Shadow Rating Scoring Weights

Categories	Weights
General	
Background questions for sector understanding	0%
Internal Considerations	
Financial and credit management	25%
Management quality and capacity	19%
Operational performance	15%
Strategic planning and internal transformation	5%
Human resources and utilisation of the private sector	5%
Customer relations	3%
External Considerations	
Support from government	10%
Autonomy and accountability	5%
External risks	3%
Economic base	10%
TOTAL	100%

Despite the shortcomings of the 2011 shadow rating approach listed above, the report was a useful tool in eliciting initial interest in commercial financing for the sector from the government, WSPs, WASREB, donors and commercial lenders. However, credit ratings are calculated using annual financial statements, so the 2011 report quickly became out of date and obsolete. There was a need for a source of regular and up-to-date information on the creditworthiness of the WSPs for the various stakeholders.

2.1.3 The Creditworthiness Index

Due to the shortcomings of the shadow rating approach, mainly the high cost and inability to replicate, WASREB and World Bank's Water and Sanitation Program have designed an automated Creditworthiness Index system that can be easily compiled by WASREB and incorporated in the annual Impact Report. This report covers this index.

Overview of the Kenyan Water Sector

3.1 The Water Sector in Context of the Kenyan Environment

3.1.1 Socio-Economic Overview

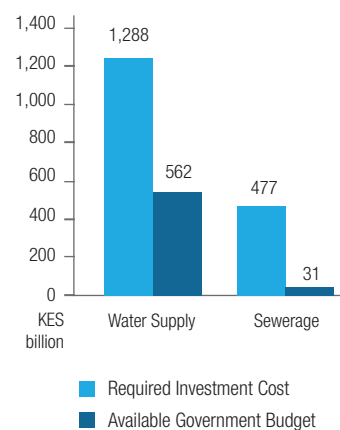
Kenya has a liberalized economy with an estimated GDP of USD 60.9 billion as of December 2014. Real GDP growth was 5.4% in 2014 (with inflation of at an average of 2.7%). The economy's key GDP drivers according to estimates are agriculture (24% of total GDP), trade (11.4%), manufacturing (11.9%), transport (10.6%), real estate (8.3%) and financial services (5.5%).

The population of Kenya is estimated to be about 46.5 million, growing at an annual rate of 2.7% and rapidly urbanizing. With the country classified as a water scarce country, the growing population continues to put a strain on the country's WSS demands, especially in urban areas.

3.1.2 Water Sector Overview

Water coverage stands at 53% in areas covered by Water Service Providers in Kenya. Sewerage coverage stands at 16%. This is against the Vision 2030 which targets of 100% coverage. For the country to reach these targets, substantial investment in WSS is required for both rehabilitation of existing infrastructure as well as expansion of water supply and sewer connections to un-served areas.

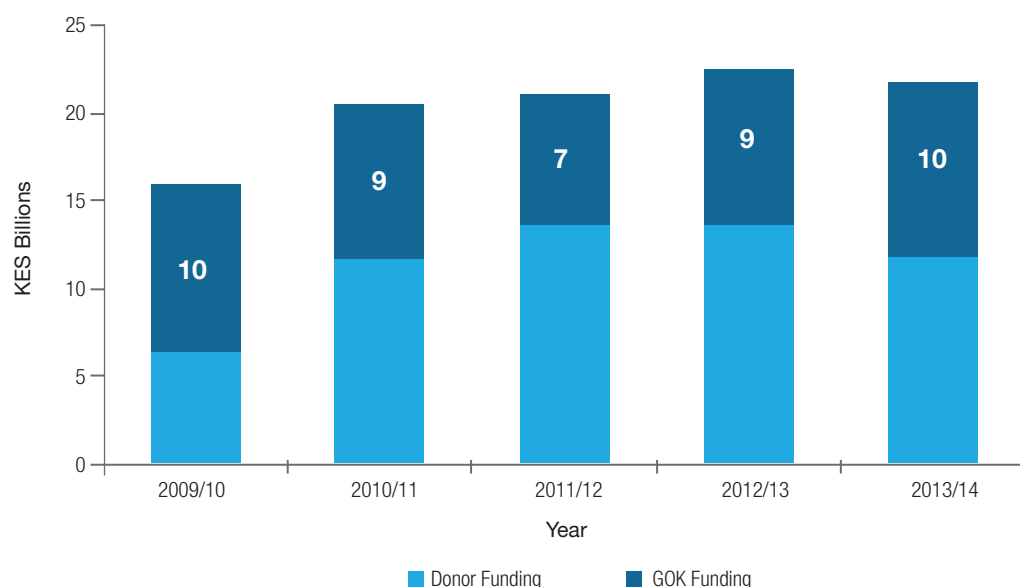
Figure 3: Water Sector Financing Gap



Source: NWMP 2030

Traditionally most of the financing for investments in the WSS sector has been sourced from government budgetary resources and development partners (as shown in Figure 4). Given the government's limited budgetary resources, funding from donor sources currently provides more than half of the sector funding. With development partners shifting focus away from the WSS sector and limited government budgetary support, there are limited financial resources available to meet the increasing demand for WSS services.

Figure 4: GOK & Donor Contribution to Budget



Source: Annual Water Sector Report 2013/14/ WASREB 2013/14

3.2 Regulatory and Legal Framework of Water Sector

3.2.1 Water Sector Reforms of 2002

In 2002, the Kenyan government launched an ambitious program of reforms for the WSS sector, passing enabling legislation with clear roles and responsibilities of the key water institutions, increasing public spending to the sector, and pursuing other governance improvements such as the separation of water resources management from water supply services delivery. Previously service provision had been the responsibility of the Ministry in charge of Water, the National Water Conservation and Pipeline Corporation (NWCP) as well as of a few local utilities established since 1996. After the passage of the Water Act of 2002, service provision was gradually decentralized to 117 WSPs.

The ownership of facilities, previously owned by the central government and NWCP, was transferred to eight regional Water Services Boards (WSBs). The WSBs are in charge of asset development and facilitate management and operation of water services.

The Water Act of 2002 also established the Water Services Regulatory Board (WASREB), the sector regulator. WASREB's mandate is to oversee the implementation of policies and strategies relating to provision of water and sewerage services. WASREB's role is to ensure that consumers are protected and have access to efficient, adequate, affordable and sustainable water services and sanitation.

Under the Act of 2002, WSPs were incorporated as companies under the Companies Act. This provided them with autonomy, independence and professional management. WSPs act as agents of the WSBs, who have legal ownership of the water and sewerage assets utilised by WSPs and are contracted by the WSBs under a Service Provision Agreement (SPA).

The Water Services Trust Fund was established to institutionalise the sector investments, mainly grants, targeting the poor.

The 2002 reforms are acknowledged to be one of most advanced and comprehensive institutional designs and intervention packages for the water sector in Africa. The reforms are seen by most of the stakeholders as a key step to improving water supply and sanitation in the country. Since their implementation, the sector has been experienced significant progress.

3.2.2 Devolution in the Water Sector

On the 27th of August 2010, Kenya adopted a new constitution. The Constitution established 47 counties, each with its own government, and devolved service provision. Among other functions, the delivery of water and sanitation services was devolved to the County Government level. This has wide-ranging implications for the water sector.

Firstly, the Constitution recognizes access to safe and sufficient water and reasonable standards of sanitation as a basic human right. Secondly, the constitutional provisions firmly distribute the functions between the two levels of government with the national government being tasked with the management and protection of water resources while the County Governments are tasked with the provision of water and sanitation services and the implementation of the national government policies on natural resource including soil and water conservation. The specific roles for the Counties in the WSS are listed below.

Roles of County Governments in the Water Sector

- a) Ensuring access to water and sanitation according to constitutional rights.

Key Reforms ushered by the Water Act of 2002

- WSPs became private entity companies that are autonomous, managed independently and run professionally
- WASREB became the sector's regulator
- WSPs act as agents of WSBs
- WSBs have legal ownership of the water and sewerage assets utilised by WSPs
- WSBs have the authority to regulate water tariffs set by WSPs
- Institutionalisation of financing water services through the establishment of the Water Services Trust Fund

- b) Managing catchment and protection by implementing water catchment activities at county level.
- c) Protecting the interests of underserved consumers by enactment of regulations ensuring progressive achievement of the right to water
- d) Providing financial management through fiscal and investment planning. This is done through development of 5-year plans incorporating an investment and financing plan for the provision of water services.
- e) Safeguarding integrity, good governance and performance in water supply service delivery.
- f) Ring-fencing of income in the water sector and autonomy of management of WSPs. Counties can also participate in increasing mobilization and efficient use of funds.
- g) Ensuring and coordinating the participation of communities in governance.
- h) Cooperating and coordinating with other counties to ensuring smooth inter-county sharing of water resources.
- i) Contributing to research and development in the water sector.

Under devolution, there arose a need for legislative alignment of the Water Act of 2002 to the new constitution. This has led to the creation of the Water Bill of 2014. The Bill is expected to advance the 2002 reforms with emphasis on the devolution of water services and sanitation.

However, the Bill has not been enacted, as of the date of this publication, and there are areas that require clarity, including the asset ownership and the role and the responsibilities for the WSBs (who under the Act of 2002 are responsible for the sector investments).

Constitutionally, County Governments cannot borrow without a full National Treasury guarantee. It is expressly prohibited to service loans from public money, making it impossible for County Governments to even guarantee the obligations of WSPs. Therefore, financial assistance for the sector must be drawn from development budgets of the respective counties.

3.3 Rationale for WSPs to Source Funds

During the constitutional transition period, it is important that investment in the sector continues in order to avoid an increasing investment backlog in that may add to future challenges.

Since 2002, WSPs have been dependent on the WSBs for funding of WSS infrastructure investments. However, with limited budgets coupled with pressure to improve services, WSPs have had to look for alternative financing sources for investments in system improvements and expansion.

The more financially sound WSPs have looked to raise commercial financing, supported by their income streams, to fund system expansion. The Creditworthiness Index is designed to help facilitate this borrowing. Commercial lending institutions in Kenya are unfamiliar with the water sector and WSPs' ability to generate surplus cash flows and service loans. Therefore, a Creditworthiness Index will play a key role in facilitating lending to the sector by closing the information gap between financial institutions and WSPs.

4

Introduction to the Creditworthiness Index

4.1 Introduction to Credit Ratings

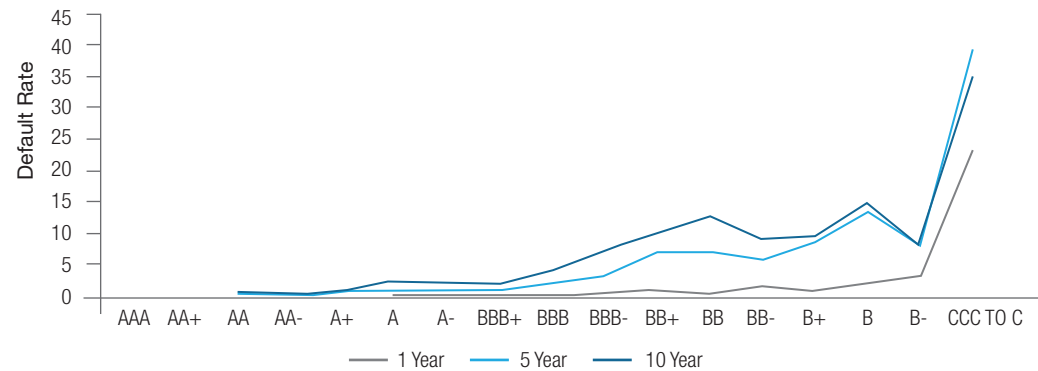
A credit rating is a formal opinion by an independent, specialized agency (the credit rating agency) on the long term ability, capacity, and willingness of a borrower to repay debt on a timely basis. The process of assessment is part science and part art in the sense that both historical data and qualitative analysis are used to predict trends into the future.

4.1.1 International Versus Domestic Ratings

Ratings reflect an entity's probability of defaulting on an obligation against benchmark investments that are regarded as "risk-free". Risk-free borrowers (generally considered risk-free however very low levels of risk exist) represent the highest quality credit and are awarded an AAA ('triple A') rating.

A lower credit rating indicates a higher probability that an entity will default on its debt payment. Figure 5 indicates the actual default rates versus credit ratings of global corporate borrowers. Many entities (sovereigns, corporates, utilities and municipalities) are rated. Moreover, specific debt instruments issued by these entities can also be rated. The ratings of an entity and one of its specific issues may differ due to the seniority and underlying security that underpins an instrument.

Figure 5: Financial Corporate Default Rates for Different Ratings-1990 to 2014



Source: Fitch Ratings 2015 Forms NRSRO Annual accreditation

On a global scale, sovereign ratings use the most robust economies, where defaults are regarded as highly improbable, as benchmarks. Ratings of sovereigns are based on a number of macro-economic considerations such as export surpluses, foreign reserves, and the general strength of the economy. Examples of AAA rated economies are Singapore, Germany, and New Zealand. Most emerging market economies, due to their higher risks, have lower credit ratings. Kenya, for example, has an international rating of B+.

Domestic ratings use a ‘within-country’ approach by benchmarking other institutions to the government of the country. On a domestic rating scale, the government receives an AAA rating for borrowing in its local currency, even though its international rating may be far below AAA. In this assessment, the Kenyan government has a domestic rating of AAA on Kenya shilling denominated debt while the international rating is B+. In the domestic ratings context, the sovereign is largely regarded as risk-free as it can effectively print money to make a debt service payment. This implies that domestically, no entity can have a higher rating than the sovereign benchmark. Domestic ratings are normally indicated by a country suffix, such as BB+.ke for an organization or debt instrument rated in the Republic of Kenya.

4.1.2 The Benefits of Credit Ratings

There are a number of benefits of having a formal credit rating. A formal credit rating:

- Provides an independent and objective evaluation of a WSP’s creditworthiness to banks, financial institutions, and other lenders.
- Has proven to be an accurate predictor of the risk of default.
- Allows a potential lender or investor to compare different WSPs or institutions with each other and assess their relative creditworthiness.
- Assists investors in pricing risk correctly, helping financial institutions decide whether to lend to the entity and calculate the cost (interest rate spread) for the borrower.
- Can improve the negotiating position of the WSP with its lenders, especially with regard to financing costs.

- Allows the rated entity to identify and focus on areas that reduce its creditworthiness and launch actions to address these issues.

4.2 Why a Creditworthiness Index

Formal credit ratings can be relatively expensive (estimated around USD 15,000 from a regional agency and USD 40,000-60,000 from a global agency) as they depend on in-depth assessment and in-person due diligence and interviews. This cost is incurred annually by the borrower and is often not a realistic option for WSPs trying to finance smaller scale infrastructure development.

This challenge gave rise to the concept of shadow ratings which are a less rigorous assessment and not publicly available. However, shadow ratings, while slightly cheaper, are still expensive relative to the average transactions in the Kenya water sector. The Creditworthiness Index offers a much simpler and affordable, though notably less sophisticated indication of a utility’s credit strength.

4.2.1 Purpose of the Creditworthiness Index

The purpose of the Creditworthiness Index is to summarise the financial data of WSPs into a quick reference metric that can be easily integrated with the operational data reported in the sector Impact report. With the inclusion of the Creditworthiness Index, the Impact report will provide an annual snapshot of the performance of all WSPs’ operational and financial performance.

4.2.2 Limitations of the Creditworthiness Index

It must be stressed that the Creditworthiness Index is not a rating but an automated objective perspective of the financial creditworthiness of a WSP based purely on financial and operational data provided by the WSP. Data integrity is not guaranteed as only limited data verification (via random sampling after the rating process is concluded) is undertaken as part of data validation by WASREB.

Furthermore, no qualitative parameters are incorporated in the Creditworthiness Index. In particular, the creditworthiness does not consider or incorporate assessment of:

- Management capacity, orientation, experience and qualification;
- Human resources attitude, orientation and performance;
- Stakeholder support and relations;
- Governance issues;
- Legislative and regulatory framework; and
- Strength of the economic base.

Commercial lenders will need to supplement the factual information contained in the Creditworthiness Index report with their own assessment of the non-

Table 2: Characteristics of a Well-run Utility

Characteristics	Sample KPIs
Effective	<ul style="list-style-type: none"> • Quality of Water • Quantity of Water
Equitable	<ul style="list-style-type: none"> • % of population served • Diversity of Board
Sustainable	<ul style="list-style-type: none"> • % O&M coverage • % grant dependency
Efficient	<ul style="list-style-type: none"> • Staff per 1000 connections • Non-Revenue Water
Transparent	<ul style="list-style-type: none"> • Customer Satisfaction • Frequency, quality and timeliness of financial reporting
Replicable	<ul style="list-style-type: none"> • Documentation of processes, procedures

Source: Richard Franceys, Managing and Financing World Water and Wastewater

financial and operational components of risk. In particular, commercial lenders should take into account the endemic risks in the water sector before making a decision to lend to a WSP rated as credit worthy by the Index, including⁵:

- **Capacity and Support:** Strength, commitment and attitude of the WSPs' board of directors and executive management.
- **Sustainability:** Capital investments for resource development is generally not recovered by the WSPs, nor are provisions made for capital replacement investments (depreciation).
- **Accounts Receivable:** WSPs traditionally have difficulties in collecting from public institutions (schools, hospitals, parastatals, County and National Government bodies) and as such public institutions account for a large proportion of WSPs' receivables. However a denial in service to these institutions may lead to public health hazards and poor public relations.
- **Ring-Fencing:** The Water Act of 2002 provides for the ring-fencing of revenues generated by WSPs. This principle is also adhered to in the yet-to-be passed Water Bill of 2014. Failure to uphold this principle poses a risk to the continued commercial viability of a WSP.
- **Constitutional Evolution:** Following the promulgation of the new Constitution of Kenya in 2010, the responsibility of WSS services provision shifted to the County Governments. The current governing Act (Water Act of 2002) does not incorporate the devolved county structure and a new Water Bill 2014 aligning the Act to the Constitution is yet to be passed. This has created a lack of clarity with respect the specific roles of the water sector players.
- **Cost Reflective Tariffs:** Water affordability has to be balanced against the need to be cost reflective to ensure the WSPs' operations are sustainable and affordable. Tariffs are not regularly updated and are not always sufficient to cover costs.
- **Government Support:** It is currently unclear how Government and donor grant support will be channelled to the WSPs and County governments. However, the right to water is promised to all in the constitution placing responsibility on political decision makers to ensure that the sector is sufficiently funded.
- **Political Interference:** Being publicly owned institutions, WSPs can face pressure from political representatives to keep tariffs at unsustainably low levels or fund non-viable projects. Management of the firm can also be subject to political interference.

Qualitative components not considered in creditworthiness index:

- Management capacity
- Human resources
- Stakeholder support
- Governance issues
- Legislative & regulatory framework
- Strength of the economic base

⁵ For more information on lender guidance for the water sector see "Lender's Manual for Commercial Financing of the Water and Sanitation Sector of Kenya" at www.wasreb.go.ke/publications

- **Impact of Increased Coverage:** As WSPs increase coverage, they often start providing services to less commercially viable areas, leading to lower levels of system utilisation (sometimes not even covering the costs).
- **Willingness to Pay:** Willingness to pay is not currently a big problem in Kenya. However, the introduction of higher tariffs in order to adjust to cost reflective levels coupled with extending coverage to poorer low consumption areas may put pressure on the consumers' ability and willingness to pay.
- **Legal and Regulatory Institutional Environment:** Currently, WSPs can legally borrow provided they receive appropriate approvals from their Boards of Directors, their respective WSBs and provided that loan repayment is not met through public money. Currently tariffs are not included in the definition of public money; however, the legal status of these funds in the new Water Act is not known. Various roles are expected to be further defined once the 2014 Water Bill is enacted.

Guidance manuals covering the roles and obligations involved in commercial financing of Kenya WSPs are available for lenders, utilities and County governments. These manuals can be downloaded from the regulator's website (<http://wasreb.go.ke/publications>).

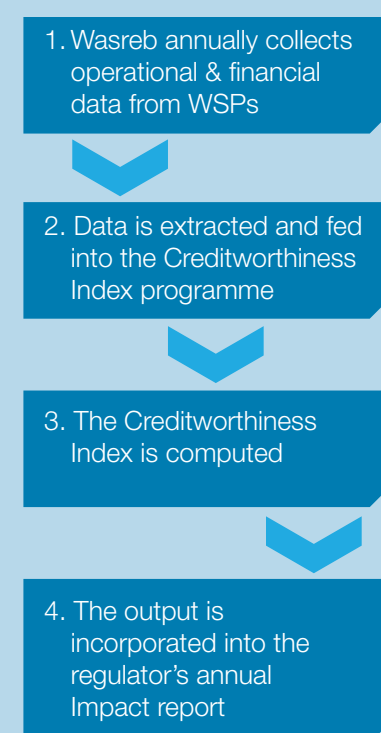
4.2.3 The Structure and Methodology Applied

The Creditworthiness Index methodology used to calculate the individual ratings was adjusted from the initial shadow rating methodology previously used in the 2011 report. The Creditworthiness Index is simpler than the shadow rating approach as the data collection is not as extensive. The Creditworthiness Index relies solely on data from the financial statements and operating statistics as reported by the WSPs in WASREBs reporting database, WARIS. Qualitative inputs cannot be automated and are therefore not included in the Creditworthiness Index results.

The index is calculated from 23 weighted indicators that are based on the initial objective indicators used in the shadow rating report, but tailored from consultations with local commercial lenders and the regulator. The approach used in the shadow rating report was in turn based on the methodologies used by GCR when performing the 7 formal ratings published in "African Water Utilities Regional Comparative Utility Creditworthiness Assessment Report: Individual credit assessment reports for seven African water utilities" (see section 2.1.1). GCR is a credit rating agency registered by the Financial Services Board of South Africa and licensed by the Capital Markets Authority of Kenya.

In developing and designing the index, the key challenge was not only selecting the specific and critical indicators necessary to estimate the creditworthiness of a WSP, but also to find indicators that would be readily and consistently

Figure 6: Methodology of Creditworthiness Index



available from the financial statements and operating data as reported by the WSPs in WASREB's WARIS database. Table 3 below lists the indicators and weightings used in the index calculation.

In consultation with local lenders, ranges of norms were established for each indicator, with scores of 0-4 allocated to each norm in order to align the rating with the Kenya business credit risk universe. The Creditworthiness Index result is therefore an aggregation of the weighted scoring with a maximum score of 100. A score of 85-100 would depict a highest credit quality in the Kenya business market. Table 4 provides a summary of the ranges and the indicative equivalent credit ratings.

Table 3: Creditworthiness Indicators

Indicator	Definition	Reason for inclusion	Weighting in Index	Ranges and Scoring of Indicators										
Technical indicators														
Poverty Rate	County poverty rates are derived by dividing the total number of poor people in each county in by the total population in each county	Indicates the strength of the economic base of the WSP's service coverage area.	3%	<table> <tr> <td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr> <tr> <td>0-20</td><td>20-40</td><td>40-60</td><td>60-80</td><td>80-100</td></tr> </table>	4	3	2	1	0	0-20	20-40	40-60	60-80	80-100
4	3	2	1	0										
0-20	20-40	40-60	60-80	80-100										
Sanitation Coverage	Number of people with access to Sanitation Services/ Population of area	Indicates size of future challenges	1%	<table> <tr> <td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr> <tr> <td>100</td><td>90-100</td><td>80-90</td><td>70-80</td><td><70</td></tr> </table>	4	3	2	1	0	100	90-100	80-90	70-80	<70
4	3	2	1	0										
100	90-100	80-90	70-80	<70										
Water Coverage	Number of people served with Water Supply Services/ Population of area	Indicates size of future challenges	1%	<table> <tr> <td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr> <tr> <td>100</td><td>90-100</td><td>80-90</td><td>70-80</td><td><70</td></tr> </table>	4	3	2	1	0	100	90-100	80-90	70-80	<70
4	3	2	1	0										
100	90-100	80-90	70-80	<70										
Non-Revenue Water	Total Volume of Water Lost from Commercial and Physical Losses as a proportion of Water Produced	Efficiency and credit quality	5%	<table> <tr> <td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr> <tr> <td><20</td><td>20-30</td><td>30-40</td><td>40-50</td><td>>50</td></tr> </table>	4	3	2	1	0	<20	20-30	30-40	40-50	>50
4	3	2	1	0										
<20	20-30	30-40	40-50	>50										
Staff /1000 Connection	Number of Staff Members divided by the total number of 1000 Connections	Efficiency	3%	<table> <tr> <td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr> <tr> <td><5</td><td>6</td><td>7</td><td>8</td><td>>8</td></tr> </table>	4	3	2	1	0	<5	6	7	8	>8
4	3	2	1	0										
<5	6	7	8	>8										
Financial Indicators														
Revenue Indicators														
Total Revenue	Total revenue from water & sewerage sales, other income	Indicates size of turnover	ni	N/A										
Revenue Diversification	The scoring of this indicator was done as the difference between the % residential revenue and % institutional	Indicates the degree of customer concentration and the ability of the WSP to cross-subsidize.	6%	<table> <tr> <td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr> <tr> <td><10%</td><td>10-30%</td><td>30-50%</td><td>50-70%</td><td>>70%</td></tr> </table>	4	3	2	1	0	<10%	10-30%	30-50%	50-70%	>70%
4	3	2	1	0										
<10%	10-30%	30-50%	50-70%	>70%										

Indicator	Definition	Reason for inclusion	Weighting in Index	Ranges and Scoring of Indicators				
Average Tariff Differential	This indicator was scored as the difference between Average tariff per cubic metre and Production cost per cubic metre.	Indicates whether the utility is charging cost reflective tariffs	8%	4	3	2	1	0
				>50%	35-50%	20-35%	5-20%	<5%
Cost Indicators								
Total OPEX	Total Operational & Maintenance Expenditure	Indicates size of turnover	ni	N/A				
Maintenance Costs /OPEX	Total Maintenance Costs divided by total operations and maintenance expenditure	Indicates whether the utility spends sufficiently on maintaining infrastructure.	3%	4	3	2	1	0
				>8%	6-8%	6-4%	0-4%	0%
Electricity Costs / OPEX	Total Electricity Costs divided by total operations and maintenance expenditure	Indicates whether utility is susceptible to changes in energy costs	2%	4	3	2	1	0
				<10%	10-15%	15-20%	20-25%	>25%
Employee Costs / OPEX	The employee Costs (inclusive of salary, pension and other employee related benefits) as a % of Total OPEX	An indicator of efficiency	2%	4	3	2	1	0
				<25%	25-30%	30-35%	35-40%	>40%
Cost Recovery Indicators								
O&M Coverage	Total revenue from water and sewerage sales divided by total operations and maintenance expenditure	Creditworthiness	4%	4	3	2	1	0
				>130%	120-130%	110-120%	100-110%	<100%
EBITDA/Revenue	Earnings Before Interest Tax, Depreciation & Amortization divided by Revenue	Credit quality	5%	4	3	2	1	0
				>25%	20-25%	15-20%	10-15%	<10%
Liquidity & Solvency Indicators								
Cash Reserves	Cash reserves as % of annual operating income	Liquidity indicator	5%	4	3	2	1	0
				>25%	20-25%	15-20%	10-15%	<10%
Liquidity Ratio	Liquidity ratio: Cash & Near Cash Reserves/ Current Liabilities	Liquidity indicator	4%	4	3	2	1	0
				>25%	20-25%	15-20%	10-15%	<10%
Debt Service Coverage Ratio	Cash Flow Available for Debt Service / Total Debt Service (Interest + Principal Repayments).	Determines the debt service ability for a utility	5%	4	3	2	1	0
				>1.8	1.6-1.8	1.4-1.6	1.2-1.4	<1.2

Indicator	Definition	Reason for inclusion	Weighting in Index	Ranges and Scoring of Indicators										
Grant Dependency	The proportion of OPEX financed by income from Grants	An indicator of a utility's ability to cater for its costs and remain solvent without government assistance.	3%	<table> <tr> <td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr> <tr> <td>0%</td><td>0-10%</td><td>10-15%</td><td>15-20%</td><td>>20</td></tr> </table>	4	3	2	1	0	0%	0-10%	10-15%	15-20%	>20
4	3	2	1	0										
0%	0-10%	10-15%	15-20%	>20										
Debt/Cash Available for Debt Service	Total Debt/ Cash flow available to service debt payments (Net Operating Cash flow + Interest Repayments)	Determines utility's ability to service debt	10%	<table> <tr> <td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr> <tr> <td><0.9</td><td>0.9-1.7</td><td>1.7-3.3</td><td>3.3-6.3</td><td>>6.3</td></tr> </table>	4	3	2	1	0	<0.9	0.9-1.7	1.7-3.3	3.3-6.3	>6.3
4	3	2	1	0										
<0.9	0.9-1.7	1.7-3.3	3.3-6.3	>6.3										
Debt to Equity	Total Debt/Total Equity	Solvency	5%	<table> <tr> <td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr> <tr> <td><20%</td><td>20-25%</td><td>25-30%</td><td>30-35%</td><td>>35%</td></tr> </table>	4	3	2	1	0	<20%	20-25%	25-30%	30-35%	>35%
4	3	2	1	0										
<20%	20-25%	25-30%	30-35%	>35%										
Debtor Days	<p>Average number of days it takes WSP to collect monies billed.</p> <p>Net billed amount outstanding/ Total annual operating revenues excluding grants and transfers *365</p>	Cash flow resilience. Measures the utility's ability to convert revenue into cash	5%	<table> <tr> <td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr> <tr> <td><45 Days</td><td>45-60 Days</td><td>60-90 Days</td><td>90-120 Days</td><td>>120 Days</td></tr> </table>	4	3	2	1	0	<45 Days	45-60 Days	60-90 Days	90-120 Days	>120 Days
4	3	2	1	0										
<45 Days	45-60 Days	60-90 Days	90-120 Days	>120 Days										
Reduction in Debtor Days	<p>% Change in debtor days over the last financial year.</p> <p>(Debtor Days in Current Financial Year Less Debtor Days in previous Financial Year)/Debtor Days in Current Financial Year</p>	Indicative of improvements/ deterioration in debtor days to eliminate legacy debt	5%	<table> <tr> <td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr> <tr> <td>>25%</td><td>20-25%</td><td>15-20%</td><td>10-15%</td><td><10%</td></tr> </table>	4	3	2	1	0	>25%	20-25%	15-20%	10-15%	<10%
4	3	2	1	0										
>25%	20-25%	15-20%	10-15%	<10%										
Bad Debt Provision	Cash provision for bad and doubtful debt / Consumer bad debt [Number of days before the provision made]	An indicator of credit quality as it shows the degree of management of debtor days.	5%	<table> <tr> <td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr> <tr> <td>>60 Days</td><td>>90 Days</td><td>>180 Days</td><td>>365 Days</td><td>> 5 years</td></tr> </table>	4	3	2	1	0	>60 Days	>90 Days	>180 Days	>365 Days	> 5 years
4	3	2	1	0										
>60 Days	>90 Days	>180 Days	>365 Days	> 5 years										
Billing Efficiency	% Utilities ability to bill water produced/bought.	Efficiency	5%	<table> <tr> <td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr> <tr> <td>>95%</td><td>93-94%</td><td>90-92%</td><td>85-89%</td><td><85%</td></tr> </table>	4	3	2	1	0	>95%	93-94%	90-92%	85-89%	<85%
4	3	2	1	0										
>95%	93-94%	90-92%	85-89%	<85%										
Collection Efficiency	<p>Utilities ability to collect billed accounts.</p> <p>Collection efficiency :Utilities ability to collect billed accounts</p>	Efficiency	5%	<table> <tr> <td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr> <tr> <td>>95%</td><td>93-94%</td><td>90-92%</td><td>85-89%</td><td><85%</td></tr> </table>	4	3	2	1	0	>95%	93-94%	90-92%	85-89%	<85%
4	3	2	1	0										
>95%	93-94%	90-92%	85-89%	<85%										

***"ni" indicates that the indicator data is collected and used to calculate other indicators but is not included in the rating calculation; N/A indicates the data information does not need a range.*

Table 10 in Annex D describes the alterations made from the WaterCAT methodologies to create the Creditworthiness Index. As the WaterCAT methodology relied heavily on qualitative analysis (management interviews, government support, staff capacity assessment, etc.), some indicators were introduced to the Creditworthiness Index to act as a proxy for qualitative analysis.

Indicators, weightings and score ranges were retained from WaterCAT where applicable and available. Other indicators, weightings and score ranges were based on WaterCAT methodologies but also took into account input from local lenders' credit views and global standards. Many of the weightings of the indicators had to be increased from WaterCAT in order to replace the weighting of qualitative indicators not applicable in the Creditworthiness Index.

The rationale for allocating weights is that all indicators, although individually important, have varying importance when it comes to the overall credit assessment. See Table 3 above and Annexure A for respective weights.

In addition to the weighting, there are performance ranges with different scoring points for each indicator. These were applied by awarding a score for different performance levels. The range of norms and points associated with the different performances are indicated in Annexure A.

The rating rewarded for different scores, largely based on the previous ratings work in Kenya, are shown in the table below. The definitions associated with the different credit categories are as indicated in Table 4.

Table 4: *Creditworthiness Index Scoring Parameters*

Score	Indicative Creditworthiness Level	Description
< 30	No Rating awarded	Indicative of substantial to exceptionally high risk of default.
31 to 40	Lower-Creditworthy	Indicates that material default risk is present, but a limited margin of safety remains. Financial commitments are currently being met; however, capacity for continued payment is vulnerable to deterioration in the business and economic environment. In a credit rating this definition is equivalent to a B rating.
41 to 50	Low-Creditworthy	Indicates an elevated vulnerability to default risk, particularly in the event of adverse changes in business or economic conditions over time; however, business or financial flexibility exists which supports the servicing of financial commitments. In a credit rating this definition is equivalent to a BB rating.
51 to 60	Creditworthy	Indicates that expectations of default risk are currently low. Capacity for payment of financial commitments is considered adequate but adverse business or economic conditions are more likely to impair this capacity. In a credit rating this definition is equivalent to a BBB rating.
61 to 70	Creditworthy	Denotes expectations of low default risk. Capacity for payment of financial commitments is considered strong. Capacity may, nevertheless, be more vulnerable to adverse business or economic conditions than is the case for higher ratings. In a credit rating this definition is equivalent to an A rating.
71 to 85	Highly Creditworthy	Denotes expectations of very low default risk. Very strong capacity for payment of financial commitments. Not significantly vulnerable to foreseeable events. In a credit rating this definition is equivalent to an AA rating.
> 85	Very Highly Creditworthy	Denotes the lowest expectation of default risk. Assigned only in cases of exceptionally strong capacity for payment of financial commitments. Highly unlikely to be adversely affected by foreseeable events. In a credit rating this definition is equivalent to an AAA rating.

The data required for the computation of the indicators used to compute the index is extracted from WARIS.

Whenever possible, the financial data inputs are based on financial statements audited by the Office of the Auditor General of Kenya. However, due to timing issues, the data utilized in populating the Creditworthiness Index is often sourced from management accounts that have been submitted to, but not yet audited by, the Auditor General for auditing. The data is validated by WASREB. Any inconsistencies are flagged by WASREB for the WSPs to review and remedy. Once audited reports are provided by the Officer of Auditor General, WSPs are required to update their records in WARIS for any changes arising. In line with the regulator's Impact Report data verification procedure, WASREB will carry out annual in-depth verification on a sample of WSPs to ensure the data provided is up to standard. Therefore, any errors in data entry occurring in a particular year will be rectified before the annual data is reported as historical data in the following year's report.

4.2.4 Important Note on First Year Methodology Fix

The Creditworthiness Index was designed as a long term tool to measure objectively financial capacity of WSPs and award scores based on various indicators. The ability of a WSP to generate cash for debt service is one of the most critical indicators for creditworthiness.

Unfortunately for the current year (2013-14), as this was the first year of data collection in WARIS, it was not possible to obtain accurate data on cash generated from operations as well as the amounts of cash used for debt service for many of the WSPs. To resolve this problem in the initial year (the year covered in this report), EBITDA was used as proxy for cash generated from operations, and levels of debt service were estimated for WSPs with debt based on amounts of loans in their books. This is a one-off measure. In the coming reporting cycles, cash flow information, including the data that was not collected in 2013-14, will be submitted to WASREB by the WSPs.

In addition, most WSPs have nil or insignificant loans, mostly asset finance loans for vehicles where these existed. Only Nyeri, Eldoret and Kiamumbi have reported significant debt. Therefore, in this index, only three WSPs had debt service incorporated in their creditworthiness scores. All other WSPs did not have debt service indicators incorporated into their rating.

Some WSPs have potential debt service obligations to their WSBs; however, these debts are not reported in the financial statements and are not included in the calculation of the Creditworthiness Index score for this year. However, during their credit analysis review, commercial lenders should investigate whether WSPs are servicing loans on infrastructure secured by their WSBs and not reported in the WSP annual financial statements.

Going forward, cash flow information will be submitted into WARIS and the index will revert to using the Debt/CFADS and DSCR indicators. Moreover, as more WSPs access commercial financing, the debt indicators will become more significant in the industry and more useful.

5

Results of the Creditworthiness Index Analysis

This section of the report presents the results of the Creditworthiness Index for the 41 best run WSPs. The section sums the Creditworthiness Index scores and the distribution of WSPs into their respective categories of creditworthiness. Table 4 provides a description of the scores and description of the creditworthiness range categories. The section also analyses the individual key performance indicators for the WSPs under each of the key parameters of the index.

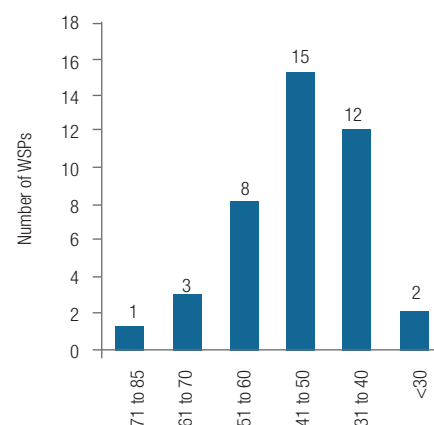
The analysis presented in this report is based on the financial and operational data submitted by WSPs to WASREB for the 2013/2014 financial year. Where possible, the data is reported from financial statements audited by Office of the Auditor General of Kenya; however, due to timing issues, much of the data is based on unaudited most recent management accounts. The creditworthiness scores, shown in Table 5, are based on the financial and technical parameters indicated in chapter 4 of this report.

In addition to creating the Creditworthiness Index, full shadow ratings have been performed for 10 of the 41 WSPs. To evaluate and verify the results of the index, the Creditworthiness Index results were compared to the shadow ratings results. Section 5.3 of this report provides a comparison of the Creditworthiness Index scores against their respective shadow credit ratings.

5.1 Overall Results

The index indicates that thirteen of the WSPs have scores indicating they have high creditworthiness and could potentially receive an investment grade rating

Figure 7: Number of WSPs by Credit Index Scores



Source: NWMP 2030

The distribution of ratings scores of the 41 WSPs shows a mean of 47, implying that the average WSP is rated just below credit worthy. A vast majority of WSPs are clustered within the “41-50” to “51-60” range.

should they seek to obtain a formal rating. However, formal ratings performed by a rating agency may be significantly affected by non-financial and other operational considerations (such as quality of management, government support, etc.), that are not considered in the Creditworthiness Index analysis. The WSPs with scores above 51 should be able to service varying levels of debt and likely be considered for commercial finance (subject to further analysis verifying any qualitative indicator weakness).

Twenty seven WSPs are within the “30-40” and “41-50” low creditworthiness range. These are WSPs that are underperforming financially but many are relatively close to achieving high creditworthiness scores. Fourteen of the WSPs scored within the ‘41-50’ range. The higher scores indicate that these WSPs have the potential of achieving high creditworthiness with some improvement in key indicators.

Thirteen WSPs still require considerable improvement in order to achieve high creditworthiness. The Index is designed to help identify these critical weaknesses. One WSP received a ‘no rating’ due to a lack of sufficient data to calculate an index.

The individual WSP creditworthiness scores are indicated in Table 5.

Table 5: WSPs Categorized by Creditworthiness Index Scores

High Creditworthiness		Low Creditworthiness			
WSP	SCORE	WSP*	SCORE	WSP	SCORE
Ruiru Juja	72	Kitui	50	Kikuyu	40
Nyeri	66	Kibwezi Makindu	50	Nairobi	40
Thika	65	Garissa	48	Nakuru	39
Kiamumbi	63	Mavoko Epza	48	Sibo	39
Meru	60	Oloolaiser	48	Kericho	39
Isiolo	58	Nyahururu	48	Nakuru Rural	38
Mathira	56	Kirinyaga	48	Tavevo	37
Nanyuki	55	Murang’a	47	Kwale	37
Kakamega Busia	55	Kisumu	45	Maralal	34
Karuri	54	Mombasa	45	Gusii	33
Embu	53	Limuru	44	Kilifi Mariakani	31
Nzoia.	53	Naivasha	44	Machakos	30
Kiambu	52	Narok	43	Tililbei	No Score
		Malindi	43		
		Eldoret	40		

*As indicated in section 5.1 above, WSPs that have scored within the range of 40-50 can be viewed as potentially creditworthy due to their ability to score within the high creditworthiness range if they were to undertake reforms to improve their operational and financial indicators

Figure 8: Creditworthiness Index Scores by WSP

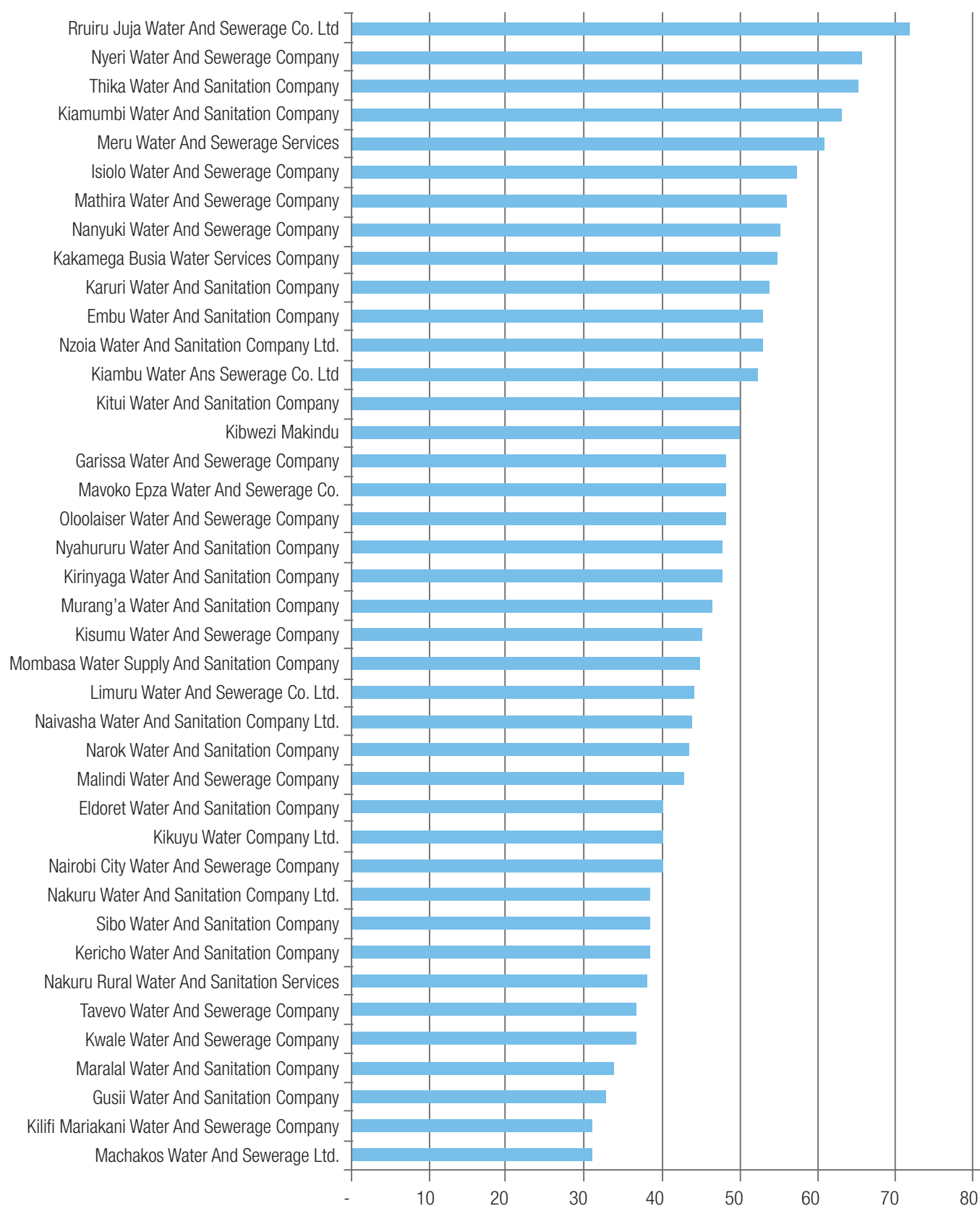
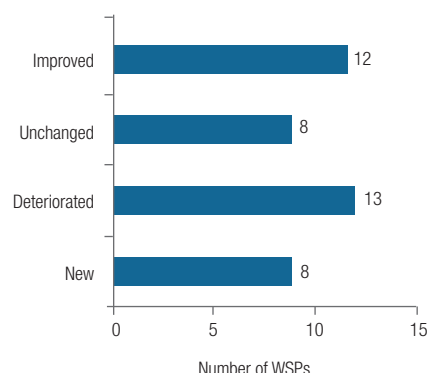


Figure 9: Comparison between 2011 Shadow Rating & Creditworthiness Index



5.2 Comparison with 2011 Shadow Credit Rating

There were 13 WSPs that were regarded as being creditworthy in the 2011 shadow credit rating versus 13 WSPs that are considered having high creditworthiness based on the Creditworthiness Index scores.

It is important to note that a direct comparison is not entirely valid as different parameters are being measured. In particular, the Creditworthiness Index has eliminated the more qualitative based parameters. Nevertheless, it is expected that Creditworthiness Index scores should relatively translate into similar shadow credit ratings as other financial and operational measures considered in both review similar WSPs' efficiencies.

Twelve WSPs have a higher index score than the 2011 rating, thirteen have lower scores, eight have obtained the similar ratings and seven new WSPs have been included in the current index report. One of the new WSP was not rated due to insufficient data. The elimination from the index of some of the more judgemental and discretionary indicators, as well as change in performance since 2011, is largely responsible for the movement.

Table 6 below gives a comparison between the 2011 shadow ratings and a hypothetical estimated equivalent rating from the current Creditworthiness Index.

Table 6: Comparison of Creditworthy WSPs under the Creditworthiness Index & 2011 Shadow Credit Rating Reviews

WSP	Previous 2011 Shadow Rating	Creditworthiness Index Score	Creditworthiness Index Indicative Rating	Comment
Ruiru Juja	BBB	72	AA	Notable improvement
Nyeri	A	66	A	Stable
Thika	BBB	65	A	Improvement
Kiamumbi	Not in 2011 report	63	A	Not assessed in 2011
Meru	BBB	60	BBB	Stable
Isiolo	No Rating	58	BBB	Substantial Improvement
Mathira	BB	56	BBB	Improvement
Nanyuki	BBB	55	BBB	Stable
Kakamega Busia	No Rating	55	BBB	Substantial Improvement
Karuri	Not in 2011 report	54	BBB	Not assessed in 2011
Embu	BB	53	BBB	Improvement

WSP	Previous 2011 Shadow Rating	Creditworthiness Index Score	Creditworthiness Index Indicative Rating	Comment
Nzoia	BB	53	BBB	Improvement
Kiambu	BB	52	BBB	Improvement
Kitui	No Rating	50	BB	Improvement
Kibwezi Makindu	Not in 2011 report	50	BB	Not assessed in 2011
Oololaiser	BB	48	BB	Stable
Mavoko Epza	BB	48	BB	Stable
Garissa Water	BBB	48	BB	Deterioration
Kirinyaga	BB	48	BB	Stable
Nyahururu	BBB	48	BB	Deterioration
Murang'a	BBB	47	BB	Deterioration
Kisumu	BBB	45	BB	Deterioration
Mombasa	No Rating	45	BB	Improvement
Limuru	BB	44	BB	Stable
Naivasha	Not in 2011 report	44	BB	Not assessed in 2011
Narok	BB	43	BB	Stable
Malindi	BBB	43	BB	Deterioration
Eldoret	BBB	40	B	Deterioration
Kikuyu	BB	40	B	Slight deterioration
Nairobi City	BBB	40	B	Deterioration
Nakuru	BBB	39	B	Deterioration
Sibo	No Rating	39	B	Slight improvement
Kericho	BB	39	B	Deterioration
Nakuru Rural	BB	38	B	Deterioration
Tavevo	Not in 2011 report	37	B	Not assessed in 2011
Kwale	No Rating	37	B	Improvement
Maralal	Not in 2011 report	34	B	Not assessed in 2011
Gusii	Not in 2011 report	33	B	Not assessed in 2011
Kilifi Mariakani	BB	31	B	Deterioration
Machakos	No Rating	30	No Rating	Stable
Tililbei	Not in 2011 report	No Score	No Rating	Not rated due to insufficient data

5.3 Comparison of Creditworthiness Index with 2015 Shadow Credit Rating Analysis of 10 WSPs

As part of the Kenya Urban Water Utility Commercial Financing Project, shadow credit ratings were conducted on the ten WSPs most likely to seek and receive commercial financing. Despite currently pursuing a loan, the Nairobi Water and Sewerage Company (NWSC) was not selected to receive a shadow rating, due to the company's size and complexity. However, NWSC is covered in the Creditworthiness Index.

For the shadow rating evaluation, the WSPs offices and key installations such as water and sewerage treatment plants were visited in early 2015. Each WSP also provided their 5 year historical financial statements, operational and human resource data for analysis. The rating analysis was complimented by face-to-face interviews with senior management using the same methodology employed in the 2011 shadow credit rating exercise.

The table below gives a comparison between the results of the shadow credit ratings and the Creditworthiness Index. The results are largely consistent between the Creditworthiness Index and the 2015 Shadow Ratings with only a few exceptions, mainly resulting from qualitative indicator analysis.

The inclusion in the shadow credit rating of some of the qualitative indicators is largely responsible for any differences in ratings.

Table 7: Comparison of Creditworthiness Index & 2015 Shadow Credit Rating

WSP	Creditworthiness Index Score	Probable Creditworthiness Index Rating	2015 Shadow Credit Rating	Comment
Ruiru Juja	72	AA	AA	Same rating
Nyeri	66	A	A	Same rating
Thika	65	A	BB	The qualitative interviews weighed heavily on the shadow rating resulting in a lower score. WASREB is also reviewing the quality of the data submitted in WARIS as there seems to be some inconsistencies with the shadow rating data.
Meru	60	BBB	BBB	Same rating
Nanyuki	55	BBB	BBB	Same rating
Embu	53	BBB	BBB	Same rating
Murang'a	47	BB	B	Rated lower due to County government interference with the tariff setting process
Eldoret	40	B	BB	Slight difference in rating. Utility has capable management but scores low on financial and operational indicators
Kisumu	45	BB	BB	Same rating
Malindi	43	BB	B	Rated lower due to lack of an MD in place for close to 3 years. Revenues are also highly dependent on volatile tourism industry.

5.4 Analysis of Key Indicators

This section analyses how WSPs performed in key Creditworthiness Index indicators as well as assesses historical trends of indicators. The analysis is useful in helping WSPs benchmark their performance against the average WSPs within their category. As indicators determine the creditworthiness score, WSPs can use the individual indicator scores to assess their performance relative to sector averages and identify shortcomings to address to improve their financial management and creditworthiness.

Note, the historical trends graphs and analysis starting in section 5.4.2 are broken into to high creditworthiness and low creditworthiness groups of WSPs as well as pre-2011 and post-2011. The pre-2011 data is based on the 2011 Shadow Credit Report data which factored in qualitative indicators which are not included in the post-2011 Creditworthiness Index data. In addition, a few of the WSPs have moved from creditworthy to low-creditworthy, and vice versa, under the different methodologies.

5.4.1 Overview of Indicator Table

Table 8 shows a breakdown of how the WSPs have performed in each of the individual indicators. Note: **the values in the table are not the ratio values but are calculated scores ranging from zero to the Maximum Score listed in the top row.** Annexure E provides more explanation on these ranges and values.

“No Score” (NS) score was allocated where there was no data provided. NS scores were prevalent on indicators involving debt and debt service, as the majority of WSPs have no borrowings. Therefore, the ratings for WSPs without debt cannot, and are not, scored out of the maximum 100. Indicators with ‘NS’ scores are deducted from the total score of 100. The aggregate score is then calculated from the pro rata adjusted total score to allow for comparison of WSPs.

Note: Debt/EBITDA and EBITDA/ Debt Service Payments, marked with an asterisk, have been used on a one-off basis for this year’s data as proxy indicators for Debt/ Cash available for debt service (CFADS) and Debt Service Cover Ratio (DSCR) due lack of sufficient cash flow information. Going forward, the index will discard their use and revert to Debt/CFADS and DSCR. See section 4.2.4 *Important Note on First Year Methodology Fix* for more explanation.

Table 8: Creditworthiness Index Score per WSP

WSP	Score	Poverty Rate	Sanitation Coverage	Water Coverage	NRW	Staff per 1000 Connections	Revenue Diversification	Average tariff differential	Maintenance costs as % of OPEX	Electricity as % of OPEX	Employee costs /Total OPEX	O&M Coverage	Grant dependency for OPEX	EBITDA/Revenue	Liquidity reserves as % of annual OPEX	Liquidity ratio	EBITDA/ Debt Service Payment*	Debt/EBITDA*	Debt: Equity Ratio	Debtor Days	Reduction in debtor days	Bad debt provision	Billing Ratio	Collection Efficiency
Maximum Score >	100	3	1	1	5	3	6	8	3	2	2	4	3	5	5	4	5	10	5	5	5	5	5	5
Ruiru Juja Water And Sewerage Co. Ltd	71.9	2.3	0.5	0.0	3.8	3.0	0.0	6.0	3.0	1.5	1.0	2.0	3.0	1.3	5.0	4.0	NS	NS	5.0	5.0	2.5	NS	3.8	3.8
Nyeri Water And Sewerage Company	65.5	2.3	0.8	0.5	5.0	3.0	6.0	6.0	3.0	2.0	0.0	3.0	2.3	5.0	5.0	4.0	3.8	0.0	0.0	1.3	2.5	NS	5.0	5.0
Thika Water and Sanitation Company	65.3	2.3	0.0	0.8	2.5	2.3	0.0	6.0	2.3	1.5	0.0	2.0	3.0	1.3	5.0	0.0	NS	NS	5.0	0.0	5.0	NS	2.5	5.0
Kiamumbi Water And Sanitation Company	63.1	2.3	0.8	0.8	2.5	0.0	0.0	8.0	3.0	1.5	2.0	3.0	3.0	5.0	5.0	0.0	0.0	5.0	3.8	5.0	NS	NS	2.5	5.0
Meru Water And Sewerage Services	60.9	2.3	0.8	0.0	3.8	3.0	6.0	6.0	3.0	2.0	0.0	2.0	3.0	1.3	5.0	3.0	NS	NS	5.0	0.0	0.0	NS	3.8	5.0
Isiolo Water And Sewerage Company	57.5	0.8	0.5	0.0	2.5	0.8	1.5	4.0	3.0	2.0	0.0	0.0	3.0	0.0	5.0	3.0	NS	NS	5.0	2.5	5.0	NS	2.5	5.0
Mathira Water And Sewerage Company	55.9	2.3	0.0	0.0	0.0	0.0	1.5	8.0	0.0	2.0	0.0	2.0	2.3	2.5	0.0	0.0	NS	NS	5.0	5.0	5.0	NS	0.0	5.0
Nanyuki Water And Sewerage Company	55.3	1.5	0.8	0.8	2.5	3.0	1.5	6.0	3.0	2.0	0.0	2.0	3.0	1.3	0.0	0.0	NS	NS	5.0	0.0	0.0	NS	2.5	1.3
Kakamega Busia Water Services Company	55.0	1.5	0.5	0.3	2.5	3.0	4.5	8.0	1.5	1.5	0.0	2.0	3.0	2.5	5.0	0.0	NS	NS	5.0	0.0	0.0	NS	2.5	5.0
Karuri Water And Sanitation Company	53.8	2.3	0.8	0.0	3.8	1.5	0.0	4.0	2.3	1.5	1.5	0.0	1.5	0.0	5.0	0.0	NS	NS	5.0	2.5	2.5	NS	3.8	3.8
Embu Water And Sanitation Company	53.1	1.5	0.8	0.0	2.5	3.0	3.0	8.0	3.0	2.0	0.0	2.0	0.8	3.8	5.0	0.0	NS	NS	5.0	0.0	0.0	NS	2.5	3.8
Nzoia Water And Sanitation Company Ltd.	53.0	1.5	0.5	0.5	2.5	1.5	6.0	4.0	1.5	1.5	0.0	0.0	3.0	0.0	2.5	0.0	NS	NS	5.0	5.0	NS	NS	2.5	3.8
Kiambu Water And Sewerage Co. Ltd	52.2	2.3	0.5	0.0	2.5	0.0	4.5	4.0	2.3	1.5	0.5	0.0	0.8	0.0	5.0	0.0	NS	NS	5.0	5.0	5.0	NS	2.5	3.8
Kitui Water And Sanitation Company	50.6	0.8	0.0	0.0	0.0	0.0	4.5	6.0	1.5	1.5	2.0	0.0	0.8	0.0	5.0	0.0	NS	NS	5.0	5.0	5.0	NS	0.0	5.0
Kibwezi Makindu	50.0	0.8	0.0	0.0	3.8	0.0	0.0	2.0	2.3	1.5	0.0	0.0	1.5	0.0	5.0	0.0	NS	NS	5.0	2.5	3.8	NS	3.8	3.8
Garissa Water And Sewerage Company	48.1	1.5	0.8	0.0	1.3	0.0	6.0	6.0	3.0	1.5	1.0	0.0	3.0	0.0	5.0	4.0	NS	NS	5.0	0.0	0.0	NS	1.3	5.0
Mavoko Epza Water And Sewerage Co.	48.1	1.5	0.3	0.0	1.3	0.0	3.0	6.0	3.0	2.0	1.0	1.0	3.0	0.0	5.0	0.0	NS	NS	5.0	0.0	0.0	NS	1.3	3.8
Oloolaiser Water And Sewerage Company	48.1	3.0	0.0	0.0	1.3	0.0	4.5	6.0	1.5	1.5	0.5	0.0	2.3	0.0	5.0	0.0	NS	NS	5.0	3.8	2.5	NS	1.3	5.0
Nyahururu Water And Sanitation Company	47.8	1.5	0.8	0.3	1.3	0.0	4.5	8.0	1.5	2.0	0.0	1.0	2.3	0.0	1.3	0.0	NS	NS	5.0	1.3	0.0	NS	1.3	5.0
Kirinyaga Water And Sanitation Company	47.8	2.3	0.5	0.0	0.0	0.0	0.0	8.0	2.3	2.0	0.0	1.0	2.3	0.0	5.0	0.0	NS	NS	5.0	0.0	NS	NS	0.0	1.3

WSP	Score	Poverty Rate	Sanitation Coverage	Water Coverage	NRW	Staff per 1000 Connections	Revenue Diversification	Average tariff differential	Maintenance costs as % of OPEX	Electricity as % of OPEX	Employee costs /Total OPEX	O&M Coverage	Grant dependency for OPEX	EBITDA/Revenue	Liquidity reserves as % of annual OPEX	Liquidity ratio	EBITDA/ Debt Service Payment*	Debt/EBITDA*	Debt: Equity Ratio	Debtor Days	Reduction in debtor days	Bad debt provision	Billing Ratio	Collection Efficiency
		3	1	1	5	3	6	8	3	2	2	4	3	5	5	4	5	10	5	5	5	5	5	5
Maximum Score >	100																							
Murang'a Water And Sanitation Company	46.6	2.3	0.8	0.0	2.5	0.0	4.5	4.0	3.0	1.5	0.0	0.0	1.5	0.0	5.0	0.0	NS	NS	5.0	1.3	0.0	NS	2.5	2.5
Kisumu Water And Sewerage Company	45.0	1.5	0.0	0.0	1.3	1.5	6.0	6.0	2.3	1.5	0.5	1.0	2.3	0.0	3.8	0.0	NS	NS	5.0	0.0	0.0	NS	1.3	3.8
Limuru Water And Sewerage Co. Ltd	44.4	2.3	0.8	0.0	2.5	0.8	3.0	6.0	3.0	1.5	0.5	1.0	2.3	0.0	5.0	0.0	NS	NS	5.0	0.0	0.0	NS	2.5	0.0
Naivasha Water And Sanitation Company Ltd	43.8	1.5	0.5	0.0	1.3	0.0	0.0	6.0	3.0	1.5	1.0	1.0	2.3	0.0	5.0	0.0	NS	NS	5.0	0.0	0.0	NS	1.3	2.5
Narok Water And Sanitation Company	43.2	2.3	0.5	0.0	1.3	0.0	1.5	4.0	3.0	2.0	0.5	0.0	2.3	0.0	5.0	0.0	NS	NS	5.0	1.3	0.0	NS	1.3	5.0
Malindi Water And Sewerage Company	42.8	0.8	0.5	0.5	2.5	0.8	0.0	4.0	0.8	2.0	0.0	1.0	2.3	0.0	5.0	0.0	NS	NS	5.0	0.0	0.0	NS	2.5	5.0
Eldoret Water And Sanitation Company	40.3	1.5	0.8	0.3	2.5	3.0	3.0	6.0	2.3	2.0	0.0	1.0	3.0	0.0	5.0	0.0	NS	0.0	0.0	0.0	0.0	NS	2.5	2.5
Kikuyu Water Company Ltd	40.0	2.3	0.8	0.0	1.3	0.0	4.5	4.0	3.0	1.5	0.5	0.0	0.0	0.0	5.0	0.0	NS	NS	5.0	2.5	0.0	NS	1.3	3.8
Nairobi City Water and Sewerage Company	39.7	2.3	0.3	0.3	2.5	2.3	1.5	4.0	0.0	2.0	0.0	0.0	2.3	0.0	0.0	0.0	NS	NS	5.0	1.3	5.0	NS	2.5	5.0
Nakuru Water And Sanitation Company Ltd	38.7	1.5	0.8	0.8	2.5	2.3	4.5	4.0	0.8	1.5	0.5	0.0	3.0	0.0	3.8	0.0	NS	NS	5.0	0.0	0.0	NS	2.5	5.0
Sibo Water And Sanitation Company	38.7	2.3	0.8	0.0	0.0	0.0	1.5	2.0	2.3	1.5	2.0	0.0	0.0	0.0	5.0	0.0	NS	NS	5.0	0.0	NS	NS	0.0	5.0
Kericho Water And Sanitation Company	38.5	1.5	0.0	0.0	1.3	0.0	4.5	6.0	1.5	2.0	0.0	1.0	3.0	0.0	0.0	0.0	NS	NS	5.0	1.3	3.8	NS	1.3	5.0
Nakuru Rural Water and Sanitation Services	38.1	1.5	0.3	0.0	0.0	0.0	0.0	8.0	1.5	2.0	0.5	0.0	2.3	0.0	0.0	0.0	NS	NS	5.0	0.0	0.0	NS	0.0	2.5
Taveyo Water And Sewerage Company	37.0	1.5	0.8	0.0	1.3	0.0	1.5	4.0	1.5	1.5	1.5	0.0	3.0	0.0	0.0	0.0	NS	NS	5.0	5.0	NS	NS	1.3	3.8
Kwale Water And Sewerage Company	36.9	0.8	0.3	0.0	2.5	0.0	0.0	4.0	3.0	1.5	1.0	0.0	0.8	0.0	1.3	0.0	NS	NS	5.0	0.0	0.0	NS	2.5	3.8
Maralal Water And Sanitation Company	33.8	0.8	0.3	0.0	2.5	0.0	0.0	0.0	0.0	1.5	1.5	0.0	0.0	0.0	5.0	3.0	NS	NS	5.0	2.5	0.0	NS	2.5	2.5
Gusii Water And Sanitation Company	33.0	1.5	0.0	0.0	1.3	0.8	0.0	4.0	0.0	1.5	1.0	0.0	0.8	0.0	5.0	0.0	NS	NS	5.0	0.0	NS	NS	1.3	1.3
Kilifi Mariakani Water And Sewerage Company	31.1	0.8	0.0	0.0	1.3	0.0	3.0	6.0	3.0	2.0	0.5	0.0	2.3	0.0	2.5	0.0	NS	NS	5.0	0.0	0.0	NS	1.3	2.5
Machakos Water And Sewerage Ltd	30.9	1.5	0.0	0.0	0.0	0.0	0.0	8.0	2.3	1.5	0.5	0.0	2.3	0.0	0.0	0.0	NS	NS	5.0	0.0	1.3	NS	0.0	3.8
Tililbei Water And Sanitation Company	NR	1.5	0.0	0.0	0.0	0.0	4.5	NS	NS	NS	NS	NS	NS	NS	NS	0.0	NS	NS	NS	0.0	NS	NS	0.0	3.8

* Debt/EBITDA and EBITDA/ Debt Service Payments have been used on a one-off basis as proxy indicators for Debt/ Cash available for debt service(CFADS) and Debt Service Cover Ratio (DSCR) due lack of sufficient cash-flow information. Going forward, the index will discard their use and revert to Debt/CFADS and DSCR.

5.4.2 Net Profit Margin

The ratio of profit or loss over the annual revenue indicates the profitability of the WSP. This is a key indicator of financial performance and ability to service debt. WSPs without surplus funds for debt service will be less creditworthy. There is a considerable difference between high scoring WSPs in the 71-80 category and the others.

Figure 10: Net Profit (Loss) Margin by Credit Rating

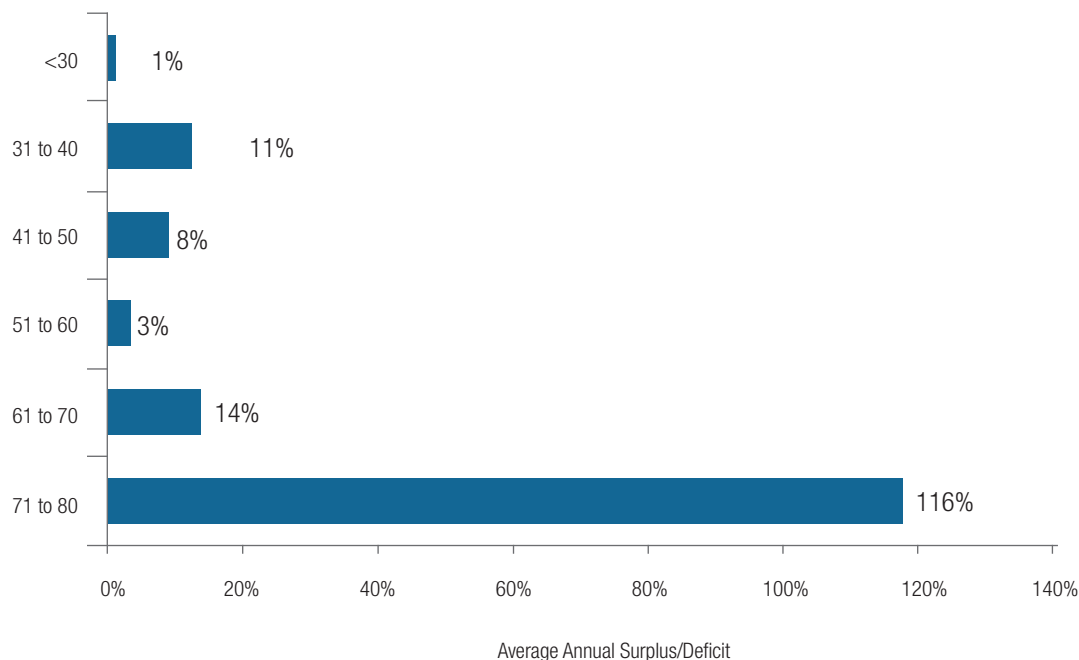
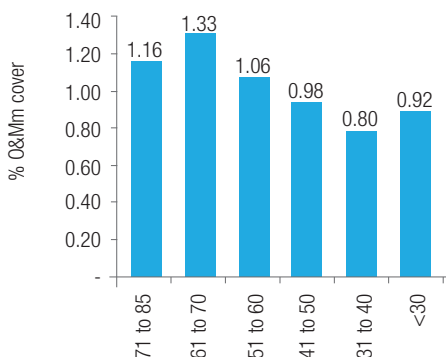


Figure 11: Average Operating Cost Recovery Ratio by Credit Index



There has been an improvement of the performance of the high creditworthiness WSPs (51-85) when compared to 2011. The average surplus has increased from 2% to 45% for the WSPs ranked as creditworthy. However, it is noted that the 71-85 range consist of only 1 WSP, which has significantly outperformed others. Low-creditworthy WSPs, on average, show a slight improvement to about 6%.

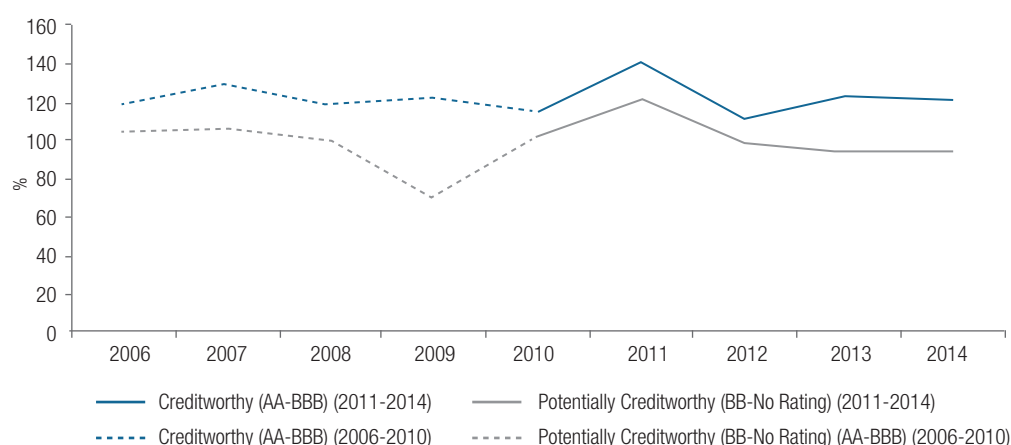
5.4.3 Operating Cost Recovery Ratio

The annual operating cost recovery ratio measures a WSP's ability to recover operating costs from operating revenue. This is an important indicator of creditworthiness as it reflects the amounts of free cash available, after expenses, for investment and debt service. The operating surplus depicts the WSP's ability to create reserves, write-off bad debts and service loans. The ratio is calculated by dividing the operating revenue by operating costs.

There has been deterioration in this ratio from 2010, when the average for low creditworthiness WSPs was roughly 101% with the current level at about 88%. This indicates no major changes in the ability of WSPs to build reserves, undertake capital works from own resources or service debt.

This ratio has remained fairly stable for high creditworthiness WSPs with 115% recorded in 2011 compared to the current of 118%. This indicates that the potential for better rated WSPs to service debt has remained strong.

Figure 12: Average O&M Coverage by Credit Score



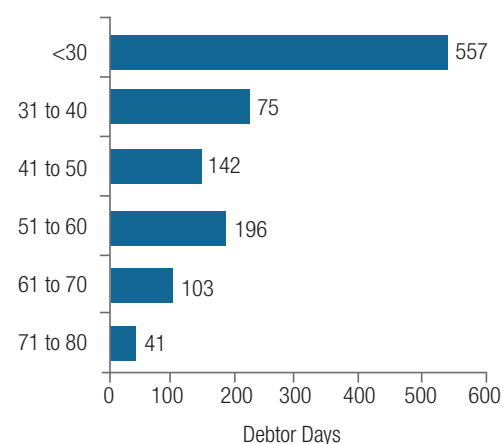
5.4.4 Debtor Days

The debtor days measures the revenue not paid but owed to the WSPs by debtors (accounts receivable) and indicates how quickly cash is being collected from billings. The longer it takes a WSP to collect accounts receivable, the greater the number of debtor days, and the less funds come into the firm.

Debtor days are a critical indicator of the cash flow position of a WSP. A WSP may be solvent in terms of having more assets than liabilities but not in terms of its cash position if billings are not readily converted into cash. Debtor days therefore have substantial impact on the liquidity of the WSP.

The average debtor days in 2011 assessment were 220 days. There has been an improvement across the board with the average debtor days at 188 days. The reduction in debtor days is encouraging. The average debtor days are however still far from the industry accepted norm of 45 to 60 days. WSPs with better index have lower debtor days.

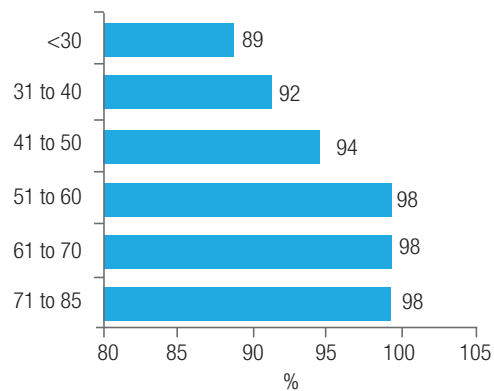
Figure 13: Average Number of Debtor Days by Credit Index



WSPs should seek to address outstanding debtors and institute provisioning for bad debts to improve their debtor days score. The Creditworthiness Index measures and gives higher scores for WSPs that have set bad debt provisioning policies.

Furthermore, through the 'reduction in the debtor days' indicator, the Creditworthiness Index acknowledges and rewards improvements in collections and cleaning up of the debtors' book. This emphasis is due to the high debtor days, mostly resulting from legacy debt inherited and mostly un-recoverable, affecting numerous WSPs. Efficient utilities would reduce this through collecting or writing off bad debt.

Figure 14: Collection Ratio 2013/14

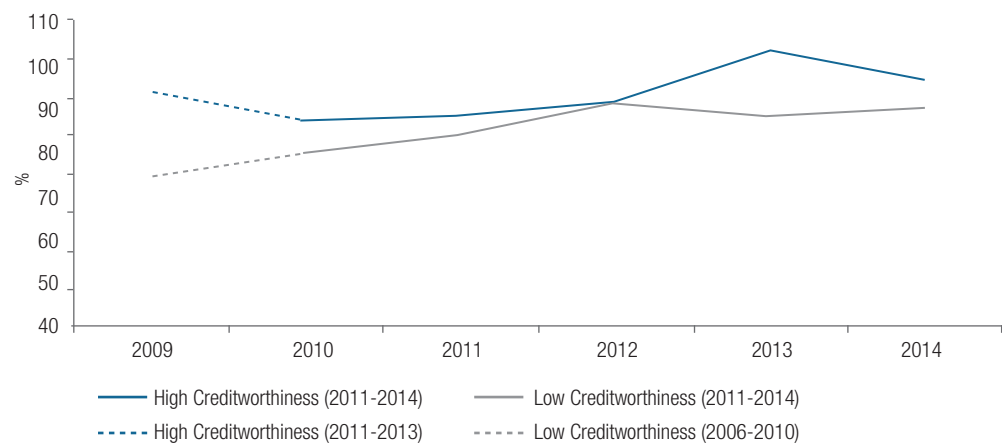


5.4.5 Collection Efficiency

Collection efficiency, the amount of cash collected against billing, measures the efficiency with which a WSP converts revenue into cash.

As Figure 14 indicates, most WSPs are above the acceptable minimum standard of 85% collection efficiency set by WASREB. It is worth noting that better rated WSPs have higher collection efficiencies. Figure 15 shows a historical trend of collection efficiency that indicates a steady improvement across both high creditworthiness and low creditworthiness WSPs. This could be attributable to an improvement in revenue collection systems and WSPs more aggressively pursuing debtors.

Figure 15: Average Collection Efficiency by Creditworthiness Index Rating



5.4.6 Billing Efficiency

Billing efficiency measures the monetary amount of water billed against the monetary value of water produced. Billing efficiency directly affects the revenue generation of the WSP.

Figure 16 indicates a clear relationship between creditworthiness and a WSP's billing efficiency, with higher rated WSPs having a better billing efficiency. Figure 17 shows that billing efficiency is an area where WSPs can achieve significant progress as there has been little improvement across both high creditworthiness and low creditworthiness WSPs from 2009 to 2014.

Figure 16: Billing Ratio by Creditworthiness Index Rating for 2013/14

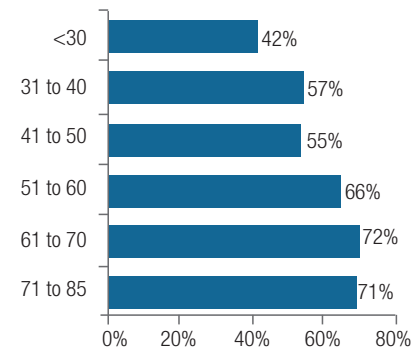
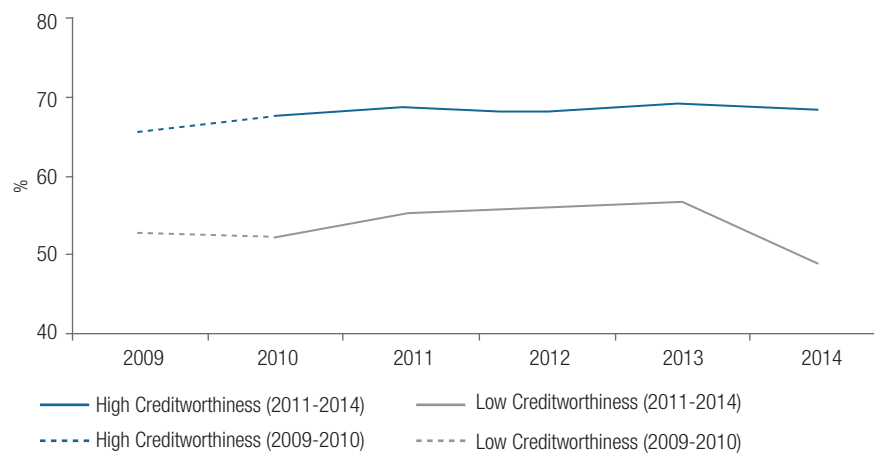


Figure 17: Average Billing Efficiency by Creditworthiness Index Rating



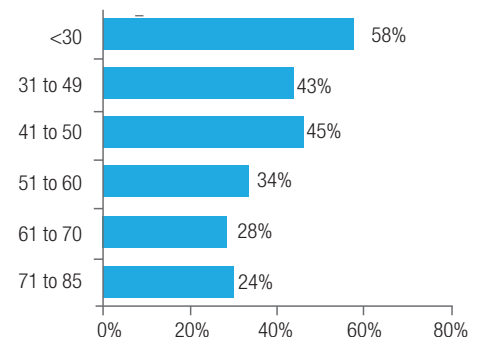
5.4.7 Non- Revenue Water

NRW, water lost through administrative and commercial delivery (theft and physical losses), directly affects cost coverage and profitability. NRW is one of the target indicators to address operational and financial efficiency. Due to the high Impact on performance, most WSPs should aim at a NRW ratio of 15% or less.

NRW ratio is affected by a number of factors including the state of infrastructure and information and monitoring systems of the WSP. For every WSP there will be a specific economic level of NRW where further expenditure to reduce NRW is not justified in terms of the expected return.

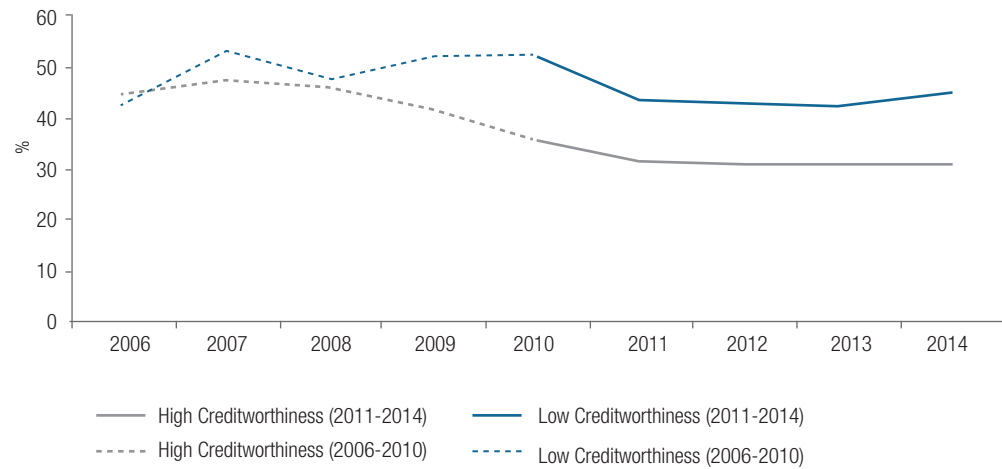
Despite general improvement, NRW in Kenya is still high. NRW reduction should remain one of the priority targets for interventions. This performance improvement is an area where the private sector can play a key role.

Figure 18: Average Non-Revenue Water by Creditworthiness Index Rating



Creditworthy WSPs have experienced greater reduction in NRW, justifying this indicator as one of the key contributing factors to the increase in operational surplus and creditworthiness.

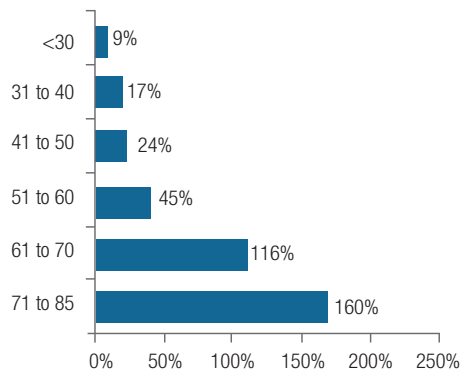
Figure 19: Average Non-Revenue Water by Creditworthiness Index Rating



5.4.8 Debt Service Cover Ratio

Debt service coverage measures level at which a WSP can service existing debt payments. Currently, few WSPs have long term debt in their books. The inclusion of debt service index does therefore not have significant impact on the overall consolidated indexes. However, this indicator will become very important as more WSPs begin to borrow.

Figure 20: Average Liquidity Ratio by Creditworthiness Index Rating



5.4.9 Cash Coverage Ratio

Cash coverage ratio measures the cash available over the current liabilities. It measures the ability of a WSP to meet its cash requirements in the short term. The better indexed WSPs show high liquidity ratios while the less well performing WSPs have less flexibility and needs more careful cash management to be able to meet commitments. Figure 20 shows the liquidity of the companies with a sizable difference between high creditworthiness WSPs and the others.

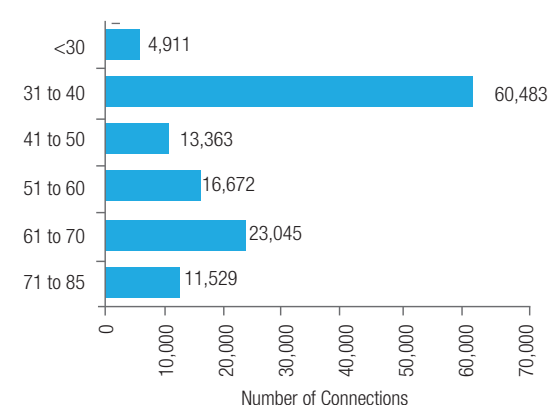
5.4.10 Size Versus Rating Comparison

Comparing the average active number of connections per creditworthiness rating seems to demonstrate a potential relationship between the size of a WSP with the creditworthiness. The 31-40 range is noted to have a much higher average number of connections. This is in part due to NWSC which is a much larger WSP by number of connections than any other WSPs and distorts the data. It is also noted that all very large utilities and many large utilities are in the 31-50 range (see Table 9).

Table 9: Comparison between Size of WSP and Creditworthiness

Rating	Number of WSPs by Size			
	Small	Medium	Large	Very Large
	< 5,000	5,000 - 9,999	10,000-34,999	> =35,000
71 to 85	-	-	1	-
61 to 70	1	-	2	-
51 to 60	-	4	5	0
41 to 50	3	4	7	-
31 to 40	1	5	3	3
<30	1	1	-	-

Figure 21: Average Size of WSP per Creditworthiness Index Rating



Conclusions

An actual assessment of credit risk can only be achieved through proper credit rating analysis. However, the Creditworthiness Index provides the market with an affordable and sustainable overview credit screening of WSP universe. It is a useful initial tool for lenders in determining which WSPs a potential borrowers and merit further credit review.

The Creditworthiness Index, in conjunction with the Impact report, provides lenders with a snap-shot of both the financial and operational performance of WSPs across the sector as well as insights into sector-wide trends and their key drivers.

The Creditworthiness Index suggests that thirteen WSPs can be considered as creditworthy in the domestic market, with a reasonable expectation of being able to service debt. However further credit assessment must be done by lenders and the size of loans may be limited due to the thin margins of operating cost covers in most WSPs.

The Creditworthiness Index provides WSPs a benchmark to measure overall creditworthiness as well as individual financial indicator performance against their peers. Further examination of the financial and operational indicators, in comparison to its peers, will assist WSPs to gauge performance and institute measures to improve business efficiency and creditworthiness.

The Creditworthiness Index provides the regulator information to identify financial management weaknesses in specific WSPs as well identify systemic problems in the historical trends in the sector.

Now that the index is established and incorporated in the annual sector reporting of the regulator, further analysis will be needed to verify the use and benefit by the three categories of stakeholders—utilities, lenders and governments/regulator. Once verified successful in Kenya, the benefits of the Creditworthiness Index should be replicable in other markets.

Annexure

7.1 Annexure A: The Ranges of Norms & Points Associated with the Different Performances

Indicators	Weight	Scoring				
		4	3	2	1	0
Technical Indicators						
Poverty Rate	3	0-20	20-40	40-60	60-80	80-100
Sanitation coverage	1	100	90-100	80-90	70-80	<70
Water coverage	1	100	90-100	80-90	70-80	<70
NRW	5	<20%	20-30%	30-40%	40-50%	>50%
No of staff per 1000 connections	3	<5	6	7	8	>8
Financial Indicators						
Revenue Indicators						
Revenue Diversification	6	<10%	10-30%	30-50%	50-70%	>70%
Average tariff Differential	4	>50%	35-50%	20-35%	5-20%	<5%
Cost Indicators						
Production cost Differential	4	>-50%	-35--50%	-20--35%	-5-20%	>-5%
Maintenance costs as % of OPEX	3	>8%	6-8%	6-4%	0-4%	>0%
Electricity as % of OPEX	2	<10%	10-15%	15-20%	20-25%	>25%
Employee costs /Total OPEX	2	<25%	25-30%	30-35%	35-40%	>40%
Percentage O&M coverage	4	>130%	120-130%	110-120%	100-110%	<100%

Indicators	Weight	Scoring				
		4	3	2	1	0
Profitability Indicators						
EBITDA/Revenue	5	>25%	20-25%	15-20%	10-15%	<10%
Liquidity & Solvency Indicators						
Grant dependency for OPEX	3	0%	0-10%	10-15%	15-20%	20-25%
Liquidity reserves as % of annual operating expenses	5	>25%	20-25%	15-20%	10-15%	<10%
Liquidity ratio	4	>1.6	1.5-1.6	1.4-1.3	1.2-1.3	<1
Debt Service Coverage Ratio	5	>1.8	1.5-1.8	1.3-1.5	1.2-1.3	<1.2
Debt/ Cash Flow Available for Debt Service	10	<0.9	0.9-1.7	1.7-3.3.	3.3-6.3	>6.3
Debt: Equity Ratio	5	<20%	20-30%	25-30%	30-35%	>35%
Debtor Days	5	<45 Days	45-60 Days	60-90 Days	90-120 Days	>120 Day
Reduction in debtor days over the last financial year	5	>25%	20-25%	15-20%	10-15%	<10%
Consumer bad debt provision% Cash provision for bad and doubtful debt	5	Provision for all debt older than 60	Provision for all debt older than 90 days	Provision for all debt older than 365 days	Ad hoc limited provision	No provision
Billing Ratio	5	95% and above	93% to 94%	90% to 92%	85% to 89%	< 85%
Collection Efficiency	5	95% and above	93% to 94%	90% to 92%	85% to 89%	< 85%

7.2 Annexure B: Historical Financials of Selected WSPs

Eldoret Water & Sanitation Company						
INCOME STATEMENT (KES Millions)	2009	2010	2011	2012	2013	2014
Total Revenue	289	297	456	410	418	461
Total Operating And Maintenance Expenditure	245	258	373	375	418	431
EBITDA	44	39	84	35	0	31
Interest Expense	2	2	1	1	1	1
Finance Cost KFW	40	34	27	25	20	15
Depreciation	72	73	77	80	85	85
Total Expenditure	358	368	478	481	525	532
Profit/ (Loss) Before Income Tax	(70)	(70)	(21)	(71)	(106)	(71)
Income Tax Expense/ Provision	-	-	-	-	-	-
Profit/ (Loss) After Tax	(70)	(70)	(21)	(71)	(106)	(71)
BALANCE SHEET STATEMENT (KES Millions)	2009	2010	2011	2012	2013	2014
Total non -current assets	2,169	2,153	2,130	2,244	2,232	2,187
Total current assets	309	345	408	442	448	498
Total assets	2,478	2,498	2,539	2,686	2,679	2,685
Short term borrowings (Interest and non-interest borrowing)						
Other current liabilities	164	189	217	256	332	389
Long term borrowings (interest and non-interest bearing)						
Other non-current liabilities						
Equity and reserves	2,314	2,309	2,322	2,430	2,347	2,297
Total Equity and Liabilities	2,478	2,498	2,539	2,686	2,679	2,685
CASHFLOW STATEMENTS (KES Millions)	2009	2010	2011	2012	2013	2014
Operating activities						
Cash generated from operating activities	(17)	22	(13)	9	25	12
Increase/ (Decrease) in cash	(17)	22	(13)	9	25	12
Movement in cash						
At the start of the year	25	8	29	16	25	12
Increase/ (Decrease) during the year	17	22	(13)	9	(13)	(1)
At the end of the year	8	29	16	25	12	11

Embu Water & Sanitation Company						
INCOME STATEMENT (KES Millions)	2009	2010	2011	2012	2013	2014
Total Revenue	92	122	147	155	168	216
Total Operating And Maintenance Expenditure	66	97	128	119	134	184
Interest Expense	1	0	0	0	2	2
Depreciation	19	19	19	20	39	41
Total Expenditure	86	116	148	140	174	227
Surplus/Deficit Before Tax	5	5	(1)	15	(7)	(11)
Income Tax Expense/ Provision				-	-	-
Profit/ (Loss) After Tax	5	5	(1)	15	(7)	(11)
BALANCE SHEET (KES Millions)	2009	2010	2011	2012	2013	2014
Total non -current assets	139	140	152	261	310	300
Total current assets	67	84	93	98	128	169
Total assets	206	224	245	359	438	470
Short term borrowings (Interest and non-interest borrowing)						
Other current liabilities	41	56	64	59	69	67
Long term borrowings (interest and non-interest bearing)						
Other non-current liabilities						
Equity and reserves	165	168	181	300	369	403
Total Equity and Liabilities	206	224	245	359	438	470
CASHFLOW STATEMENT (KES Millions)	2009	2010	2011	2012	2013	2014
Cash Generated From Operating Activities	23	20	21	26	15	4
Cash Generated From Investing Activities	(18)	(21)	(31)	(129)	(88)	(31)
Cash Generated From Financing Activities	(1)	(1)	14	109	75	45
Cash And cash equivalent movements for the year	4	(1)	4	5	1	17
Cash And cash equivalent movements at the end of the year	4	3	8	13	14	31

Kisumu Water & Sewerage Company						
INCOME STATEMENT	2009	2010	2011	2012	2013	2014
Total Revenue	239	286	322	386	399	441
Total operating and maintenance expenditure	225	268	306	372	382	426
Interest expense	-	-	1	1	5	3
Depreciation	6	6	8	7	9	8
Total expenditure	231	274	314	381	396	437
EBITDA	14	18	16	13	17	15
Margin						
Surplus (Deficit) before tax for the year	8	12	8	5	3	4
Income tax expense/ provision	0	(4)	(3)	(2)	(1)	(2)
Surplus (Deficit) after tax for the year	8	8	5	2	2	2
BALANCE SHEET STATEMENT (KES Millions)	2009	2010	2011	2012	2013	2014
Total non -current assets	318	316	46	67	97	80
Total current assets	38	41	150	179	219	258
Total assets	356	356	196	246	316	338
Short term borrowings (Interest and non-interest borrowing)	0	-	2	4	7	9
Other current liabilities	204	192	120	154	191	213
Long term borrowings (interest and non-interest bearing)	-	-	3	0	9	8
Other non-current liabilities	144	148	71	87	106	103
Equity and reserves	8	16	1	1	3	6
Total Equity and Liabilities	356	356	196	246	316	338
CASH FLOW STATEMENT (KES Millions)	2009	2010	2011	2012	2013	2014
Cash generated from Operating Activities	5	7	19	5	9	1
Cash generated from Investing Activities	(9)	(10)	(19)	(29)	(38)	9
Cash generated from Financing Activities	4	3	13	16	25	(5)
Cash and cash equivalent movements for the year	(0)	0	13	(9)	(4)	6
Cash and cash equivalent movements at the end of the year	1	1	15	6	3	9

Malindi Water & Sanitation Company						
INCOME STATEMENT (KES Millions)	2009	2010	2011	2012	2013	2014
Total Net Revenue	128	169	226	219	171	181
Total operating and maintenance expenditure	122	152	206	248	180	181
Interest expense	0	0	0	0	0	0
Depreciation	5	5	6	6	5	5
Total expenditure	127	156	212	254	185	186
EBITDA	7	17	20	(29)	(9)	(0)
Margin						
Surplus (Deficit) before tax for the year	2	12	15	(35)	(14)	(5)
Income tax expense/ provision	0	0	0	0	0	0
Surplus (Deficit) after tax for the year	2	12	15	(35)	(14)	(5)
BALANCE SHEET STATEMENT (KES Millions)	2009	2010	2011	2012	2013	2014
Total non -current assets	115	115	120	122	122	121
Total current assets	75	103	146	158	190	233
Total assets	190	218	266	280	313	354
Short term borrowings (Interest and non-interest borrowing)	79	77	115	165	208	259
Other current liabilities	18	22	16	25	34	24
Long term borrowings (interest and non-interest bearing)						
Other non-current liabilities	57	57	57	57	57	57
Equity and reserves	36	61	40	68	14	14
Total Equity and Liabilities	190	218	266	280	313	354
CASH FLOW STATEMENT (KES Millions)	2009	2010	2011	2012	2013	2014
Cash generated from Operating Activities	12	4	22	2	5	20
Cash generated from Investing Activities	(14)	(4)	(12)	(8)	(5)	(4)
Cash generated from Financing Activities	13	0	2	(6)	0	0
Cash and cash equivalent movements for the year	(2)	5	13	(16)	(5)	(21)
Cash and cash equivalent movements at the end of the year	2	12	15	(35)	(14)	(5)

Meru Water & Sewerage Services Trust						
INCOME STATEMENT (KES Millions)	2009	2010	2011	2012	2013	2014
Total Revenue	89	123	116	123	120	136
Total Operating And Maintenance Expenditure	101	106	91	106	108	115
Interest Expense	-	-				
Depreciation	6	6	7	8	8	8
Total Expenditure	107	112	97	114	116	123
EBITDA	(11)	17	25	17	12	21
Surplus (Deficit) before tax for the year	(17)	11	18	8	4	12
Income Tax Expense/ Provision	-	-	(6)	(4)	(2)	(4)
Surplus (Deficit) after tax for the year	(17)	11	12	5	1	9
BALANCE SHEET STATEMENT (KES Millions)	2009	2010	2011	2012	2013	2014
Total non -current assets	95	137	138	116	124	158
Total current assets	36	39	47	49	46	70
Total assets	130	175	186	165	171	228
Short term borrowings (Interest and non-interest borrowing)	-	-	-	-	-	-
Other current liabilities	15	60	89	66	32	56
Long term borrowings (interest and non-interest bearing)	-	-	-	-	-	-
Other non-current liabilities	44	38	12	8	7	32
Equity and reserves	71	116	84	91	131	140
Total Equity and Liabilities	130	213	186	165	171	228
CASH FLOW STATEMENT (KES Millions)	2009	2010	2011	2012	2013	2014
Cash generated from Operating Activities	29	25	(10)	(29)	35	41
Cash generated from Investing Activities	(4)	(6)	(14)	(8)	(3)	(28)
Cash generated from Financing Activities	-	6	7	(2)	1	26
Cash and cash equivalent movements for the year	25	24	(7)	(10)	(2)	39
Cash and cash equivalent movements at the end of the year	59	83	65	26	58	98

Murang'a Water & Sanitation Company						
INCOME STATEMENT (KES Millions)	2009	2010	2011	2012	2013	2014
Total Revenue	72	82	80	88	98	108
Total operating and maintenance expenditure	59	71	76	82	91	96
Interest expense	-	-	-	-	-	-
Depreciation	4	5	5	6	8	12
Total expenditure	63	76	81	88	99	108
EBITDA	14	11	4	6	7	12
Surplus (Deficit) before tax for the year	0	6	(1)	1	(2)	1
Income tax expense/ provision	3		1			0
Surplus (Deficit) after tax for the year	7	6	0	1	(2)	1
BALANCE SHEET STATEMENT (KES Millions)	2009	2010	2011	2012	2013	2014
Total non -current assets	27	38	45	67	94	12
Total current assets	25	23	21	28	38	38
Total assets	52	62	66	95	132	50
Short term borrowings (Interest and non-interest borrowing)	-	-	-	-	-	-
Other current liabilities	12	17	12	19	27	35
Long term borrowings (interest and non-interest bearing)	-	-	-	-	-	-
Other non-current liabilities	-	-	-	-	-	-
Equity and reserves	41	45	54	75	105	114
Total Equity and Liabilities	52	62	66	95	132	150
CASH FLOW STATEMENT (KES Millions)	2009	2010	2011	2012	2013	2014
Cash generated from Operating Activities	19	12	5	7	3	16
Cash generated from Investing Activities	(14)	(16)	(12)	(28)	(35)	(29)
Cash generated from Financing Activities	1	-	4	21	32	13
Cash and cash equivalent movements for the year	5	(4)	(3)	1	(0)	(0)
Cash and cash equivalent movements at the end of the year	8	5	2	3	3	2

Nanyuki Water & Sewerage Company						
INCOME STATEMENT (KES Millions)	2009	2010	2011	2012	2013	2014
Total Revenue	136	131	232	243	236	250
Total operating and maintenance expenditure	100	122	171	154	236	257
Interest expense						
Depreciation	9	10	12	17	18	27
Total expenditure	109	132	182	171	254	285
EBITDA	36	9	61	88	(0)	(7)
Surplus (Deficit) before tax for the year	27	(1)	50	71	(18)	(35)
Income tax expense/ provision	8		15	21	-	-
Surplus (Deficit) after tax for the year	19	(1)	35	50	(18)	(35)
BALANCE SHEET STATEMENT (KES Millions)	2009	2010	2011	2012	2013	2014
Total non -current assets	236	255	307	252	289	250
Total current assets	256	265	294	332	323	343
Total assets	492	520	601	584	612	593
Short term borrowings (Interest and non-interest borrowing)	-	-	-	-	-	-
Other current liabilities	65	42	58	85	118	132
Long term borrowings (interest and non-interest bearing)	-	-	-	-	-	-
Equity and reserves	427	478	543	499	495	460
Total Equity and Liabilities	492	520	601	584	612	593
CASH FLOW STATEMENT (KES Millions)	2009	2010	2011	2012	2013	
Cash generated from Operating Activities	28	33	20	31	(17)	
Cash generated from Investing Activities	(48)	(19)	(40)	(84)	(21)	
Cash generated from Financing Activities	1	11	30	29	26	
Cash and cash equivalent movements for the year	(19)	25	9	(24)	(12)	
Cash and cash equivalent movements at the end of the year	2	15	37	13	1	

Nyeri Water & Sewerage Company						
INCOME STATEMENT (KES Millions)	2009	2010	2011	2012	2013	2014
Total Revenue	224	273	294	323	337	370
Total O&M expenditure	135	181	197	229	240	276
VAT Refunds	29	28	27	26	24	23
Interest expense	47	46	44	45	50	50
Depreciation	29	28	27	26	24	23
Total expenditure	211	255	268	299	314	349
EBITDA	89	92	97	94	96	94
Surplus (Deficit) before tax for the year	13	24	32	32	34	38
Income tax expense/ provision	4	7	-	-	-	-
Surplus (Deficit) after tax for the year	9	16	32	32	34	38
BALANCE SHEET STATEMENT (KES Millions)	2009	2010	2011	2012	2013	2014
Total non -current assets	1,179	1,158	1,146	1,133	1,125	1,103
Total current assets	125	138	157	172	178	191
Total assets	1,304	1,296	1,302	1,305	1,303	1,294
Short term borrowings (Interest and non-interest borrowing)	-	-	-	-	-	-
Other current liabilities	62	74	80	81	86	92
Long term borrowings (interest and non-interest bearing)	1,181	1,123	1,072	1,021	970	919
Other non-current liabilities	-	-	-	-	-	-
Equity and reserves	61	99	150	203	247	283
Total Equity and Liabilities	1,304	1,296	1,302	1,305	1,303	1,294
CASH FLOW STATEMENT (KES Millions)	2009	2010	2011	2012	2013	2014
Cash generated from Operating Activities	63	102	86	79	101	95
Cash generated from Investing Activities	(55)	(52)	(58)	(54)	(64)	(49)
Cash generated from Financing Activities	37	(37)	(30)	(31)	(36)	(46)
Cash and cash equivalent movements for the year	45	14	(2)	(6)	1	1
Cash and cash equivalent movements at the end of the year	18	67	65	59	60	61

Ruiru Juja Water & Sewerage Company						
INCOME STATEMENT (KES Millions)	2009	2010	2011	2012	2013	2014
Total Revenue	32	43	73	80	93	127
Total operating and maintenance expenditure	30	33	56	76	82	110
Interest expense	-	-	-	-	-	-
Depreciation	1	1	1	2	5	5
Total expenditure	31	34	57	78	86	115
EBITDA	2	10	17	4	11	17
Surplus (Deficit) before tax for the year	1	9	17	2	7	12
Income tax expense/ provision	0	3	6	1	3	5
Surplus (Deficit) after tax for the year	1	6	11	2	4	8
BALANCE SHEET STATEMENT (KES Millions)	2009	2010	2011	2012	2013	2014
Total non -current assets	6	8	36	22	46	43
Total current assets	8	16	15	44	44	68
Total assets	14	24	51	66	90	111
Short term borrowings (Interest and non-interest borrowing)	0	0	0	0	0	0
Other current liabilities	6	9	18	21	28	41
Long term borrowings (interest and non-interest bearing)	0	0	0	0	0	0
Other non-current liabilities	0	0	0	0	0	0
Equity and reserves	8	15	33	45	62	70
Total Equity and Liabilities	14	24	51	66	90	111
CASH FLOW STATEMENT (KES Millions)	2009	2010	2011	2012	2013	2014
Cash generated from Operating Activities	1	5	18	6	8	24
Cash generated from Investing Activities	(2)	(1)	(2)	(6)	(28)	(3)
Cash generated from Financing Activities	-	-	0	7	13	0
Cash and cash equivalent movements for the year	(0)	4	17	8	(7)	22
Cash and cash equivalent movements at the end of the year	2	6	23	30	23	45

Thika Water & Sewerage Company					
INCOME STATEMENT (KES Millions)	2010	2011	2012	2013	2014
Total Revenue	158	275	402	416	432
Expenditure					
Total operating and maintenance expenditure	181	273	344	461	505
Interest expense	-	-	-	-	-
Depreciation	1	1	2	3	4
Total expenditure	182	274	346	463	508
EBITDA	(24)	1	58	(45)	(73)
Surplus (Deficit) before tax for the year	(24)	1	56	(48)	(77)
Income tax expense/ provision	-	-	-	-	-
Surplus (Deficit) after tax for the year	(24)	1	56	(48)	(77)
BALANCE SHEET STATEMENT (KES Millions)	2010	2011	2012	2013	2014
Total non -current assets	256	21	29	48	70
Total current assets	18	294	364	333	281
Total assets	274	315	393	381	351
Short term borrowings (Interest and non-interest borrowing)	-	-	-	-	-
Other current liabilities	75	111	119	169	215
Long term borrowings (interest and non-interest bearing)	-	-	-	-	-
Other non-current liabilities	-	1	14	-	-
Equity and reserves	199	204	260	212	136
Total Equity and Liabilities	274	315	393	381	351
CASH FLOW STATEMENT (KES Millions)	2010	2011	2012	2013	2014
Cash generated from Operating Activities	(204)	8	40	14	5
Cash generated from Investing Activities	205	(5)	-	8	17
Cash generated from Financing Activities	-	-	-	-	-
Cash and cash equivalent movements for the year	1	3	29	21	22
Cash and cash equivalent movements at the end of the year	1	5	33	26	9

7.3 Annexure C: Key Indicators by WSP

Water Service Provider	Annual % Surplus/Deficit	O&M Recovery	Debtor Days	Collection Efficiency	Billing Ratio	Liquidity (Cash) Ratio	Number of Connections
Nairobi City Water and Sewerage Company	-5%	0.88	105.69	91.29	0.61	0%	522,141
Mombasa Water Supply and Sanitation Company	0%	0.92	216.93	90.81	0.52	2%	43,337
Eldoret Water And Sanitation Company	-9%	1.07	348.92	99.73	0.65	12%	73,112
Nakuru Water And Sanitation Company Ltd	2%	0.96	252.16	95.14	0.68	6%	47,576
Thika Water and Sanitation Company	12%	1.13	173.71	99.81	0.68	5%	38,682
Nyeri Water And Sewerage Company	16%	1.47	108.48	100.24	0.81	273%	29,534
Meru Water And Sewerage Services	19%	1.16	679.51	116.18	0.71	151%	19,438
Nanyuki Water And Sewerage Company	7%	1.15	326.57	97.25	0.65	-30%	18,847
Embu Water And Sanitation Company	30%	1.30	189.36	80.98	0.64	52%	19,800
Murang'a Water And Sanitation Company	10%	0.99	99.54	97.36	0.65	10%	10,662
Malindi Water And Sewerage Company	3%	1.02	153.43	92.23	0.70	7%	18,594
Kisumu Water And Sewerage Company	2%	1.03	178.09	94.29	0.58	4%	42,839
Kakamega Busia Water Services Company	-33%	1.24	206.46	92.70	0.61	5%	28,342
Garissa Water And Sewerage Company	-11%	0.93	257.27	94.51	0.58	163%	10,752
Nyahururu Water And Sanitation Company	5%	1.05	118.02	97.25	0.51	4%	11,318
Nzoia Water And Sanitation Company Ltd.	-12%	0.90	0.00	92.62	0.62	2%	30,033
Kikuyu Water Company Ltd	29%	0.83	89.90	107.94	0.54	15%	5,533
Kericho Water And Sanitation Company	0%	1.00	119.68	93.35	0.55	4%	16,361
Kirinyaga Water And Sanitation Company	14%	1.09	161.72	98.32	0.34	20%	15,284
Kilifi Mariakani Water And Sewerage Company	6%	0.92	186.27	100.04	0.56	4%	15,517
Gusii Water And Sanitation Company	1%	0.74	272.90	82.14	0.52	8%	16,393
Mathira Water And Sewerage Company	29%	1.20	0.00	85.59	0.35	1%	9,097
Tililbei Water And Sanitation Company	ND	ND	912.60	90.83	0.40	17%	3,883
Sibo Water And Sanitation Company	-18%	0.49	162.50	93.19	0.47	5%	5,112
Tavevo Water And Sewerage Company	-35%	0.77	0.00	78.43	0.57	0%	7,077
Kwale Water And Sewerage Company	15%	0.83	305.07	85.93	0.68	1%	7,178
Nakuru Rural Water and Sanitation Services	-2%	0.81	632.00	95.14	0.36	0%	8,467
Ruiru Juja Water And Sewerage Co. Ltd	11%	1.16	40.98	98.42	0.71	160%	11,529
Limuru Water And Sewerage Co. Ltd	14%	1.05	156.24	86.74	0.68	58%	7,259
Mavoko Epza Water And Sewerage Co.	11%	1.06	153.93	92.99	0.54	17%	8,415
Isiolo Water And Sewerage Company	-10%	0.91	89.27	105.37	0.65	144%	7,156
Kitui Water And Sanitation Company	-4%	0.65	0.00	104.64	0.34	28%	7,571
Oloolaiser Water And Sewerage Company	3%	0.98	58.05	104.95	0.57	10%	6,126
Kiambu Water And Sewerage Co. Ltd	9%	0.86	0.00	105.17	0.62	22%	5,316
Machakos Water And Sewerage Ltd	1%	0.92	202.28	86.59	0.45	1%	5,939
Karuri Water And Sanitation Company	15%	0.93	79.54	92.46	0.75	18%	4,443
Kibwezi Makindu	-2%	0.75	87.88	94.90	0.73	15%	4,389
Maralal Water And Sanitation Company	145%	0.31	87.36	86.52	0.60	146%	1,329
Naivasha Water And Sanitation Company Ltd	22%	1.00	392.66	83.13	0.60	5%	2,426
Narok Water And Sanitation Company	18%	0.90	90.32	89.39	0.59	17%	2,372
Kiamumbi Water And Sanitation Company	ND	1.39	26.81	92.59	0.67	71%	919

7.4 Annexure D: Comparison between Creditworthiness Index Indicators and WaterCAT

Table 10 describes the alterations made from the WaterCAT methodologies to create the Creditworthiness Index. As the WaterCAT methodology relied heavily on qualitative analysis (management interviews, government support, staff capacity assessment, etc.), some indicators were introduced to the Creditworthiness Index to act as a proxy for qualitative analysis. Indicators, weightings and score ranges were retained from WaterCAT where applicable and available. Other indicators, weightings and score ranges were based on WaterCAT methodologies but also took into account input from local lenders' credit views and global standards. Many of the weightings of the indicators had to be increased from WaterCAT in order to replace the weighting of qualitative indicators not applicable in the Creditworthiness Index.

Table 10: Comparison between Creditworthiness Index Indicators and WaterCAT

Indicator	Definition	Reason for inclusion	Weight	Ranges of Indicator Scoring	Comments										
Technical indicators															
Poverty Rate	County poverty rates are derived by dividing the total number of poor people in each county in by the total population in each county	Indicates the strength of the economic base of the WSP's service coverage area.	3%	<table><tr><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr><tr><td>0-20</td><td>20-40</td><td>40-60</td><td>60-80</td><td>80-100</td></tr></table>	4	3	2	1	0	0-20	20-40	40-60	60-80	80-100	This is a proxy for Economic indicators used in WaterCAT. It is subjectively used as an indicator of challenges that may be faced by the WSP in applying cost reflective tariffs and providing an indication of the general potential economic activity in the area.
4	3	2	1	0											
0-20	20-40	40-60	60-80	80-100											
Poverty Rate (from WaterCAT)		Indicator not used in WaterCAT	N/A	N/A											
Sanitation Coverage	Number of people served with Sewerage Services/ Population of area	Indicates size of future financial burden	1%	<table><tr><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr><tr><td>100</td><td>90-100</td><td>80-90</td><td>70-80</td><td><70</td></tr></table>	4	3	2	1	0	100	90-100	80-90	70-80	<70	Indication of future funding required for increasing sanitation coverage. Indicators used are as a result of discussions between consultants and WASREB indicators based on Kenyan considerations.
4	3	2	1	0											
100	90-100	80-90	70-80	<70											
Sanitation Coverage (from WaterCAT)		Indicator used in WaterCAT for informational purposes	N/A	N/A											
Water Coverage	Number of people served with Water Supply Services/ Population of area	Indicates size of future financial burden	1%	<table><tr><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr><tr><td>100</td><td>90-100</td><td>80-90</td><td>70-80</td><td><70</td></tr></table>	4	3	2	1	0	100	90-100	80-90	70-80	<70	Indication of future funding required in increasing water coverage. Indicators used are as a result of discussions between consultants and WASREB indicators based on Kenyan considerations.
4	3	2	1	0											
100	90-100	80-90	70-80	<70											
Water Coverage (from WaterCAT)		Indicator used in WaterCAT for informational purposes	N/A	N/A											

Indicator	Definition	Reason for inclusion	Weight	Ranges of Indicator Scoring	Comments										
Non-Revenue Water	Total Volume of Water Lost from Commercial and Physical Losses as a proportion of Water Produced	Efficiency and credit quality; indicator of future funding burden to increase efficiency	5%	<table><tr><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr><tr><td>20</td><td>20-30</td><td>30-40</td><td>40-50</td><td>>50</td></tr></table>	4	3	2	1	0	20	20-30	30-40	40-50	>50	Indicators used are as a result of discussions between consultants and WASREB with indicators used being based on Kenyan and global standard considerations.
4	3	2	1	0											
20	20-30	30-40	40-50	>50											
Non-Revenue Water (from WaterCAT)	Total Volume of Water Lost from Commercial and Physical Losses as a proportion of Water Produced		4.4%		Similar ranges were used in WaterCAT.										
Staff /1000 Connection	Number of Staff Members divided by the total number of 1000 Connections	Efficiency	3%	<table><tr><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr><tr><td><5</td><td>6</td><td>7</td><td>8</td><td>>8</td></tr></table>	4	3	2	1	0	<5	6	7	8	>8	This is a proxy for WaterCAT's staff efficiency indicators i.e. Staff expenditure per 1000 connections. Staff per 1000 connections was based WASREB's standard derived from globally accepted norms
4	3	2	1	0											
<5	6	7	8	>8											
Staff /1000 Connection (from WaterCAT)		Indicator not used in WaterCAT	N/A	N/A											
Financial Indicators															
Revenue Indicators															
Total Revenue	Total revenue from water & sewerage sales, other income	Indicates size of turnover	For info only	N/A	Full Correlation with WaterCAT. This indicator is not scored in the index.										
Total Revenue (from WaterCAT)	Total revenue from water & sewerage sales, other income	Indicates size of turnover	For info only	N/A											
Revenue Diversification	The scoring of this indicator was done as the difference between the % residential revenue and % institutional	Indicates the degree of customer concentration and the ability of the WSP to cross-subsidize.	6%	<table><tr><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr><tr><td><10%</td><td>10-30%</td><td>30-50%</td><td>50-70%</td><td>>70%</td></tr></table>	4	3	2	1	0	<10%	10-30%	30-50%	50-70%	>70%	This is a proxy for financial indicators used in WaterCAT to show customer concentration risk & cross-subsidization. WaterCAT measured cross-subsidization as the proportion of spending on low income households. The more evenly the customer revenue is spread between residential and institutional/ commercial revenue the higher the score for the indicator.
4	3	2	1	0											
<10%	10-30%	30-50%	50-70%	>70%											
Revenue Diversification (from WaterCAT)		Indicator not used in WaterCAT	N/A	N/A											
Average Tariff Differential	This indicator scored as the difference between average tariff per cubic metre and production cost per cubic metre.	Indicates whether the utility is charging cost reflective tariffs	4%	<table><tr><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr><tr><td>>50%</td><td>35-50%</td><td>20-35%</td><td>5-20%</td><td><5%</td></tr></table>	4	3	2	1	0	>50%	35-50%	20-35%	5-20%	<5%	This is a proxy for financial indicators used in WaterCAT to show if tariff is cost reflective. The higher the difference between average tariff per m3 and production cost per m3the higher the score for the indicator.
4	3	2	1	0											
>50%	35-50%	20-35%	5-20%	<5%											
Average Tariff Differential (from WaterCAT)		Indicator not used in WaterCAT	N/A	N/A											

Indicator	Definition	Reason for inclusion	Weight	Ranges of Indicator Scoring	Comments										
Cost Indicators															
Total OPEX	Total Operational & Maintenance Expenditure	Indicates size of turnover	For info only	N/A	For reporting only. Not directly used in WaterCAT or Creditworthiness Index.										
Total OPEX (from WaterCAT)	Total Operational & Maintenance Expenditure	Indicates size of turnover	For info only	N/A											
Production Cost Differential	This indicator scored as the difference between production cost per cubic metre and the average tariff per cubic metre and.	Indicates whether utility is can sufficiently cover its costs	4%	<table><tr><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr><tr><td>>-50%</td><td>-35--50%</td><td>-20--35%</td><td>-5-20%</td><td>>-5%</td></tr></table>	4	3	2	1	0	>-50%	-35--50%	-20--35%	-5-20%	>-5%	This is a proxy for financial indicators used in WaterCAT to show if tariff is cost reflective. The higher the difference between production cost per m3 and the average tariff per m3 the higher the score for the indicator.
4	3	2	1	0											
>-50%	-35--50%	-20--35%	-5-20%	>-5%											
Production Cost Differential (from WaterCAT)		Indicator not used in WaterCAT	N/A	N/A											
Maintenance Costs /OPEX	Total Maintenance Costs divided by total operations and maintenance expenditure	Indicates whether the utility spends sufficiently on maintaining infrastructure.	3%	<table><tr><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr><tr><td>>8%</td><td>6-8%</td><td>6-4%</td><td>0-4%</td><td>0%</td></tr></table>	4	3	2	1	0	>8%	6-8%	6-4%	0-4%	0%	Lower maintenance expenditure is an indicator of likely deterioration in infrastructure. This leads to future high rehabilitation and refurbishment costs
4	3	2	1	0											
>8%	6-8%	6-4%	0-4%	0%											
Maintenance Costs /OPEX (from WaterCAT)	Total Maintenance Costs divided by total operations and maintenance expenditure	Indicates whether the utility spends sufficiently on maintaining infrastructure.	2.7%		8% is a commonly used norm in the civil engineering industry .WaterCAT also used the same approach but question was framed differently.										
Electricity Costs /OPEX	Total Electricity Costs divided by total operations and maintenance expenditure	Indicates whether utility is susceptible to changes in energy costs	2%	<table><tr><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr><tr><td><10%</td><td>10-15%</td><td>15-20%</td><td>20-25%</td><td>>25%</td></tr></table>	4	3	2	1	0	<10%	10-15%	15-20%	20-25%	>25%	Higher electricity costs expose the utility to inflation and forex pressure as these are passed on the end customer by power utilities. This is an important risk component but can vary significantly with topographical differences.
4	3	2	1	0											
<10%	10-15%	15-20%	20-25%	>25%											
Electricity Costs /OPEX (from WaterCAT)	Total Electricity Costs divided by total operations and maintenance expenditure	Indicates whether utility is susceptible to changes in energy costs	1.4%												
Employee Costs /OPEX	The employee costs (inclusive of salary, pension and other employee related benefits) as a % of Total OPEX	An indicator of efficiency	2%	<table><tr><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr><tr><td><25%</td><td>25-30%</td><td>30-35%</td><td>35-40%</td><td>>40%</td></tr></table>	4	3	2	1	0	<25%	25-30%	30-35%	35-40%	>40%	Higher employee costs indicate lower efficiency. This indicator reflects the target for larger utilities as used by WASREB. WaterCAT had more differentiation based on size of the utility. This was difficult to differentiate in the index and weighting was lowered
4	3	2	1	0											
<25%	25-30%	30-35%	35-40%	>40%											
Employee Costs /OPEX (from WaterCAT)	The employee costs (inclusive of salary, pension and other employee related benefits) as a % of Total OPEX	An indicator of efficiency	3.5%												

Indicator	Definition		Reason for inclusion	Weight	Ranges of Indicator Scoring					Comments										
Profitability/ Cost Recovery Indicators																				
Net Profit Margin	Profit for the year divided by Total Revenue		Measures profitability as a partial efficiency indicator.	ni	N/A					For reporting only. Not directly used in WaterCAT or Creditworthiness Index.										
Net Profit Margin (from WaterCAT)	Profit for the year divided by Total Revenue		Measures profitability as a partial efficiency indicator.	ni	N/A															
Profit (Loss)	Profit (loss) for the year		Profitability and creditworthiness	ni	N/A					For reporting only. Not directly used in WaterCAT or Creditworthiness Index.										
Profit (Loss) (from WaterCAT)	Profit (loss) for the year		Profitability and creditworthiness	ni	N/A															
Percentage O&M Coverage	Total revenue from water and sewerage sales divided by total operations and maintenance expenditure		Creditworthiness	4%	<table><tr><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr><tr><td>>130%</td><td>120-130%</td><td>110-120%</td><td>100-110%</td><td><100%</td></tr></table>					4	3	2	1	0	>130%	120-130%	110-120%	100-110%	<100%	The ranges stated with a utility not generating reserves to service debt or finance extensions awarded a 0. A norm of at least 130% was used as to highest benchmark. Beyond this it may be indicative of tariffs being too high and generational inequity
4	3	2	1	0																
>130%	120-130%	110-120%	100-110%	<100%																
Percentage O&M Coverage (from WaterCAT)	Total revenue from water and sewerage sales divided by total operations and maintenance expenditure		Creditworthiness	4.4%																
EBITDA/ Revenue	Earnings Before Interest Tax, Depreciation & Amortization divided by Revenue		Credit quality	5%	<table><tr><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr><tr><td>>25%</td><td>20-25%</td><td>15-20%</td><td>10-15%</td><td><10%</td></tr></table>					4	3	2	1	0	>25%	20-25%	15-20%	10-15%	<10%	Proxy for financial indicators used in WaterCAT to show profitability. This is also an indicator of a utility's ability to generate free cashflow that can be used to service debt.
4	3	2	1	0																
>25%	20-25%	15-20%	10-15%	<10%																
EBITDA/ Revenue	Indicator not used in WaterCAT		N/A	N/A	N/A															
Liquidity & Solvency Indicators																				
Cash Reserves	Cash reserves as % of annual operating income	Liquidity indicator		5%	<table><tr><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr><tr><td>>25%</td><td>20-25%</td><td>15-20%</td><td>10-15%</td><td><10%</td></tr></table>					4	3	2	1	0	>25%	20-25%	15-20%	10-15%	<10%	Correlated with WaterCAT. Reweighted due to importance in rating.
4	3	2	1	0																
>25%	20-25%	15-20%	10-15%	<10%																
Cash Reserves (from WaterCAT)	Cash reserves as % of annual operating income	Liquidity indicator		3%																
Liquidity Ratio	Liquidity ratio: Cash & Near Cash Reserves/ Current Liabilities	Liquidity indicator		4%	<table><tr><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr><tr><td>>25%</td><td>20-25%</td><td>15-20%</td><td>10-15%</td><td><10%</td></tr></table>					4	3	2	1	0	>25%	20-25%	15-20%	10-15%	<10%	This is a proxy for financial indicators used in WaterCAT to show liquidity. This is an indicator of the utilities ability to meet its immediate cash requirements.
4	3	2	1	0																
>25%	20-25%	15-20%	10-15%	<10%																
Liquidity Ratio (from WaterCAT)		Indicator not used in WaterCAT		N/A	N/A															

Indicator	Definition		Reason for inclusion	Weight	Ranges of Indicator Scoring	Comments										
Grant Dependency	The proportion of OPEX financed by income from Grants	An indicator of a utility's ability to cater for its costs and remain solvent without government assistance.	3%	<table><tr><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr><tr><td>0%</td><td>0-10%</td><td>10-15%</td><td>15-20%</td><td>>25%</td></tr></table>		4	3	2	1	0	0%	0-10%	10-15%	15-20%	>25%	High grant dependency for OPEX indicates the utility is unable to meet its revenue requirements and is unlikely to charge cost reflective tariffs.
4	3	2	1	0												
0%	0-10%	10-15%	15-20%	>25%												
Grant Dependency (from WaterCAT)	The proportion of OPEX financed by income from Grants	An indicator of a utility's ability to cater for its costs.														
Debt Service Coverage Ratio	Cash Flow Available for Debt Service / Total Debt Service (Interest + Principal Repayments).	Determines the debt service ability for a utility	5%	<table><tr><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr><tr><td>>1.8</td><td>1.6-1.8</td><td>1.4-1.6</td><td>1.2-1.4</td><td><1.2</td></tr></table>		4	3	2	1	0	>1.8	1.6-1.8	1.4-1.6	1.2-1.4	<1.2	Correlated with WaterCAT WaterCAT also used a figure of 1.8 as the highest benchmark which is relatively conservative as the financial sector considers loans from 1.3 upwards. Re-weighted to compensate for removal of qualitative WaterCAT questions.
4	3	2	1	0												
>1.8	1.6-1.8	1.4-1.6	1.2-1.4	<1.2												
Debt Service Coverage Ratio (from WaterCAT)	Cash Flow Available for Debt Service / Total Debt Service (Interest + Principal Repayments).	Determines the debt service ability for a utility	1.5%													
Debt/Cash available for Debt Service	Total Debt/ Cash flow available to service debt payments (Net Operating Cash flow + Interest Repayments)	Determines utility's ability to service debt	10%	<table><tr><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr><tr><td><0.9</td><td>0.9-1.7</td><td>1.7-3.3</td><td>3.3-6.3</td><td>>6.3</td></tr></table>		4	3	2	1	0	<0.9	0.9-1.7	1.7-3.3	3.3-6.3	>6.3	An indicator of a utility's ability to pay off its debt. This is not much scored in the Creditworthiness Index due to low number of utilities with debt but will become useful in the future as more utilities take on debt. WaterCAT did not consider this as debt was non-existent/ very low in 2010.
4	3	2	1	0												
<0.9	0.9-1.7	1.7-3.3	3.3-6.3	>6.3												
Debt/ Cash for Debt Service (from WaterCAT)		Indicator not used in WaterCAT	N/A	N/A												
Debt to Equity	Total Debt/Total Equity	Solvency	5%	<table><tr><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr><tr><td><20%</td><td>20-25%</td><td>25-30%</td><td>30-35%</td><td>>35%</td></tr></table>		4	3	2	1	0	<20%	20-25%	25-30%	30-35%	>35%	This is a proxy for financial indicators used in WaterCAT to show solvency. This is currently not critical as assets are not held on the utility's balance sheet but will become more important in future as the utility assumes more debt (and equity).
4	3	2	1	0												
<20%	20-25%	25-30%	30-35%	>35%												
Debt to Equity (from WaterCAT)		Indicator not used in WaterCAT	N/A	N/A												

Indicator	Definition	Reason for inclusion	Weight	Ranges of Indicator Scoring	Comments										
Debtor Days	Average number of days it takes WSP to collect monies billed. Net billed amount outstanding/ Total annual operating revenues excluding grants and transfers *365	Cash flow resilience. Measures the utility's ability to convert revenue into cash	5%	<table><tr><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr><tr><td><45 Days</td><td>45-60 Days</td><td>60-90 Days</td><td>90-120 Days</td><td>>120 Days</td></tr></table>	4	3	2	1	0	<45 Days	45-60 Days	60-90 Days	90-120 Days	>120 Days	Full Correlation with WaterCAT and Industry standards.
4	3	2	1	0											
<45 Days	45-60 Days	60-90 Days	90-120 Days	>120 Days											
Debtor Days (from WaterCAT)	Average number of days it takes WSP to collect monies billed. Net billed amount outstanding/ Total annual operating revenues excluding grants and transfers *365	Cash flow resilience. Measures the utility's ability to convert revenue into cash		<table><tr><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr><tr><td><45 Days</td><td>45-60 Days</td><td>60-90 Days</td><td>90-120 Days</td><td>>120 Days</td></tr></table>	4	3	2	1	0	<45 Days	45-60 Days	60-90 Days	90-120 Days	>120 Days	
4	3	2	1	0											
<45 Days	45-60 Days	60-90 Days	90-120 Days	>120 Days											
Reduction in Debtor Days	% Change in debtor days over the last financial year. (Debtor Days in Current Financial Year Less Debtor Days in previous Financial Year)/ Debtor Days in Current Financial Year	Indicative of improvements/ deterioration in debtor days to eliminate legacy debt	5%	<table><tr><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr><tr><td>>25%</td><td>20-25%</td><td>15-20%</td><td>10-15%</td><td><10%</td></tr></table>	4	3	2	1	0	>25%	20-25%	15-20%	10-15%	<10%	This indicator is used to determine improvements in collections and cleaning up of the debtors' book. It is specific to Kenya as it also to test whether to high debtor days are due to so called legacy debt inherited and mostly unrecoverable . Efficient utilities would reduce this through collecting or writing off bad debt.
4	3	2	1	0											
>25%	20-25%	15-20%	10-15%	<10%											
Reduction in Debtor Days (from WaterCAT)		Indicator not used in WaterCAT	N/A	N/A											
Bad Debt Provision	Cash provision for bad and doubtful debt / Consumer bad debt [Number of days before the provision made]	An indicator of credit quality as it shows the degree of management of debtor days.	5%	<table><tr><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr><tr><td>>60 Days</td><td>>90 Days</td><td>>180 Days</td><td>>365 Days</td><td>> 5 years</td></tr></table>	4	3	2	1	0	>60 Days	>90 Days	>180 Days	>365 Days	> 5 years	Correlated ranges with WaterCAT with adjustments to make the ranges in the Creditworthiness Index simpler to automate. Weighting reduced as reduction in outstanding debtors will impact on this indicator
4	3	2	1	0											
>60 Days	>90 Days	>180 Days	>365 Days	> 5 years											
Bad Debt Provision (from WaterCAT)	Cash provision for bad and doubtful debt / Consumer bad debt	An indicator of credit quality as it shows the degree of management of debtor days.	1.5%	<table><tr><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr><tr><td>>60 Days</td><td>90-365 Days</td><td>>365 Days</td><td>Adhoc Provision</td><td>No Provision</td></tr></table>	4	3	2	1	0	>60 Days	90-365 Days	>365 Days	Adhoc Provision	No Provision	
4	3	2	1	0											
>60 Days	90-365 Days	>365 Days	Adhoc Provision	No Provision											

Indicator	Definition		Reason for inclusion	Weight	Ranges of Indicator Scoring	Comments										
Billing Efficiency	% Utilities ability to bill water produced/ bought	Efficiency		5%	<table><tr><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr><tr><td>>95%</td><td>93-94%</td><td>90-92%</td><td>85-89%</td><td><85%</td></tr></table>	4	3	2	1	0	>95%	93-94%	90-92%	85-89%	<85%	Full Correlation of ranges with WaterCAT
4	3	2	1	0												
>95%	93-94%	90-92%	85-89%	<85%												
Billing Efficiency (from WaterCAT)	% Utilities ability to bill water produced/ bought	Efficiency		1.5%	<table><tr><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr><tr><td>>95%</td><td>93-94%</td><td>90-92%</td><td>85-89%</td><td><85%</td></tr></table>	4	3	2	1	0	>95%	93-94%	90-92%	85-89%	<85%	
4	3	2	1	0												
>95%	93-94%	90-92%	85-89%	<85%												
Collection Efficiency	Utilities ability to collect billed accounts. Collection efficiency: Utilities ability to collect billed accounts	Efficiency		5%	<table><tr><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr><tr><td>>95%</td><td>93-94%</td><td>90-92%</td><td>85-89%</td><td><85%</td></tr></table>	4	3	2	1	0	>95%	93-94%	90-92%	85-89%	<85%	Full Correlation of ranges with WaterCAT
4	3	2	1	0												
>95%	93-94%	90-92%	85-89%	<85%												
Collection Efficiency (from WaterCAT)	Utilities ability to collect billed accounts. Collection efficiency: Utilities ability to collect billed accounts	Efficiency		3%	<table><tr><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr><tr><td>>95%</td><td>93-94%</td><td>90-92%</td><td>85-89%</td><td><85%</td></tr></table>	4	3	2	1	0	>95%	93-94%	90-92%	85-89%	<85%	
4	3	2	1	0												
>95%	93-94%	90-92%	85-89%	<85%												

7.5 Annexure E: Creditworthiness Index Model Statistical Analysis

A regression analysis was performed to measure the interdependency between the indicator variables (see Annexure E) that create the overall Creditworthiness Index Score. The analysis segregated the variables to ensure they are independent of one another by dividing the test variables into two categories:

the dependent variables: the 'financial and credit management' variables, which are largely based on data from utility financial statements, and the independent variables: the non-financial internal and external factors used as predictors. The independent variables selected were Poverty Rate, , Water Coverage, NRW, Staff per 1000 Connections, Revenue Diversification and Average Tariff Differential.

The results of the statistical analysis on the model are shown in the table below:

Table 11: Summary Output of the Statistical Test

Table 14. Summary Output of the Statistical Test

REGRESSION STATISTICS					
Multiple R	0.9786				
R Square	0.9576				
Adjusted R Square	0.9219				
Standard Error	5.8495				
Observations	40				
ANOVA					
	df	SS	MS	F	Significance F
Regression	6	26,250.2587	4,375.0431	127.8624	2.1265E-21
Residual	34	1,163.3713	34.2168		
Total	40	27,413.6300			
	Coefficients	Standard Error	t stat	p-value	
Intercept	0	#N/A	#N/A	#N/A	
Poverty Rate	3.5192	1.4257	2.4684	0.0188	
Water Coverage	1.6184	4.0154	0.4030	0.6894	
Reduction in NRW	5.7779	0.8907	6.4867	0.0000	
Staff per 1000 Connections	-2.6502	1.0679	-2.4817	0.0182	
Revenue Diversification	0.1730	0.4264	0.4057	0.6875	
Average tariff differential	1.8015	0.4044	4.4552	0.0001	

The regression results show that 95.76% (R Square) of the variations in the financial scores are explained by the variations in the non-financial indicators selected. The model therefore provides a good fit with only a small variation (less than 4.3%) in financial scores that can be attributed to other factors other than the seven factors listed above. This is consistent with the F test, where critical F is estimated at 2.22, significantly less than the value for F shown in the ANOVA table above at 128. The significant F value is almost nil (2.1265E-20), consistent with good model fit.

It is however important to look at the significance of the individual variable parameters effecting the financial score and hence the Creditworthiness Index. This can be deduced from the p values from the table above. At 95% confidence level, the model shows that the most significant factors are NRW (with a p value of 0.0001), tariff, number of staff and poverty rate in that order.

Water coverage and revenue diversification (with p values close to 5%) are less significant and only explain about 1% of the variation (after a separate regression). This could be explained by the fact that none of the WSPs get significant revenues from other sources other than WSS charges. In addition, the WSS coverage, which is expressed by the percentage of the population served, appears to have low impact as WSP financial performance is affected more by water produced and sold irrespective of the population with access to WSS services.

The statistical significance of poverty rate is largely attributable to better tariffs realisation likely occurring where the poverty index is low. The regression analysis therefore suggests that WSPs wishing to increase their Creditworthiness Index score would have best results if they sought to:

1. reduce non-revenue water (NRW)
2. increase tariffs
3. reduce number of staff and staff costs



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