THE EFFECT OF WORKING CAPITAL MANAGEMENT ON THE PERFORMANCE OF WATER SERVICE PROVIDERS IN KENYA

BY

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DECLARATION

This research project is my original work and has not been submitted for the award of a degree in any other university.

Signed:……..…….. Date: ……

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This research project has been submitted for examination with my approval as university supervisor.

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DEDICATION

I dedicate this work to my lovely wife, Janice for her overwhelming support during my research. I could not have made it without your patience and encouragement. Thank you for your understanding and perseverance during the long days and weekends away from Dwain. This is for you dear.

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LIST OF ABBREVIATIONS

ACP - Average collection period

ASE - Athens Stock Exchange

CCC - Cash conversion cycle

MoWI - Ministry of Water and Irrigation

NSE - Nairobi Stock Exchange

NSE - Nairobi Securities Exchange

PCA - Principal Component Analysis

ROA - Return on Asset

ROE - Return on equity

SMEs - Small and Medium Enterprises

SPA - Service Provision Agreement

UFW - Un-accounted for water

WASREB - Water Services Regulatory Board

WCM - Working capital Management

WSBs - Water Service Boards

WSPs - Water Service Providers

ABSTRACT

The research aims to study the effect of working capital management on the performance of Water Service Providers (WSPs) in Kenya. Poor performance and inability to meet short term obligations has led WSPs to make untimely payments to equipment suppliers. This affects their overall objective and mandate which is to effective supply of water and sanitation services to their consumers. The objective of the study was therefore to investigate the effect of working capital management on the performance of WSPs in Kenya. The study adopted an explanatory research design and a population of 65 Urban WSPs in Kenya. The study conducted a census on all the 65 WSPs and used secondary data spanning a 5 year period (2010 to 2014) from the Water Service Regulatory Board (WASREB) and Kenya National Audit Office (KENAO) reports. Based on the results the study therefore recommends that urban WSPs in Kenya should apply effective working capital management strategies to reduce account receivable days translating to more investments for efficient service delivery; effective liquidity management strategies to reduce current liabilities translating to more allocation of cash for operational and maintenance and finally effective payable management strategies that will increase ROA and effectively improved performance.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Working capital is an important issue during financial decision making since it is being a part of investment in asset that requires appropriate financing investment. However, working capital is always disregarded in financial decision making since it involves investment and financing in the short term. Furthermore Sanger (2001) states that working capital acts as a restrain to financial performance, since it does not contribute to return on equity though, it should be critical for firms to sustain their short term investment since it will ensure the firm's financial ability in the longer term.

Firms may have an optimal level of working capital that maximizes their value. Large inventory and a generous trade credit policy may lead to high sales. Larger inventory reduces the risk of a stock-out. Trade credit may stimulate sales because it allows customers to access product quality before paying (Deloof, 2003). Another component of working capital is accounts payable. Delaying payments to suppliers allows a firm to access the quality of bought products, and can be an inexpensive and flexible source of financing for the firm. On the other hand, late payment of invoices can be very costly if the firm is offered a discount for early payment. This analysis hence brings to the point that a firm should have sound working capital management policies because working capital needs for a firm dictates its liquidity and profitability, and consequently affect its financing and investing decisions. Management of working capital demands a careful investigation as it plays a

fundamental part in the overall corporate strategy of creating value to the shareholder (Howarth and Westhead, 2003).

Working capital is regarded as the most crucial factor for maintaining liquidity, survival, solvency and profitability of a business (Mukhopadhyay, 2004). Every organization requires a necessary amount of working capital regardless of its size or nature of business. To achieve this, the organization must have better management of its working capital because better working capital management enables companies to achieve optimal balance between working capital components. Efficient management of working capital is fundamental to organizations as it plays a crucial role in creating shareholders' value (Afza and Nazir, 2007).

Working capital management deals with the management of all aspects of both current assets and current liabilities to minimise the risk of going bankrupt and at the same time increasing return on assets (Lynch, 2005). According to Eljelly (2004), it involves planning and controlling current assets and current liabilities in a manner that eliminates the risk of inability to meet short term obligations as they fall due and avoiding excessive investment in the current assets. This requires a combination of techniques which include cash management, inventory management, payables management and receivables management. According to Filbeck and Krueger (2005), the main objective of working capital management is to maintain an optimal balance between each of the working capital components.

1.1.1 Working Capital Management

Working capital management is a managerial accounting strategy that focuses on maintaining efficient levels of components of working capital, current assets and

current liabilities, in respect to each other (Brigham and Houston, 2007).Efficient management of working capital ensures a company has sufficient cash flow to meet its short-term debt obligations and operating expenses. While a company's prime objective is to maximize profitability and increase shareholders wealth, there is need to obtain a balance between liquidity and profitability in conducting the day to day operations to ensure its smooth running and that it meets its obligation of a company (Eljelly, 2004). Effective working capital management is vital in ensuring sustainable growth and development of the Water Service Providers (WSPs) in Kenya which will in turn boost their performance.

The dilemma in working capital management is to achieve a desired tradeoff between liquidity and profitability (Bhunia and Das, 2012).Referring to the theory of risk and return, investment with more risk will result to more returns. Thus, firms with high liquidity of working capital may have low risk and result in low profitability. Conversely, a firm that has low liquidity of working capital, and facing higher risk can result in high profitability. The issue is that in managing working capital, firms must take into consideration all the items in both accounts and try to balance the risk and return, by developing better working capital management policies.

Working Capital Management (WCM) can be measured by the Cash Conversion Cycle (CCC), i.e. the time lag between the expenditure for the purchases of raw materials and the collection of sales for finished goods or services. The longer this time lag, the larger the investment in working capital (Deloof, 2003). A longer CCC might increase profitability because it leads to higher sales in future. However, corporate profitability might also decrease with the CCC, if the costs of higher

investment in working capital rise faster than the benefits of holding more inventories and/or granting more trade credit to customer.

1.1.2 Organizational Performance

Every organization exists to achieve a particular goal. According to Yusuf, Gunasekaran and Dan (2007), organizational performance is the final achievement of an organization and comprises the existence of certain specified targets, a time period for achieving those specified targets and realization of efficiency and effectiveness. Thus, organizational performance refers to ability of an enterprise to achieve such objectives as high profit, quality product, large market share, good financial results, and survival at pre-determined time using relevant strategy for action (Koontz and Donnell, 2003).

Performance provides the basis for an organization to assess how well it is progressing towards its predetermined objectives, to identify its areas of strength and weakness and to decide on the future initiatives with the goal of how to initiate performance improvement (Claassen, Van Weele and Van Raaij, 2008). For WSPs in Kenya, their performance measures include operations and maintenance cost coverage (O+M cost coverage) that is measured by the total revenue divided by the total operating and maintenance expenditure; non-revenue water or un-accounted for water (UFW) that is a percentage of the difference between the volume of water produced and sold divided by volume of water sold; staff productivity per connections and the cost of water produced and treated. The O+M cost coverage, non-revenue water and staff productivity are items that would normally affect the statement of comprehensive income and by extension affect economic return. Economic return is highly related to the financial return which is measured by ROA.

Richard et al., (2009) also stated that some of the factors that affect organizational performance are: the lines of communication and the command connecting these individuals (organizational authority structure and the degree of centralization), the resources and information to which the individuals have access, the nature of the task faced by the individuals, and the type and severity of the crisis under which the individuals operate. Organizations which do not check adequately how well they are performing in their processes, procedures and plans experience lower performance and higher customer dissatisfaction and high employee turnover.

1.1.3 Effect of Working Capital Management on Firm's Performance

Firms with too few current assets may incur shortages and difficulties in maintaining smooth operations (Horne and Wachowitz, 2000). This adversely affects performance. Theoretically, the level of investment in current assets has a bearing on the performance of the firm in that, excess of investment in working capital casts a negative impact on the performance of the firm and positive impact on the liquidity. The greater the investment in current assets, the lower the risk, but also the lower the performance obtained (Afza and Nazir, 2007).

Efficient working capital management involves planning and controlling current assets and current liabilities in a manner that eliminates the risk of inability to meet short term obligations due on one hand and avoiding excessive investment in these assets on the other hand (Eljelly, 2004). Afya and Nazir (2007) further point out that the relationship between working capital management and performance depends on the strategy that the firm decides to pursue.

Efficient management of various working capital components carries a direct influence on a firm's financial performance. If WSPs adopt a working capital management policy that ensures shorter CCC with low number of days, then that will have a positive influence on performance as it is expected to reduce the need for external financing. Working capital management policies directed towards reduction of investment in working capital by minimizing the amount of inventory and accounts receivable plays a positive role in reducing inventory holding costs, including warehouse storage costs and insurance costs and that has a positive influence on performance (Yusuf , Gunasekaran and Dan,2007).

1.1.4 Water Services Providers in Kenya

Prior to the enactment of Water Act 2002, water management was undertaken by the District Water Officers and Municipalities**.** Netherlands Development Organization (2009) in its report noted that: "Many of these Water Service Providers were not sufficiently professional or commercially oriented, leading to poor performance and lack of sustainability. The low cost recovery and performance of the service providers resulted in high water losses, low water quality, erratic water rationing, insufficient maintenance, and deterioration of assets, thus causing a further decline in the service delivery. Moreover, water revenue was not ring-fenced; the little profit made was not fully ploughed back into the systems. Systems were therefore rarely expanded, despite the population growth" (Mumma, 2005).

WSPs should adopt aggressive working capital management policies. High risk, high return working capital policies and financing strategies are referred to as aggressive approaches; while lower risk and return strategies are referred to as moderate or matching; lower risk and return is called conservative approaches (Gitman, 2005).

Aggressive policy is promoted by those managers who want to achieve a high turnover with minimum stocks implied. The strategy of funding the required working capital based on short-term bank loans might involve some level of inconvenience. Hence, resorting to short term loans over medium and long-term loans can result in cost savings but this arrangement can also lead to insolvency in cases where the firm runs into inadequate resources. This is because there will be no immediate cash to sort the urgent resources needs (Gitman, 2005).

When a company financing its working capital through short term loans is faced with such a scenario, then it may be forced to call on other short term loans for financing the current urgent activity and this arrangement results into higher risks e.g. interest rate and default risks. This adversely affects the performance of the company (Deloof, 2003).

The water services sector has for long suffered from poor performance. According to Schwartz (2002), water companies in Kenya face service level coverage of less than 60%, high unaccounted for water often averaging between 40 and 60 per cent. These are problems attributed to poor working capital management measures. There is also an issue of no financial sustainability due to a combination of low tariffs, poor consumer records and inefficient billing and collection practices (Schwartz, 2007).

1.2 Research Problem

The capacity to provide clean water to the citizens of any country is a source of pride to any local and national government. Though WSPs are not profit oriented, they are supposed to be self-sustaining, both in the short and long term. The operational performance should reflect a surplus cash flow for reinvestment and this can only be possible if there is prudent management of short term assets and liabilities. Working

capital management is expected to have an effect on performance of WSPs. For instance a WSP with poor liquidity management measures is likely to experience inconveniences in their operations when an urgent need for cash arises. Activities like metering which arises from time to time will need adequate availability of cash to ensure smooth operations; if an organization has poor liquidity management procedures then it's likely to have inconveniences which will adversely affects performance of the organization.

According to WASREB (2009) performance report of water service providers in Kenya - IMPACT, WSPs unable to meet their short term obligations result in disruption of services which affects their distribution of water within their areas of supply. More often than not, WSPs have not been able to supply water to their consumers because of the inability to make timely payments to their suppliers. Charles and Ogollah (2014) states that WSP have been known to have high debt levels and illiquidity. It is worth noting that the current status of working capital among WSPs has not been conducive for better performance as cited by the performance of Gatamathi WSP (Charles and Ogollah , 2014). It therefore becomes important that WSPs develop an appropriate working capital management policy that will provide necessary short term cash to pay for their maturing obligations.

The effect of working capital on management is a topic that has widely been researched on. However; few studies have filled the knowledge gap in investigating the effect of working capital management among WSPs in Kenya. Mathuva (2010) conducted a study on working capital management components on corporate profitability of Kenyan Listed Firms in the NSE. Makori and Jagongo (2013) also conducted a study on the relationship between working capital management and firm

profitability. Data was obtained from financial reports for manufacturing and construction firms listed at the Nairobi Securities Exchange for the period ranging between 2003 and 2012.Mwangi, Muathe and Kosimbei (2014) analyzed the effects of working capital management on performance of non-financial firms listed at the Nairobi Securities Exchange for the period 2006-2012. Nyamao (2012) investigated the effect of working capital management practices on financial performance of small scale enterprises in Kisii South District in Kenya.

The previous studies conducted on working capital management left a knowledge gap in establishing the relationship between working capital management and firms' performance in water service provider firms in Kenya, this study sought to bridge the gap by undertaking a study on the same. The study sought to answer the question, what is the effect of working capital management on the performance of water service providers in Kenya?

1.3 Research Objectives

The study investigated the effect of working capital management on the performance of water service providers in Kenya.

1.4 Value of the Study

The understanding of the impact that working capital has on the performance of a WSP can help government policy makers and other stakeholders to design targeted policies and programs that will actively stimulate the growth and sustainability of the water service providers in the Kenya. Regulatory bodies such as WASREB and the Ministry Water and Irrigation (MoWI) can also use the findings of the study to improve on the framework for regulation.

The study findings can also benefit management and staff of WSPs who can gain insight into how their institutions can effectively manage their working capital. This study can offer an understanding on the importance of maintaining an optimal working capital and postulating the relationship that exists between the existing level of working capital and WSPs' performance. Several policies on the management of working capital that various WSPs can adopt will also be addressed.

This study creates a monograph which could be replicated in other sectors of the economy. Most importantly, this research contributes to the literature on the relationship between working capital management and performance. It is hoped that the findings are valuable to the academicians, who may find useful research gaps that may stimulate interest in further research in future based on the recommendations made on possible areas of future studies.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The chapter explores the literature that focuses on the area of the effect of working capital management on the performance of water service providers in Kenya. The chapter commences by reviewing the theories that inform the study. It then dwells on the empirical studies that discuss the link between working capital management and performance.

2.2 Theoretical Review

The study is hinged on various theories; these are the working capital management theory, finance theory and liquidity theory.

2.2.1 Working Capital Management Theory

The theory of working capital management describes how working capital should be managed and demonstrates the benefits in terms of liquidity, solvency and efficiency which accrue to the company from appropriately managing working capital (Brigham and Ehrhardt (2013), Gitman, 1997). Liquidity is affected by cash, credit, inventory, and accounts payable that form part of the overall cash flow of a business (Maness, 1994). Declining levels of liquidity, unless remedied, may result in insolvency and eventually bankruptcy as the business's liabilities exceed its assets. From the perspective of efficiency, the business that demonstrate the least working capital per dollar of sales can be considered as managing their working capital efficiently (Tully, 1994).

In the water service sector, liquidity theory aids in the understanding of efficiency in the operation of working capital per revenue generated from water. If the WSP uses least working capital to increase the water coverage area, sanitation coverage area, reduce the amount of unaccounted for water and improve metering which directly have an effect on boosting the revenue generated, then the WSP will be termed as being efficient according to the working capital management theory.

2.2.2 Finance Theory

Megginson (1997) states that finance theory is under three main threads: capital budgeting, capital structure and working capital management. Capital budgeting and capital structure decisions are mostly related with financing and managing long-term investments while working capital management concerns financial decisions about working capital related with financing and managing short-term investments that undertake both current assets and current liabilities simultaneously

In most cases short-term financial management is referred to as working capital management. Efficiency in working capital management is important because it directly affects liquidity and performance of any firm (Raheman and Nasr, 2007). According to Kargar and Bluementhal (1994) bankruptcy may also be likely for firms that put inaccurate working capital management procedures into practice, even though their performance is constantly positive. Hence, it must be avoided to recede from optimal working capital level by bringing the aim of profit maximization in the foreground, or just in direct contradiction, to focus only on liquidity and consequently pass over profitability. While excessive levels of working capital can easily result in a less revenue generation, inconsiderable amount of it may incur shortages and difficulties in maintaining day-to-day operations.

Higher amount of working capital enables a firm to meet its short-term obligations easier. This results to increased borrowing capability and decrease in default risk and consequential decrease in cost of capital and increase in firm value. Therefore, efficiency in working capital management affects not only short term financial performance in terms of revenue, but also long-term financial performance, i.e., firm value maximization (Moyer et al., 1992).

The finance theory is relevant to the study because it explains the effects of having poor working capital management policies which can either lead to poor revenue generation or shortages which affect the day to day operations of the WSP. Less amount of working capital in WSP will affect their day to day operations which ultimately may affect revenue generation. If for instance there is less working capital to fix an urgent metering situation or to increase water coverage in a certain area or to buy more piping material to increase water supply, then the WSP will lose revenue which it would have otherwise had, had it implemented proper working capital management policies in place.

2.2.3 Liquidity Theory

Liquidity theory as a function of current assets and current liabilities is an important factor in determining working capital policies and indicates firm's capability of generating cash in case of need (Jose, 1996).The theory states that current ratio, acid-test and cash ratios as traditional measures of liquidity are incompetent because these balance sheet based measures cannot provide detailed and accurate information about effectiveness of working capital management. Formulas used for calculating these ratios consider both liquid and operating assets in common. Besides, mentioned

traditional ratios are also not meaningful in terms of cash flows (Richards and Laughlin, 1980).

There is the use of ongoing liquidity measures in working capital management. Ongoing liquidity refers to the inflows and outflows of cash through the firm as the product acquisition, production, sales, payment and collection process takes place over time. As the firm's ongoing liquidity is a function of its CCC, it would be more appropriate and accurate to evaluate effectiveness of working capital management by CCC, rather than traditional liquidity measures (Pinches, 1992).

The theory is relevant in understanding the process used by WSP in maintaining cash inflow and outflow through revenue generation, receivables and payments. This ensures that the organizations are capable of generating cash in case of an emergency. Organizations with poor liquidity management measures are likely to experience inconveniences in their operations when an urgent need for cash arises. Activities like metering which arise from time to time need adequate availability of cash in order to be a success, if an organization has poor liquidity management procedures, then it's likely to have inconveniences which will adversely affect performance of the organization.

2.3 Determinants of Organizational Performance

Teruel and Solano (2005) suggested that managers can create value by reducing their firm's days of accounts receivable and inventories. Efficient receivables management augmented by a shortened creditor's collection period, low levels of bad debts and a sound credit policy often improves the businesses' ability to attract new customers and accordingly increase financial performance hence the need for a sound credit

policy that will ensure that WSP's value is optimized (Ross et al., 2008). Costs of cash discounts, losses of bad debts and costs of managing credit and credit collections constitute the carrying costs associated with granting credit which increases when the amount of receivables granted is increased. Lost sales resulting from not granting credit to customers constitute the opportunity cost which decreases when the amount of receivables is increased. Firms that are efficient in receivables management usually determine their optimal credit level which minimizes the total costs of granting credit.

2.3.1 Firm size

Firm size is another factor that has an effect on performance of the organization. Firm size can be measured in terms of the amount of total assets which a firm has. A firm with more resources enjoys economies of scale in its operations. It can also have easy access to loans because of its large amounts of securities.

Omondi and Muturi (2013) state that the large companies are found to have a competitive advantage over small firms as large firms have a wide array of resources and also enjoy economies of scale, hence are in a better position to compete in the market as compared to smaller companies.

2.4 Empirical Review

Deloof (2003) by using a sample of 1,009 large Belgian non-financial firms for the period of 1992-1996 used trade credit policy and inventory policy as measured by number of days accounts receivable, accounts payable and inventories, and the CCC as a comprehensive measure of working capital management to investigate the relationship between working capital management and financial performance. The study found a significant negative relation between gross operating income and the

number of day's accounts receivable, inventories and accounts payable. Thus, he suggests that managers can create value for their shareholders by reducing the number of day's accounts receivable and inventories to a reasonable minimum. He also suggests that less profitable firms wait longer to pay their bills.

The study by Deloof (2003) was conducted in Belgium and the concept used was trade credit and inventory policy. This portrayed both contextual and conceptual gaps which the current study will seek to fill. The study had contextual gap because it was conducted in a different context from the current study. The conceptual gap arises because the study evaluated working capital management using different variables from the current study.

Zariyawati, Annuar, Taufiq and Abdul (2009) conducted a study to examine the effect of working capital management and corporate performance in Malaysian firms. CCC was used as measure of working capital management. This study used panel data of 1628 firms which consist of six different economic sectors which are listed in Bursa Malaysia and the study period was 1996-2006. The coefficient results of Pooled OLS regression analysis provided a strong negative significant relationship between CCC and firm profitability. The study revealed that reducing cash conversion period results to profitability increase. The study also found that there was no significant relationship between debt ratio and performance of firms in the consumer product and trade service sectors. The study was conducted in Malaysia thus showing a contextual gap since the current study was conducted in Kenya. The study also showed conceptual gaps since it used CCC as a measure of working capital management while the current study used different variables.

Baveld (2012) carried out a study on the relationship between profitability and accounts receivables during current global crisis period. The study aimed at investigating how public listed firms in the Netherlands manage their working capital. The study compared two periods; the non-crisis period of 2004-2006 and the financial crisis period of 2008 - 2009. Baveld's findings reflected significant negative relationship between accounts receivables and gross operating profit during non-crisis period. On the other hand, during crisis period, no significant relation between these two variables was observed. The results of this study may suggest that the relationship between accounts receivables and firm's profitability is changed in times of a crisis in a way that some firms should not keep their accounts receivables at minimum in order to maximize profitability during crisis periods. The study presents a contextual gap because it was conducted in Netherlands while the current study was conducted in Kenya. The study investigated the relationship between profitability and accounts receivables while the current study investigated the effect of working capital management on performance of organizations. This presented a conceptual gap which the current study sought to fill.

A study by Lazaridis and Dimitrios (2005) on the influence of working capital management components on the performance of firms listed at the Athens Securities Exchange found out that firms which pursue increased levels of accounts receivables to an optimal level increase their profitability resulting from increased sales and market share. In a separate study by Sushma and Bhupesh (2007) ,the study affirmed that putting in place a sound credit policy ensures proper debt collection procedures and is pivotal in improving efficiency in receivables management hence the performance of the firms. The study by Lazaridis and Dimitrios (2005) was conducted in Greece and the current study was conducted in Kenya hence there was a contextual

gap which the current study sought to fill. The variables which acted as measures of working capital management are different from those of the current study hence there is a conceptual gap.

Nobanee and AlHajjar (2009) analyzed a sample of 2,123 Japanese non-financial companies listed in the Tokyo Stock Exchange for the period 1990-2004 and concluded that company managers can increase profitability by shortening the CCC, the receivables collection period and the inventory conversion period. The results also suggested that extending the payables deferral period could increase profitability. However, managers should be careful because extending the payables deferral period could damage the company's credit reputation and harm its profitability in the long run.

Delaying payments to suppliers allows companies to assess the quality of the products that were bought and can be an inexpensive and flexible source of financing. But we should bear in mind that late payment can have a very high implicit costs whenever early payment discounts are available. Since money is also locked up in working capital, the greater the investment in current assets, the lower the risk but also the lower the profitability obtained (Falope and Ajilore, 2009). The study presented a contextual gap because it was conducted in Japan. There was a conceptual gap presented by this study because it included CCC in the measures of working capital management, that is a concept which the current study has not included hence filling the conceptual gap which had been presented.

Abor (2007) conducted a study to examine the effect of debt policy on the financial performance of small and medium-sized enterprises (SMEs) in Ghana and South Africa. The study employed Panel data analysis to investigate the relations between

measures of debt policy and financial performance. Using various measures of performance, the results of this study indicate that debt policy influences financial performance, although not exclusively. By and large, the results indicate that debt policy, especially long-term and total debt ratios, negatively affect performance of SMEs. This suggests that agency issues may lead to SMEs pursuing very high debt policy, thus resulting in lower performance. The study presented both the conceptual research gap and contextual research gap. The study had contextual gap because it was conducted in Ghana and South Africa and there was a conceptual research gap because the study examined only one variable which is debt variable and the current study investigated more variables.

Akoto, Awunyo-Vitor and Angmor (2013) analyzed the relationship between working capital management practices and profitability of listed manufacturing firms in Ghana. The study used data collected from annual reports of all the 13 listed manufacturing firms in Ghana covering the period from 2005-2009. Using panel data methodology and regression analysis, the study found a significant negative relationship between Profitability and Accounts Receivable Days. However, the firms' CCC, Current Asset Ratio, Size, and Current Asset Turnover significantly positively influence profitability. The study presented contextual, conceptual and methodological gaps. The study was conducted in Ghana thus presenting a contextual gap. The variables under the study are different from those under the current study hence presenting a conceptual gap.

Luqman (2014) conducted a study on comparative analysis of working capital management of brewery companies in Nigeria. The study aimed to examine the cost of working capital and the effect on firm performance and to take a critical view of

the adopted liquidity measures of the Nigeria firm and attempt to see how it has been achieved. Secondary data were employed in this study from journals, textbooks and annual reports of the selected companies. The study used ratio analysis to analyze the data collected .Results of the study indicated that inventories and debtors ,Cash balances, Receivable Management and payables management significantly affected performance of breweries firms in Nigeria. The study presented a methodological gap because it used ratio analysis for its data analysis. The study also presented a contextual research gap because it was conducted in Nigeria.

Omesa et al. (2013) studied the relationship between working capital management and corporate performance of firms listed at the Nairobi Securities Exchange. A sample of 20 listed firms was selected and 5 years data ranging from 2007 to 2011 was collected. Principal component analysis technique is used for analysis due to its simplicity and its ability to extract required data from confusing data sets. By using Principal Component Analysis (PCA) and multiple regressions, working capital variables average collection period (ACP) and CCC, and control variables Net Working Capital Turnover Ratio, Fixed Financial Ration and Current Liabilities, the results indicated a significant relationship at 95% confidence with performance as measured by return on equity (ROE). There is a methodological research gap presented by the study since it used principal component analysis for analysis of data. The current study sought to fill this research gap by using a multiple linear regression model. The variables considered under the study as measures of working capital management are not the same as those in the current study. The current study used different variables in an attempt to fill this conceptual research gap.

A study was conducted by Makori and Jagongo (2013) to establish the effect of working capital management on firm Profitability. The study used a balanced panel data to analyze the effect of working capital management on firm's profitability in Kenya for the period 2003 to 2012. Pearson's correlation and Ordinary Least Squares regression models were used to establish the relationship between working capital management and firm's profitability. The results of the study revealed that there is a negative relationship between profitability and number of day's accounts receivable and CCC, but a positive relationship between profitability and number of days of inventory and number of day's payable. Moreover, the financial leverage, sales growth, current ratio and firm size also have significant effect s on the firm's profitability. The focus on profitability as a measure of performance presented the conceptual research gap of this study. The current study included other measures of performance and not just the financial performance.

2.5 Summary of Literature Review

The review of literature showed that there is methodological, contextual and conceptual research gaps in previous studies conducted both globally and locally on working capital management and performance. Studies by Zariyawati, Annuar, Taufiq and Abdul (2009), another study by Abor (2007) and Akoto, Awunyo-Vitor and Angmor (2013) presented all the three research gaps that is contextual research gap conceptual research gap and methodological research gap. Other reviewed studies presented conceptual and contextual research gaps for example studies by Deloof (2003) and Baveld (2012. In the Kenyan context, studies by Makori and Jagongo (2013) and Omesa et al. (2013) presented both conceptual and methodological

research gaps. The current study sought to fill all the three research gaps by investigating the effect of working capital management on performance of water service providers in Kenya. The study focused on three variables namely; account receivables, liquidity ratio and payables ratio.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter discusses the type of research design, target population, sample design, data collection, pilot test and data analysis.

3.2 Research Design

Research design refers to how data collection and analysis are structured in order to meet the research objectives through empirical evidence economically (Cooper and Schindler, 2006). The research design that was employed is explanatory study design. Explanatory study designs are important in answering the "how" questions. Such designs seek to explain how one variable affects another. The use of the explanatory research is considered appropriate to use any time there is need to clarify a perceived problem. Whenever there is a problem, it is important to completely understand it before solving it and the use explanatory research to address such a problem is recommended (Gill and Johnson, 2010). Explanatory study design was preferred because the study sought to investigate the effect of working capital management on the performance of water service providers in Kenya.

3.3 Population

The population of the study was 65 urban WSPs in Kenya as at December 2014 according to WASREB report attached in Appendix I. According to WASREB WSPs are clustered into very large, large, medium and small as shown in the table below.

The population was justified on the basis that the secondary data on working capital management would be on a company to company basis.

Urban WSPs	**Number of WSPs**
Very Large	5
Large	22
Medium	13
Small	25
Total	**65**

3.4 Sample

The study conducted a census of the 65 Urban WSPs in Kenya because the number of urban water service providers are few.

3.5 Data Collection

The study used secondary data collated from audited financial statements submitted to KENAO. The data collected was on account receivables, liquidity ratio, payables ratio and ROA for a study period spanning from 2010 to 2014.

3.6 Validity and Reliability

The financial data is audited by KENAO. WASREB monitors, evaluates and reports on the performance of WSPs through their Water Regulation Information System (WARIS).

3.7 Data Analysis

Data analysis was done through inferential statistics. The particular inferential statistics used was correlation and regression analysis. The tool of analysis was the statistical Package for Social Science (SPSS v.20). The results were presented using tables and figures to give a clear picture of the research findings at a glance.

This study applied a multiple regression model to establish the relationship between the dependent variable and the independent variables. The multiple regression analysis was used because there is more than one independent variable. The model took the following format:

$$\mathbf{Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon}$$

Where **Y** – Return on Assets

$\mathbf{X_1}$ – Accounts receivables

$\mathbf{X_2}$ – Liquidity ratio

$\mathbf{X_3}$ – Payables ratio

$\mathbf{X_4}$ – Firm size

ε – Is the error term which is assumed to be normally distributed with mean zero and constant variance

β – Parameters to be estimated

Accounts receivables was measured as the number days it takes to receive payments from a debtor. Payable ratio was measured as the ratio of the amount of payables to

Total assets. Liquidity ratio was measured as the ratio of current assets to current liabilities. Performance of the WSPs was measured using ROA. This is because the O+M cost coverage, non-revenue water and staff productivity are items that by extension affect economic return which is highly related to ROA. In this study, the level of significance was 5% which means that all statistical tests were done and compared against the 5% level of significance.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

In this chapter, the data collected during the research was analyzed and reported. This study was executed to achieve the stated objectives. Both descriptive statistics and inferential statistics were presented.

4.2 Response Rate

Financial information from 65 urban WSPs was sampled and collated from financial statements submitted to WASREB and KENAO. Financial data collated and analysed was net trade receivables (debtors), revenue from water and sewerage sales, payables amounts, total assets, current assets and current liabilities.

4.3 Data Validity

The financial data is audited by KENAO. WASREB monitors, evaluates and reports on the performance of WSPs through their Water Regulation Information System (WARIS).

4.4 Descriptive Statistics

	Mean	Standard Deviation	Minimum	Maximum
Account receivables (days)	285.76	172.856	17	685
Payables ratio	1.76289	1.481331	0.01	4.92
Liquidity ratio	5.160	6.292926	0.03	22.7

Size (Kes)	18.291	1.523833	14.011	22.145
ROA ratio	0.0073	0.453633	-2.743	2.487

Table 1: Descriptive Statistics

The descriptive result in Table 2 above illustrates the mean, maximum value, minimum value and the standard deviation of the study variables. The average number of account receivable days was 285.76 days with maximum number of days recorded being 685 and minimum being 17 days. The standard deviation in the accounts receivables among the WSPs was 172.856 which indicated a wide variation in the number of days for accounts receivable among the companies. The mean payables ratio was 1.7628.The minimum payables ratio recorded in the study period was 0.01 and the maximum was 4.92. Payables ratio had a standard deviation of 1.481 which implies that the urban WSPs had wide variations in payables ratio in the study period.

Liquidity ratio had a mean value of 5.16. The highest liquidity ratio value recorded among the urban WSPs in the study period was 22.7 and the minimum was 0.03. The standard deviation of liquidity ratio among the companies was 6.293 which indicated a wide variation in the liquidity ratio among the companies. The average logarithm of total assets was 18.291.The maximum value was 22.145 and the minimum value was 14.011. The standard deviation was 1.523 which indicated a small variation in the total assets of the urban WSPs in Kenya in the study period. The mean return on assets among the Urban WSPs in Kenya in the study period was 0.73. The maximum ROA was 2.487 and the minimum was -2.743. The standard deviation of ROA was 0.453 which implied a wide variation in ROA among the companies.

4.5 Correlation Analysis

		Account receivables	Payables ratio	Liquidity ratio	size	ROA
Account receivables	Pearson Correlation	**1**	-.353**	-.257**	.104	-.276**
	Sig. (2-tailed)		.000	.000	.060	.000
	N	325	325	325	325	325
Payables ratio	Pearson Correlation	-.353**	**1**	.502**	.0001	.327**
	Sig. (2-tailed)	.000		.000	.994	.000
	N	325	325	325	325	325
Liquidity ratio	Pearson Correlation	-.257**	.502**	**1**	.048	.305**
	Sig. (2-tailed)	.000	.000		.392	.000
	N	325	325	325	325	325
size	Pearson Correlation	.104	.0001	.048	**1**	.202**
	Sig. (2-tailed)	.060	.994	.392		.000
	N	325	325	325	325	325
ROA	Pearson Correlation	-.276**	.327**	.305**	.202**	**1**
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	325	325	325	325	325

Table 2: Correlation Results

4.6 Regression Analysis and Hypothesis Testing

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.451a	0.203	0.193	0.4074077

Table 3: Coefficient of Determination

The relationship between the predictor variables (account receivables, payables ratio and liquidity ratio), controlled by size of the company, was investigated using a regression analysis. The regression analysis results presented in Table 4.3 indicates that the coefficient of determination (R squared) was 0.203 which implies that 20.30% of the changes in ROA is explained by the independent variables (account receivables, payables ratio and liquidity ratio) while 79.70 % of the variations in ROA are explained by other factors not included in the model.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	13.56	4	3.39	20.423	.000
	Residual	53.114	320	0.166		
	Total	66.674	324			
a Dependent Variable: ROA						
b Predictors: (Constant), Size, Payables ratio, Account receivables, Liquidity ratio						

Table 4: Overall Model Significance

Results in table 4 presents the overall model significance. The results indicate that the overall model was significant. The reported F statistic of 20.423 in table 4.4 was larger than the F critical (F tabulated). The reported p value was lower than the critical

p value of 0.05. The findings imply that the independent variables are good joint predictors of ROA.

	β	Std. Error	t	Sig.
(Constant)	-1.17	0.275	-4.259	0.000
Account receivables	-0.001	0.00014	-3.621	0.000
Payables ratio	0.055	0.018	3.025	0.003
Liquidity ratio	0.011	0.004	2.646	0.009
size	0.064	0.015	4.267	0.000
Dependent Variable: ROA				

Table 5: Regression Coefficients

ROA= -1.117 – 0.001 Accounts receivables + 0.011 Liquidity ratio + 0.055 Payables ratio.

The regression coefficients and their associated t statistics and p values are presented in Table 5 above. The results indicate that there is a negative and significant relationship between account receivables and ROA. This finding was supported by a regression coefficient of -0.001 and a p value of 0.000. The reported p value was less than the critical p value of 0.05. A regression coefficient of -0.001 implies that a one unit increase in account receivables leads to a 0.001 decrease in ROA.

The results also indicate that there is a positive and significant relationship between payables ratio and ROA (B=0.055, P value =0.003). The p value was less than the critical p value of 0.05. A beta coefficient of 0.055 implies that a one unit increase in payables ratio leads to a 0.055 units increase in ROA. The relationship between Liquidity ratio and ROA was also found to be positive and significant (B=0.011, P value =0.009). The p value was less than the critical p value of 0.05. A beta

coefficient of 0.011 implies that a one unit increase in liquidity ratio leads to a 0.011 units increase in ROA. The study findings also revealed that the moderating effect of size on ROA was positive and significant (B=0.064, P value =0.000). The p value was less than the critical p value of 0.05. A beta coefficient of 0.064 implies that a one unit increase in total assets leads to a 0.064 units increase in ROA.

4.7 Discussions of Research Findings

The results indicated that the ROA for Urban WSPs in Kenya rose to rose from -1.1% in the year 2010 to 1.2% in 2011 and in the year 2012, the urban WSPs had a decrease in the mean ROA to -0.6%. The number of days for account receivables was low in 2010 and increased to 292.08 days in the year 2011 before decreasing to 274.02 days in the year 2012.The next two years showed a steady increase to 304.18 account receivable days in the year 2014. The urban WSPs in Kenya had an increasing liquidity ratio until 2012 after which it started to decrease. The mean liquidity ratio rose from 4.48 in 2010 to 5.79 in 2012. The liquidity ratio then started decreasing until it reached a value of 4.94 in the year 2014. In the year 2010, the mean payables ratio was 1.818,a figure which decreased to 1.651 in the year 2014. In the year 2014, there was a gradual increase in the mean assets.

The study sought to investigate the effect of working capital management on the performance of water service providers in Kenya. The correlation analysis revealed that the association between account receivables and payable ratio was negative and significant (R= - 0.353, p value=0.000). This implies that an increase in account receivables days is associated with a decrease in payables ratio. Account receivables and liquidity ratio were negatively and significantly associated (R= - 0.257, p value =0.000) implying that an increase in account receivables days is associated with a

decrease in liquidity ratio. The association between account receivables and ROA was also found to be negative and significant (R= - 0.276, p value =0.000) implying that an increase in the number of account receivable days is associated with a decrease in ROA. Further findings revealed a positive and significant association between payables ratio and liquidity ratio (R= 0.502, p value =0.000). The implication is that an increase in payables ratio is associated with an increase in liquidity ratio. Payables ratio also had a positive and significant association with ROA (R= 0.327, p value =0.000) which implies that an increase in payables ratio is associated with an increase in ROA. The association between liquidity ratio and ROA was found to be positive and significant (R= 0.305, p value =0.000) implying that an increase in liquidity ratio is associated with an increase in ROA. The study findings also revealed a positive and significant association between size of the company and ROA (R= 0.202, p value =0.000) which implies that an increase in size of the company is associated with an increase in ROA.

The regression results indicated that there is a negative and significant relationship between account receivables and ROA (Beta=-0.001, P value=0.000). A regression coefficient of -0.001 implies that a one unit increase in account receivables leads to a 0.001 decrease in ROA. The findings of the study are consistent with the findings of a study by Deloof (2003) which also found a significant negative relation between gross operating income and the number of day's accounts receivable and accounts payable. The findings of this study are also consistent with the findings of a study by Baveld (2012) which found that there is a significant negative relationship between accounts receivables and gross operating profit during non-crisis period.

The results also indicate that there is a positive and significant relationship between payables ratio and ROA (B=0.055, P value =0.003). A beta coefficient of 0.055 implies that a one unit increase in payables ratio leads to a 0.055 units increase in ROA. The findings of the study are consistent with the findings of a study by Nobanee and AlHajjar (2009) which concluded that there is a positive relationship between payables and profitability and that extending the payables deferral period could increase profitability. Delaying payments to suppliers allows companies to assess the quality of the products that were bought and can be an inexpensive and flexible source of financing. The findings are also consistent with the findings of a study by Luqman (2014) which found out that payables management significantly affected performance of breweries firms in Nigeria.

The study findings also revealed that the relationship between liquidity ratio and ROA was positive and significant (B=0.011, P value =0.009). A beta coefficient of 0.011 implies that a one unit increase in liquidity ratio leads to a 0.011 units increase in ROA. The findings of the current study are consistent with the findings of a study by Akoto, Awunyo-Vitor and Angmor (2013) which found a significant negative relationship between Profitability and Accounts Receivable Days and a positive relationship between liquidity ratio and performance. The findings are however inconsistent with the findings of a study by Zariyawati, Annuar, Taufiq and Abdul (2009) which found out that there was no significant relationship between debt ratio and performance of firms in the consumer product and trade service sectors.

The moderating effect of size on ROA was positive and significant (B=0.064, P value =0.000). The p value was less than the critical p value of 0.05. A beta coefficient of 0.064 implies that a one unit increase in total assets leads to a 0.064 units increase in

ROA. Results in the current study are also consistent with that of a study by Makori and Jagongo (2013) which found that firm size and payables have a significant effect on the firm's profitability.

The findings, indicated that there was a negative and significant relationship between account receivables and ROA. The relationship between payables ratio and ROA was positive and significant. Similarly, liquidity ratio and ROA were positively and significantly related. The moderating effect of size on ROA was positive and significant.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter provides a summary of findings, conclusions and recommendations of the study.

5.2 Summary of Findings

Chapter One gave an overview of the performance of water service providers in Kenya, discussed the problem statement and presented the objective of the study**.** The main problem was that the performance of water service providers in Kenya has been poor as WSPs are unable to meet their short term obligations which results in disruption of services which ultimately affects their distribution of water within their areas of supply. More often than not, WSPs have not been able to supply water to their consumers because of the inability to make timely payments to their suppliers. Many WSPs have been known to have high debt levels and illiquidity. All this is as a result of poor working capital management. The objective of the study was therefore to investigate the effect of working capital management on the performance of water service providers in Kenya.

Chapter Two gave a brief review of theories that inform the study. Working Capital Management theory, Finance theory and Liquidity theory were found to be useful in informing the theoretical underpinnings of this study. The empirical literature was also reviewed so as to establish the research gap. The review of literature showed that there is methodological, contextual and conceptual research gaps in previous studies

conducted both globally and locally on working capital management and performance and hence the current study was conducted to fill those research gaps.

Chapter Three displayed the research methodology. An explanatory research design was chosen and secondary data was to be used for analysis. A model linking accounts receivables, liquidity ratio and payables ratio to ROA was formulated. Descriptive statistics like mean and standard deviation were specified to be used. Inferential statistics, that is, correlation and regression were the main inferential techniques used for analysis.

Chapter Four presented the correlation analysis which revealed that the association between account receivables and payable ratio was negative and significant (R= - 0.353, p value=0.000). This implies that an increase in account receivables days is associated with a decrease in payables ratio. Account receivables and liquidity ratio were negatively and significantly associated (R= - 0.257, p value =0.000) implying that an increase in account receivables days is associated with a decrease in liquidity ratio. The association between account receivables and ROA was also found to be negative and significant (R= - 0.276, p value =0.000) implying that an increase in the number of account receivable days is associated with a decrease in ROA. Further findings revealed a positive and significant association between payables ratio and liquidity ratio (R= 0.502, p value =0.000). The implication is that an increase in payables ratio is associated with an increase in liquidity ratio. Payables ratio also had a positive and significant association with ROA (R= 0.327, p value =0.000) which implies that an increase in payables ratio is associated with an increase in ROA. The association between liquidity ratio and ROA was found to be positive and significant (R= 0.305, p value =0.000) implying that an increase in liquidity ratio is associated

with an increase in ROA. The study findings also revealed a positive and significant association between size of the company and ROA (R= 0.202, p value =0.000) which implies that an increase in size of the company is associated with an increase in ROA.

The relationship between predictor and dependent variable was obtained through a regression model and its results were also presented in Chapter Four. The results indicated that there is a negative and significant relationship between account receivables and ROA (Beta=-0.001, P value=0.000). A regression coefficient of -0.001 implies that a one unit increase in account receivables leads to a 0.001 decrease in ROA. The results also indicate that there is a positive and significant relationship between payables ratio and ROA (B=0.055, P value =0.003). A beta coefficient of 0.055 implies that a one unit increase in payables ratio leads to a 0.055 units increase in ROA. The study findings also revealed that the relationship between Liquidity ratio and ROA was positive and significant (B=0.011, P value =0.009). A beta coefficient of 0.011 implies that a one unit increase in liquidity ratio leads to a 0.011 units increase in ROA. The moderating effect of size on ROA was positive and significant (B=0.064, P value =0.000). The p value was less than the critical p value of 0.05. A beta coefficient of 0.064 implies that a one unit increase in total assets leads to a 0.064 units increase in ROA.

5.3 Conclusion

The study concluded that the number of account receivable days of the WSPs increased steadily from 2010 to 2014 as a result of poor working capital management strategies. The study concluded that the liquidity ratio, which was a ratio of current assets to current liabilities, decreased steadily from the year 2010 to the year 2014 as a result of poor working capital management strategies as it shows an increase in

current liabilities. The findings of the study led to the conclusion that there is a negative and significant relationship between account receivables and ROA. A WSP that reduces the number of debtor days will post an improvement in ROA while those that don't will post a poor ROA.

The study also concluded that there is a positive and significant relationship between payables ratio and ROA (B=0.055, P value =0.003). A WSP that puts in place effective payable management strategies which encourages an increase in payables will also post an increase in ROA. Another conclusion made by the study is that there is a positive and significant relationship between Liquidity ratio and ROA. A WSP that puts in place effective liquidity management strategies which aims to lower the current liabilities will have a higher value of ROA.

5.4 Recommendations

The study recommends that urban WSPs in Kenya should put in place effective working capital management strategies which aim to reduce the number of account receivable days so as to have better investment that ensures effective distribution of water within its coverage areas. The study recommends that urban WSPs in Kenya should put in place effective liquidity management strategies which aim to reduce the amount of current liabilities so as to better allocate cash for operational maintenance and investments. The study also recommends that urban WSPs in Kenya should put in place effective payable management strategies which encourage an increase in payables since this will lead to an increase in ROA.

5.5 Limitations of the Study

However accurate, no study is free of limitations. The data used was secondary in nature and its accuracy is a concern. The researcher is not aware of how it was prepared and the various manipulations and assumptions that were used when preparing and presenting it. The study only focused on 5 years (year 2010 to year 2014). Perhaps using a longer time period would have yielded different results. One may therefore ask, do the relationships hold over a 20 year span?

5.6 Suggestions for Further Research

The study suggests that further areas of study should focus on a longer time span, probably 20 to 30 years. This would clarify whether the observed relationship changes over the years. Such a study would call for advanced econometric and statistical analysis such as time series and panel data analysis. Future studies can also use both secondary and primary data by including qualitative analysis in the research methodology. This can help to bring out a clear picture of the WSPs.

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APPENDICES

Appendix I: Data on Urban WSPs in Kenya (2010-2014)

Water Service Provider	Year	Account Receivables (Days)	Payables Ratio	Liquidity Ratio	Size (Log of Total Assets)	ROA
Nairobi City Water & Sewerage Co.	2014	234	1.450	0.030	21.865	0.122
Nairobi City Water & Sewerage Co.	2013	271	3.660	0.050	22.080	0.043
Nairobi City Water & Sewerage Co.	2012	197	2.510	0.054	21.916	0.049
Nairobi City Water & Sewerage Co.	2011	297	2.680	0.130	22.145	0.044
Nairobi City Water & Sewerage Co.	2010	172	1.270	0.134	22.053	0.027
Mombasa City Water & Sewerage Co.	2014	271	0.790	0.134	16.313	-0.179
Mombasa City Water & Sewerage Co.	2013	278	0.340	0.160	20.181	-0.098
Mombasa City Water & Sewerage Co.	2012	285	0.370	0.210	20.080	-0.274
Mombasa City Water & Sewerage Co.	2011	249	0.570	0.220	20.080	-0.165
Mombasa City Water & Sewerage Co.	2010	271	0.850	0.220	19.835	-0.179
Eldoret Water & Sewerage Co.	2014	400	0.040	0.300	21.669	-0.043
Eldoret Water & Sewerage Co.	2013	339	0.720	0.300	21.641	-0.041
Eldoret Water & Sewerage Co.	2012	293	0.830	0.320	21.639	-0.025
Eldoret Water & Sewerage Co.	2011	318	0.250	0.330	21.631	-0.028
Eldoret Water & Sewerage Co.	2010	341	0.610	0.385	21.639	-0.028

Nakuru Water & Sewerage Co.	2014	66	4.660	0.410	18.372	0.157
Nakuru Water & Sewerage Co.	2013	96	1.890	0.426	18.659	0.068
Nakuru Water & Sewerage Co.	2012	98	4.630	0.426	18.558	0.104
Nakuru Water & Sewerage Co.	2011	33	2.730	0.430	18.873	0.346
Nakuru Water & Sewerage Co.	2010	135	4.040	0.440	19.618	0.291
Thika Water & Sewerage Co.	2014	454	0.490	0.450	19.130	-0.071
Thika Water & Sewerage Co.	2013	489	0.590	0.523	19.203	-0.076
Thika Water & Sewerage Co.	2012	525	0.320	0.538	19.275	-0.082
Thika Water & Sewerage Co.	2011	565	0.220	0.538	19.348	-0.088
Thika Water & Sewerage Co.	2010	607	0.640	0.550	19.420	-0.095
Nakuru - rural Water & Sanitation Co.	2014	508	0.540	0.553	19.175	-0.19
Nakuru - rural Water & Sanitation Co.	2013	547	0.630	0.580	19.372	-0.111
Nakuru - rural Water & Sanitation Co.	2012	552	0.530	0.620	19.377	-0.017
Nakuru - rural Water and Sanitation Co.	2011	557	0.270	0.631	19.360	-0.148
Nakuru - rural Water & Sanitation Co.	2010	554	0.920	0.640	19.379	-0.169
Nzoia Water & Sanitation Co.	2014	123	0.740	0.650	17.147	-0.506
Nzoia Water & Sanitation Co.	2013	243	0.690	0.659	18.077	-0.17
Nzoia Water & Sanitation Co.	2012	345	0.740	0.666	18.247	-0.169
Nzoia Water & Sanitation Co.	2011	284	0.380	0.681	18.403	0.003
Nzoia Water & Sanitation Co.	2010	257	2.210	0.683	18.515	0.161
Western Water & Sanitation Co.	2014	242	0.410	0.750	17.856	-0.655
Western Water & Sanitation Co.	2013	208	0.200	0.764	17.626	-1.228

Western Water & Sanitation Co.	2012	247	0.310	0.768	17.747	-0.475
Western Water & Sanitation Co.	2011	261	0.140	0.780	18.018	-0.288
Western Water & Sanitation Co.	2010	252	0.380	0.786	17.982	-0.627
Nyeri Water & Sewerage Co.	2014	104	0.690	0.793	20.806	0.009
Nyeri Water & Sewerage Co.	2013	86	0.190	0.797	20.973	-0.0002
Nyeri Water & Sewerage Co.	2012	63	0.720	0.827	20.948	-0.02
Nyeri Water & Sewerage Co.	2011	111	0.780	0.850	20.988	0.007
Nyeri Water & Sewerage Co.	2010	84	2.560	0.885	20.983	0.013
Kirinyaga Water & Sanitation Co.	2014	277	3.860	0.890	17.838	0.024
Kirinyaga Water & Sanitation Co.	2013	521	3.090	0.895	17.665	0.041
Kirinyaga Water & Sanitation Co.	2012	265	1.710	0.895	17.808	0.045
Kirinyaga Water & Sanitation Co.	2011	174	0.410	0.895	17.880	-0.036
Kirinyaga Water & Sanitation Co.	2010	147	2.590	0.939	17.974	0.048
Mathira Water & Sanitation Co.	2014	444	0.550	0.950	16.681	-0.033
Mathira Water & Sanitation Co.	2013	560	0.370	0.960	17.500	-0.073
Mathira Water & Sanitation Co.	2012	365	1.020	0.962	17.764	0.056
Mathira Water & Sanitation Co.	2011	428	3.840	0.970	17.999	0.092
Mathira Water & Sanitation Co.	2010	421	2.190	0.970	18.070	0.081
Kisumu Water & Swerage Co.	2014	575	0.560	0.973	19.476	-0.009
Kisumu Water & Sewerage Co.	2013	484	0.080	0.990	19.509	0.003
Kisumu Water & Sewerage Co.	2012	514	1.190	0.998	19.590	0.043
Kisumu Water & Sewerage Co.	2011	435	2.370	0.998	19.690	0.016
Kisumu Water & Sewerage Co.	2010	338	4.770	1.002	19.691	0.024

Kilifi Water & Sanitation Co.	2014	146	0.990	1.007	18.388	-0.028
Kilifi Water & Sanitation Co.	2013	128	0.960	1.008	18.157	-0.058
Kilifi Water & Sanitation Co.	2012	155	0.510	1.018	18.290	-0.102
Kilifi Water & Sanitation Co.	2011	152	2.450	1.031	18.472	0.023
Kilifi Water & Sanitation Co.	2010	148	1.280	1.032	18.581	0.026
Embu Water & Sewerage Co.	2014	274	0.260	1.032	18.584	0.004
Embu Water & Sewerage Co.	2013	204	0.690	1.038	18.982	0.002
Embu Water & Sewerage Co.	2012	209	3.040	1.039	19.073	0.035
Embu Water & Sewerage Co.	2011	214	4.920	1.041	19.143	0.018
Embu Water & Sewerage Co.	2010	222	3.800	1.041	19.229	0.016
Kericho Water & Sanitation Co.	2014	118	0.080	1.060	17.111	-0.302
Kericho Water & Sanitation Co.	2013	122	1.530	1.067	17.126	0.119
Kericho Water & Sanitation Co.	2012	168	3.120	1.068	17.588	0.031
Kericho Water & Sanitation Co.	2011	186	1.960	1.075	17.925	0.115
Kericho Water & Sanitation Co.	2010	167	0.220	1.076	18.060	-0.003
Chemosi Water & Sanitation Co.	2014	516	1.140	1.077	19.951	0.067
Chemosi Water & Sanitation Co.	2013	225	2.310	1.077	16.417	0.247
Chemosi Water & Sanitation Co.	2012	254	0.640	1.080	16.520	-0.202
Chemosi Water & Sanitation Co.	2011	261	2.600	1.080	17.027	0.151
Chemosi Water & Sanitation Co.	2010	229	2.470	1.087	17.620	0.359
Gusii Water & Sanitation Co.	2014	528	3.800	1.096	19.973	0.068
Gusii Water & Sanitation Co.	2013	230	1.760	1.099	16.439	0.253
Gusii Water & Sanitation Co.	2012	260	0.670	1.100	16.542	-0.206

Gusii Water & Sanitation Co.	2011	267	4.920	1.100	17.049	0.154
Gusii Water & Sanitation Co.	2010	235	3.300	1.100	17.642	0.367
Nanyuki Water & Sanitation Co.	2014	540	2.700	1.120	19.995	0.070
Nanyuki Water & Sanitation Co.	2013	540	4.270	1.123	19.995	0.070
Nanyuki Water & Sanitation Co.	2012	312	3.580	1.130	19.914	0.169
Nanyuki Water & Sanitation Co.	2011	629	2.690	1.169	20.014	0.038
Nanyuki Water & Sanitation Co.	2010	679	0.120	1.175	20.052	0.002
Malindi Water & Sewerage Co.	2014	49	0.020	1.180	18.965	-0.11
Malindi Water & Sewerage Co.	2013	17	0.520	1.184	18.652	-0.057
Malindi Water & Sewerage Co.	2012	49	0.610	1.190	18.899	-0.052
Malindi Water & Sewerage Co.	2011	56	0.720	1.192	19.034	0.009
Malindi Water & Sewerage Co.	2010	75	3.090	1.200	19.198	0.056
Kwale Water & Sanitation Co.	2014	586	0.030	1.208	18.377	-0.016
Kwale Water & Sanitation Co.	2013	533	0.250	1.220	17.914	-0.037
Kwale Water & Sanitation Co.	2012	603	0.730	1.222	18.159	-0.023
Kwale Water & Sanitation Co.	2011	524	0.410	1.240	18.510	-0.004
Kwale Water & Sanitation Co.	2010	685	0.860	1.244	18.730	0.001
Nyahururu Water & Sanitation Co.	2014	115	0.910	1.270	14.011	-0.003
Nyahururu Water & Sanitation Co.	2013	115	0.470	1.280	18.343	-0.003
Nyahururu Water & Sanitation Co.	2012	136	0.020	1.284	18.267	-0.022
Nyahururu Water & Sanitation Co.	2011	101	0.680	1.304	18.328	0.006
Nyahururu Water & Sanitation Co.	2010	108	0.650	1.304	18.428	0.008

Garissa Water & Sewerage Co.	2014	333	2.630	1.313	18.278	0.151
Garissa Water & Sewerage Co.	2013	296	2.020	1.332	18.099	0.360
Garissa Water & Sewerage Co.	2012	367	2.050	1.338	18.331	0.116
Garissa Water & Sewerage Co.	2011	430	4.230	1.338	18.429	0.068
Garissa Water & Sewerage Co.	2010	239	4.470	1.340	18.224	0.062
South Nyanza Water & Sanitation Co.	2014	105	2.570	1.345	17.459	0.068
South Nyanza Water & Sanitation Co.	2013	325	4.700	1.360	15.200	0.057
South Nyanza Water & Sanitation Co.	2012	289	0.780	1.362	17.461	0.009
South Nyanza Water & Sanitation Co.	2011	358	1.540	1.369	17.741	0.130
South Nyanza Water & Sanitation Co.	2010	420	4.370	1.404	17.909	0.067
Murang'a Water & Sanitation Co.	2014	92	2.030	1.449	17.486	0.070
Murang'a Water & Sanitation Co.	2013	125	1.040	1.452	15.226	0.056
Murang'a Water & Sanitation Co.	2012	190	4.580	1.462	17.487	0.085
Murang'a Water & Sanitation Co.	2011	94	1.460	1.481	17.768	0.133
Murang'a Water & Sanitation Co.	2010	90	1.290	1.501	17.936	0.067
Tavevo Water & Sanitation Co.	2014	224	0.420	1.504	18.366	-0.074
Tavevo Water & Sanitation Co.	2013	227	4.310	1.504	18.456	0.068
Tavevo Water & Sanitation Co.	2012	230	3.480	1.504	18.593	0.088
Tavevo Water & Sanitation Co.	2011	233	0.340	1.512	18.664	-0.129
Tavevo Water & Sanitation Co.	2010	236	4.090	1.522	18.960	0.061

Meru Water & Sanitation Co.	2014	239	0.750	1.533	18.388	-0.076
Meru Water & Sanitation Co.	2013	139	1.850	1.550	18.478	0.070
Meru Water & Sanitation Co.	2012	180	2.490	1.558	18.615	0.090
Meru Water & Sanitation Co.	2011	81	0.870	1.567	18.686	-0.132
Meru Water & Sanitation Co.	2010	113	1.820	1.577	18.983	0.063
SIBO Water & Sanitation Co.	2014	121	0.720	1.592	16.242	-0.132
SIBO Water & Sanitation Co.	2013	105	0.740	1.606	15.963	-0.052
SIBO Water & Sanitation Co.	2012	152	0.510	1.622	16.121	-0.213
SIBO Water & Sanitation Co.	2011	136	0.540	1.634	16.244	-0.188
SIBO Water & Sanitation Co.	2010	92	0.710	1.641	16.545	-0.075
Oloolaiser Water & Sanitation Co.	2014	114	0.370	1.648	16.371	-0.079
Oloolaiser Water & Sanitation Co.	2013	162	0.180	1.656	15.644	-0.019
Oloolaiser Water & Sanitation Co.	2012	87	0.700	1.670	16.332	0.005
Oloolaiser Water & Sanitation Co.	2011	112	3.090	1.700	16.507	0.224
Oloolaiser Water & Sanitation Co.	2010	96	1.370	1.705	16.712	0.104
Machakos Water & Sewerage Co.	2014	441	0.280	1.720	16.919	-0.001
Machakos Water & Sewerage Co.	2013	209	3.740	1.733	16.905	0.694
Machakos Water & Sewerage Co.	2012	489	0.810	1.747	16.924	0.007

Machakos Water & Sewerage Co.	2011	625	0.110	1.750	16.904	-0.072
Machakos Water & Sewerage Co.	2010	403	0.950	1.756	16.941	-0.634
Kikuyu Water	2014	325	2.580	1.781	16.392	0.105
Kikuyu Water	2013	349	2.470	1.788	15.933	0.355
Kikuyu Water	2012	557	4.870	1.806	16.155	0.152
Kikuyu Water	2011	65	4.160	1.807	16.582	0.270
Kikuyu Water	2010	80	0.930	1.810	16.706	-0.356
Isiolo Water & Sewerage Co.	2014	205	3.380	1.820	17.680	0.025
Isiolo Water & Sewerage Co.	2013	233	2.380	1.850	17.681	0.106
Isiolo Water & Sewerage Co.	2012	245	0.620	1.850	17.563	-0.072
Isiolo Water & Sewerage Co.	2011	157	0.040	1.858	17.628	-0.022
Isiolo Water & Sewerage Co.	2010	184	3.500	1.860	17.828	0.089
Ruiru-Juja Water & Sanitation Co.	2014	86	2.290	1.862	16.417	0.272
Ruiru-Juja Water & Sanitation Co.	2013	127	3.110	1.865	15.586	0.493
Ruiru-Juja Water & Sanitation Co.	2012	69	3.540	1.865	16.090	0.246
Ruiru-Juja Water & Sanitation Co.	2011	69	2.140	1.880	16.475	0.086
Ruiru-Juja Water & Sanitation Co.	2010	78	1.870	1.881	16.997	0.262
Mavoko Water & Sewerage Co.	2014	183	0.280	1.890	17.816	-0.092
Mavoko Water & Sewerage Co.	2013	338	0.450	1.910	18.420	0.004
Mavoko Water & Sewerage Co.	2012	104	3.920	1.914	17.709	0.034
Mavoko Water & Sewerage Co.	2011	142	0.770	1.920	17.246	-0.269
Mavoko Water & Sewerage Co.	2010	149	0.620	1.920	17.466	-0.135

Limuru Water & Sanitation Co.	2014	632	3.100	1.922	17.715	0.021
Limuru Water & Sanitation Co.	2013	307	1.320	1.930	17.582	0.061
Limuru Water & Sanitation Co.	2012	673	1.660	1.945	17.651	0.039
Limuru Water & Sanitation Co.	2011	457	0.150	1.945	17.871	0.009
Limuru Water & Sanitation Co.	2010	300	0.150	1.950	17.731	-0.025
Kitui Water & Sanitation Co.	2014	385	0.640	1.950	17.184	-0.006
Kitui Water & Sanitation Co.	2013	495	2.890	2.000	16.826	0.129
Kitui Water & Sanitation Co.	2012	434	4.730	2.030	17.176	0.093
Kitui Water & Sanitation Co.	2011	295	3.460	2.030	17.443	0.125
Kitui Water & Sanitation Co.	2010	315	0.520	2.036	17.198	-0.373
Amatsi Water & Sanitation Co.	2014	338	3.970	2.036	16.731	0.032
Amatsi Water & Sanitation Co.	2013	223	0.220	2.052	16.279	-0.02
Amatsi Water & Sanitation Co.	2012	371	0.270	2.053	16.475	-0.138
Amatsi Water & Sanitation Co.	2011	420	4.620	2.110	17.194	0.253
Amatsi Water & Sanitation Co.	2010	338	2.230	2.150	16.731	0.032
Kiambu Water & Sewerage Co.	2014	131	0.760	2.202	16.749	-0.083
Kiambu Water & Sewerage Co.	2013	128	0.830	2.250	16.368	-0.216
Kiambu Water & Sewerage Co.	2012	134	4.780	2.340	16.758	0.206
Kiambu Water & Sewerage Co.	2011	138	1.350	2.350	16.883	0.021
Kiambu Water & Sewerage Co.	2010	165	0.690	2.400	16.902	-0.341
Mikutra Water	2014	348	0.610	2.495	16.672	-0.26
Mikutra Water	2013	364	0.350	2.558	16.678	-0.254
Mikutra Water	2012	381	0.780	2.565	16.655	-0.297
Mikutra Water	2011	398	0.690	2.629	16.668	-0.254
Mikutra Water	2010	417	0.490	2.679	16.699	-0.233

Eldama Ravine Water & Sanitation Co.	2014	436	0.220	2.819	16.660	-0.26
Eldama Ravine Water & Sanitation Co.	2013	437	0.420	2.904	16.708	-0.227
Eldama Ravine Water & Sanitation Co.	2012	397	0.710	2.961	16.530	-0.511
Eldama Ravine Water & Sanitation Co.	2011	474	0.360	3.164	16.730	-0.042
Eldama Ravine Water & Sanitation Co.	2010	441	0.040	3.176	16.841	-0.127
Lodwar Water & Sanitation Co.	2014	97	3.710	3.179	16.957	0.189
Lodwar Water & Sanitation Co.	2013	107	4.170	3.207	16.697	0.171
Lodwar Water & Sanitation Co.	2012	86	2.280	3.220	17.163	0.207
Lodwar Water & Sanitation Co.	2011	128	4.370	3.257	15.795	0.136
Lodwar Water & Sanitation Co.	2010	44	1.090	3.264	17.720	0.278
Lamu Water & Sanitation Co.	2014	387	0.680	3.273	21.636	-0.041
Lamu Water & Sanitation Co.	2013	327	0.720	3.420	21.607	-0.036
Lamu Water & Sanitation Co.	2012	283	2.060	3.422	21.606	0.027
Lamu Water & Sanitation Co.	2011	308	3.340	3.429	21.597	0.024
Lamu Water & Sanitation Co.	2010	330	1.520	3.429	21.605	0.015
Karuri Water & Sanitation Co.	2014	554	0.690	3.429	18.321	-0.015
Karuri Water & Sanitation Co.	2013	504	0.200	3.429	17.858	-0.035
Karuri Water & Sanitation Co.	2012	571	0.350	3.429	18.103	-0.022
Karuri Water & Sanitation Co.	2011	496	0.670	3.466	18.454	-0.004
Karuri Water & Sanitation Co.	2010	648	0.100	3.479	18.674	0.001
Nol Turesh Water & Sanitation Co.	2014	93	4.170	3.589	17.451	0.174

Nol Turesh Water & Sanitation Co.	2013	130	3.640	3.639	17.600	0.157
Nol Turesh Water & Sanitation Co.	2012	146	3.760	3.720	16.723	0.151
Nol Turesh Water & Sanitation Co.	2011	172	3.240	3.758	17.756	0.122
Nol Turesh Water & Sanitation Co.	2010	189	1.470	3.843	17.948	0.116
Naivasha Water Sewerage & Sanitation Co.	2014	201	3.700	3.843	21.816	0.047
Naivasha Water Sewerage & Sanitation Co.	2013	215	4.470	3.843	22.031	0.042
Naivasha Water Sewerage & Sanitation Co.	2012	238	1.630	3.843	21.866	0.041
Naivasha Water Sewerage & Sanitation Co.	2011	246	4.640	3.871	22.096	0.036
Naivasha Water Sewerage & Sanitation Co.	2010	164	2.100	3.952	22.003	0.026
Olkejuado Water & Sewerage Co.	2014	237	4.550	4.088	16.264	0.170
Olkejuado Water & Sewerage Co.	2013	258	0.870	4.160	20.132	-0.019
Olkejuado Water & Sewerage Co.	2012	258	2.970	4.513	20.031	0.024
Olkejuado Water & Sewerage Co.	2011	259	4.450	4.647	20.031	0.027
Olkejuado Water & Sewerage Co.	2010	116	3.680	4.680	19.785	0.039
Mandera Water & Sanitation Co.	2014	223	3.630	4.760	19.929	0.041
Mandera Water & Sanitation Co.	2013	246	3.350	4.790	19.762	0.094
Mandera Water & Sanitation Co.	2012	150	1.250	4.841	19.753	0.155

Mandera Water & Sanitation Co.	2011	57	3.920	5.040	19.698	0.17
Mandera Water & Sanitation Co.	2010	265	4.830	5.340	19.751	0.261
Kiambere Mwingi Water & Sanitation Co.	2014	174	3.990	5.346	18.323	0.149
Kiambere Mwingi Water & Sanitation Co.	2013	39	2.290	5.580	18.610	0.064
Kiambere Mwingi Water & Sanitation Co.	2012	136	4.070	5.596	18.509	0.099
Kiambere Mwingi Water & Sanitation Co.	2011	209	1.940	5.766	18.824	0.329
Kiambere Mwingi Water & Sanitation Co.	2010	70	4.190	5.851	19.568	0.277
Kapenguria Water & Sanitation Co	2014	644	0.550	5.866	19.081	-0.067
Kapenguria Water & Sanitation Co	2013	526	0.760	5.907	19.153	-0.072
Kapenguria Water & Sanitation Co	2012	522	0.030	5.952	19.226	-0.078
Kapenguria Water & Sanitation Co	2011	302	0.810	5.990	19.299	-0.084
Kapenguria Water & Sanitation Co	2010	471	0.640	6.119	19.371	-0.09
Kibwezi Water & Sanitation Co.	2014	427	0.070	6.210	19.126	-0.181
Kibwezi Water & Sanitation Co.	2013	540	0.010	6.213	19.323	-0.106
Kibwezi Water & Sanitation Co.	2012	478	0.080	6.280	19.328	-0.016
Kibwezi Water & Sanitation Co.	2011	352	0.410	6.360	19.310	-0.141
Kibwezi Water & Sanitation Co.	2010	624	0.830	6.500	19.330	-0.161
Nyanas Water & Sanitation Co.	2014	378	0.280	6.700	17.098	-0.482
Nyanas Water & Sanitation Co.	2013	591	0.640	6.977	19.215	-0.162

Nyanas Water & Sanitation Co.	2012	395	0.620	7.026	19.254	-0.157
Nyanas Water & Sanitation Co.	2011	370	0.290	7.079	19.282	0.002
Nyanas Water & Sanitation Co.	2010	49	1.020	7.242	19.296	0.153
Loitoktok Water & Sanitation Co.	2014	133	2.990	7.354	19.301	0.623
Loitoktok Water & Sanitation Co.	2013	207	3.050	7.560	19.126	1.169
Loitoktok Water & Sanitation Co.	2012	123	3.250	7.630	19.142	0.452
Loitoktok Water & Sanitation Co.	2011	227	1.280	8.029	19.128	0.274
Loitoktok Water & Sanitation Co.	2010	123	4.340	8.036	19.119	0.597
Narok Water & Sanitation Co.	2014	38	2.420	8.115	15.414	0.130
Narok Water & Sanitation Co.	2013	164	2.730	8.383	15.490	0.107
Narok Water & Sanitation Co.	2012	40	4.700	8.398	15.161	0.156
Narok Water & Sanitation Co.	2011	199	3.860	8.830	15.548	0.127
Narok Water & Sanitation Co.	2010	118	3.910	9.300	15.691	0.036
Yatta Water & Sanitation Co.	2014	107	1.700	9.490	19.617	2.487
Yatta Water & Sanitation Co.	2013	127	3.520	9.590	19.458	2.454
Yatta Water & Sanitation Co.	2012	119	1.290	9.750	19.307	2.43
Yatta Water & Sanitation Co.	2011	241	1.650	9.810	19.164	1.98
Yatta Water & Sanitation Co.	2010	169	1.680	10.010	19.031	2.416
Makindu Water & Sanitation Co.	2014	158	3.280	10.210	20.415	0.2707
Makindu Water & Sanitation Co.	2013	129	1.620	10.250	17.483	0.2288
Makindu Water & Sanitation Co.	2012	141	3.790	10.370	17.625	0.2306
Makindu Water & Sanitation Co.	2011	185	1.510	11.220	17.698	0.2434
Makindu Water & Sanitation Co.	2010	184	2.380	11.690	17.791	0.2189
Olkalou Water & Sanitation Co.	2014	583	0.510	11.734	14.878	-1.992

Olkalou Water & Sanitation Co.	2013	487	0.210	12.726	14.888	-0.569
Olkalou Water & Sanitation Co.	2012	290	0.880	12.853	15.546	-2.743
Olkalou Water & Sanitation Co.	2011	373	0.420	12.870	15.394	-2.318
Olkalou Water & Sanitation Co.	2010	536	0.330	12.920	15.457	-2.336
Iten Tambach Water & Sanitation Co.	2014	682	0.290	12.940	18.193	-0.27
Iten Tambach Water & Sanitation Co.	2013	444	0.780	13.060	18.173	-0.42
Iten Tambach Water & Sanitation Co.	2012	487	0.700	13.110	18.205	-0.43
Iten Tambach Water & Sanitation Co.	2011	456	0.340	13.270	17.723	-0.49
Iten Tambach Water & Sanitation Co.	2010	456	0.970	13.760	17.503	-0.121
Maralal Water & Sanitation Co.	2014	443	0.430	13.910	17.646	-0.177
Maralal Water & Sanitation Co.	2013	102	4.610	14.030	17.718	0.097
Maralal Water & Sanitation Co.	2012	249	3.820	14.120	17.811	0.271
Maralal Water & Sanitation Co.	2011	157	4.000	14.140	16.518	0.163
Maralal Water & Sanitation Co.	2010	36	3.370	14.510	17.337	0.177
Kapsabet Nandi Water & Sanitation Co.	2014	247	4.200	14.600	17.601	0.035
Kapsabet Nandi Water & Sanitation Co.	2013	107	4.820	15.290	17.836	0.041
Kapsabet Nandi Water & Sanitation Co.	2012	98	1.720	15.650	17.907	0.025
Kapsabet Nandi Water & Sanitation Co.	2011	597	0.800	16.040	18.248	-0.028
Kapsabet Nandi Water & Sanitation Co.	2010	592	0.260	16.240	17.774	-0.026

Runda Water	2014	113	1.710	16.420	18.117	0.155
Runda Water	2013	49	3.880	16.490	18.354	0.067
Runda Water	2012	209	3.240	16.500	18.289	0.103
Runda Water	2011	197	1.990	16.710	18.750	0.342
Runda Water	2010	233	2.170	17.120	18.825	0.287
Rumuruti Water & Sanitation Co.	2014	661	0.810	17.230	18.877	-0.07
Rumuruti Water & Sanitation Co.	2013	602	0.090	17.680	18.839	-0.075
Rumuruti Water & Sanitation Co.	2012	318	0.420	18.260	19.330	-0.081
Rumuruti Water & Sanitation Co.	2011	504	0.810	19.180	19.388	-0.087
Rumuruti Water & Sanitation Co.	2010	475	0.640	19.420	18.497	-0.094
Kiamumbi Water & Sanitation Co.	2014	441	0.840	19.580	18.396	-0.188
Kiamumbi Water & Sanitation Co.	2013	494	0.320	19.667	18.711	-0.11
Kiamumbi Water & Sanitation Co.	2012	531	0.620	19.860	19.455	-0.017
Kiamumbi Water & Sanitation Co.	2011	288	0.030	19.920	18.360	-0.146
Kiamumbi Water & Sanitation Co.	2010	462	0.530	19.940	18.388	-0.167
Moyale Water & Sanitation Co.	2014	397	0.200	20.080	17.822	-0.5
Moyale Water & Sanitation Co.	2013	242	1.070	20.410	18.337	0.159
Moyale Water & Sanitation Co.	2012	94	2.320	20.420	18.642	0.075
Moyale Water & Sanitation Co.	2011	595	0.810	20.470	19.105	0.003
Moyale Water & Sanitation Co.	2010	246	3.810	20.470	19.069	0.149
Wote Water & Sanitation Co.	2014	208	4.490	20.660	19.057	0.168
Wote Water & Sanitation Co.	2013	213	2.030	20.810	18.644	0.285

Wote Water & Sanitation Co.	2012	75	2.550	20.930	19.033	0.469
Wote Water & Sanitation Co.	2011	230	1.720	20.940	19.108	0.268
Wote Water & Sanitation Co.	2010	558	0.320	20.990	18.924	-0.45
Gulf Water & Sanitation Co.	2014	682	0.720	21.040	18.940	-0.07
Gulf Water & Sanitation Co.	2013	154	3.390	21.220	18.797	0.036
Gulf Water & Sanitation Co.	2012	35	2.420	21.350	18.561	0.024
Gulf Water & Sanitation Co.	2011	377	0.360	21.360	18.278	-0.013
Gulf Water & Sanitation Co.	2010	55	2.390	22.480	18.487	0.017
Namanga Water & Sanitation Co.	2014	156	4.420	22.500	18.889	0.022
Namanga Water & Sanitation Co.	2013	472	0.640	22.550	18.778	-0.041
Namanga Water & Sanitation Co.	2012	495	0.970	22.560	18.568	-0.62
Namanga Water & Sanitation Co.	2011	674	0.870	22.620	18.449	-0.647
Namanga Water & Sanitation Co.	2010	508	0.680	22.680	18.584	-1.213