

# Investing Practices and Firm Sustainability: A Comprehensive Analysis of Water and Sanitation Companies (WASCO's) in Kenya

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**Abstract:** Sustainability of the Water and Sanitation Companies (WASCO) is a global problem. This phenomenon is a complex balance between water access and water quality. The problem is more pronounced on water access compared to water quality. A World Health Organisation report 2022 indicates that worldwide, 1.4 million people die annually from diseases related to poor water access, sanitation and hygiene. Kenya has an estimated population of 53 million people. Statistics indicate that approximately 53% and another 77% have no access to safe water and improved sanitation respectively, hence making water and sanitation access a national problem. The water and sanitation sector is one of the significant sectors in Kenya, contributing approximately 5.78% of national employment and further supports among other sectors; agriculture, forestry and fishery. Water access is the single most contributor to food insecurity in Kenya. In the year 2022, Kenya ranked bottom 30 among 121 counties in terms of food security. Economic theory points that effective financial management can contribute to sustainability of a corporate firm. Guided by stakeholder theory, this study examined the influence of investing practices on sustainability of WASCO in Kenya. The study adopted the conservatism research philosophy and a descriptive design. From a population of 91 WASCOs regulated by WASREB, a sample size of 46 water companies was purposively selected. Primary data was collected using a likert scaled questionnaire while secondary data sheet was used in the case of data collected from the annual WASREB reports. A pilot study was carried out to test the reliability and validity of the data collection instrument. Cronbach's alpha coefficient was used to assess reliability of the instrument and Kaiser-Meyer-Olkin test and Bartlett's Chi-Square test of Sphericity in the case of validity. Tests of regression assumption of linearity, autocorrelation and Gaussian distribution were carried out using person correlation coefficient, Durbin-Watson d statistics and Q-Q plot respectively. Bivariate linear model was utilised for inferential analysis. The findings showed that investing practices explained approximately 85.4% of WASCO sustainability. ANOVA's F-statistics of 82.044 and associated p value of 0.000 indicate that there is statistically significant influence of investing practices on sustainability of WASCO. The Beta coefficients show highest influence of  $\beta=14.806$  for modernization investing practices followed by  $\beta=8.588$  for replacements investing practices and  $\beta=4.350$  in the case of expansion investing practices. The study recommends the focused deployment and deepening of strategic investing practices since they have a strong bearing on sustainability of these firms.

**Keywords:** Sustainability, Expansion, Replacement, Modernization

## 1. Introduction

### 1.1 Background of the Study

Sustainability management is considered a critical component of organizational strategy, with defined responsibilities and accountability at all suitable and different levels. This implies that sustainable management involves ethical and transparent conduct, complies with relevant laws and is in tandem with norms of behaviour globally and also indicates that social responsibility is assimilated all over the organization, exercised in its relationships and considers the interests of stakeholders (ISO 26000, 2011). Firm sustainability involves providing accountability and restitution to the direct beneficiaries who include shareholders, employees, suppliers and the customers (Nur & Wahab, 2019). Further firms are

expected to restore the planet by addressing the environmental and communities from where they draw immeasurable resources. The benefits of adopting sustainability practices depends on the size of the business, the type of sustainable practices employed and may be difficult to quantify (Morioka & Carvalho, 2016; Silvestre et al, 2015). Reported benefits arising from Sustainability initiatives includes enhanced trust by stakeholders, a positive public image, a competitive advantage, improved efficiency in resource management, improved returns on investments and social impact (Nur & Wahab, 2019).

Investing practices are interchangeably and commonly referred as capital budgeting. They are a critical part of financial management activities in an organization (Batra & Verma, 2014). Bilal et al (2016) observe that investing practices drives the financial well-being of an enterprise, and

can be categorized as being the most significant financial management decisions. These practices involve long-term commitment of a firm's financial resources and it is reported to have a notable relationship with the company's strategic position within an industry (Gupta et al, 2015).

## 1.2 Problem Statement

Sustainability of the Water and Sanitation Companies (WASCO) is a global problem. Sustainability is a complex balance between water access and water quality. The problem is more pronounced on water access compared to water quality. A World Health Organisation report 2022 indicates that worldwide, 1.4 million people die annually from diseases related to poor water access, sanitation and hygiene. Kenya has an estimated population of 53 million people. Statistics indicate that approximately 53% and another 77% have no access to safe water and improved sanitation respectively, hence making water and sanitation access a national problem. The water and sanitation sector is one of the significant sectors in Kenya, contributing approximately 5.78% of national employment and further supports among other sectors; like agriculture, forestry and fishery. Water access is the single most contributor to food insecurity in Kenya. In the year 2022, Kenya ranked bottom 30 among 121 counties in terms of food security. Economic theory points that effective financial management can contribute to sustainability of a corporate firm.

## 1.3. General Objective

The general objective of the study was to investigate the effect of investing practices on sustainability of water and sanitation companies in Kenya

## 2. Literature Review

### 2.1 Stakeholder Theory

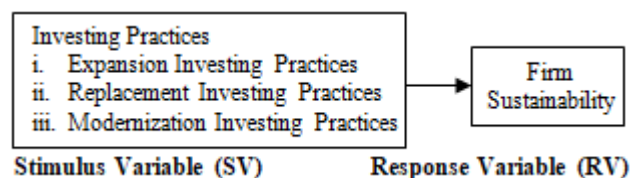
The study was guided by the stakeholder theory by Freeman et al (1984). According to this theory, the objective of business is to create value for all stakeholders who include groups and individuals who can affect or be affected by the business operations. The theory requires businesses to create wholesome and wide ranging benefits to a wide range of stakeholders, such as employees, customers, suppliers, governments, credit lenders, and financiers (Freeman, 1984). Additionally, stakeholder groups may include, environmentalists concerned with the business' activities in the form of salaries, products and services, supplier payments, taxes, interest paid, or environmental improvements. This theory sees firms as organizations that can achieve the divergent goals of multiple and diverse stakeholders (Donaldson & Preston, 1995). The actions of different stakeholder groups can have a disruptive effects and may mobilize managers to map corporate resources to their interests at which point, managing the balance of conflicting demands by the stakeholders becomes critical (Roberts, 1992).

### 2.2 Investing Practices and Firm Sustainability

Farah and Altinkaya (2018) evaluated the effect of investment management decisions on profitability of manufacturing firms. The study used appraisal techniques, acquisition, replacement, outsourcing expenditure and working capital decisions as constructs of investing practices. They found a significant positive between the investing practices and profitability. Mweresa and Muturi (2018) assessed investing practices and financial performance of public sugar firms in Western Kenya. The study found a significant influence. Investing practices in the study consisted the process of selecting, evaluating and screening initial investments by analyzing the relevant cash flows (Uwonda & Okello 2015). Nthenge & Ringera (2017), evaluated the investing practices and found a positive impact on the companies' returns. Maranga (2022) evaluated investment decisions and financial performance of firms listed in the NSE. Investing decisions considered included expansion decisions where he considered, expansion, replacement and renewal decisions as part of common investment decisions. Additionally, the study evaluated the moderating effect of firm size on the relationship between investment decisions and firm performance. Many empirical studies concluded that investing practices positively influenced firm growth, profitability and sustainability (Ondari, 2018; Musah, 2018; Morwabe & Muturi, 2019; Washika et al, 2019; Ali & Altinkaya 2018; and Olaoye & Ayodele, 2019) concluded that expansion, replacement and modernizations investing practices positively influence on firm performance. Other empirical studies found investing practices negatively influencing performance. Taipi & Ballcocki (2017) and Cordis & Kirby (2017) found investing practices (expansion decisions) having a negative influence on firm performance. Al-Gamrh et al (2020) found investing opportunities had a negative influence on firm performance. The study concluded that more funds are required to increase investments which reduces firm performance. Based on the study objectives and the empirical literature reviewed, the following hypothesis was formulated:

H01: *Investing practices do not have a statistically significant effect on sustainability of water and sanitation companies in Kenya,*

### 2.3 Conceptual Framework



**Figure 1:** Conceptual Framework for Investing Practices and Firm Sustainability

### 2.4 Research Gaps

A common theoretical approach from the literature reviewed is the use of agency theory, pecking order theory, resource-based view as the dominant theories for the studies. Furthermore, majority of these past studies focused on profitability, financial sustainability or financial performance providing a theoretical gap. This study explores the effect of investing practices on sustainability which is a

treating measure of firm's performance using the stakeholder theory. In addition, majority of the past studies reviewed on investing practices (Musah, 2018; Rugui, 2018; Muneer, 2017 and Obazee, 2019) focused on small and medium enterprises while a few focused on NGOs, (Chepkemoi, 2015) which affects the general population. The present study focuses on the WATSAN sector which largely affects a large population of women and children who are adversely affected by water deficiency (UNGA, 2015) thus presenting a population gap

### 3. Research Methodology

#### 3.1 Philosophy, Design and Instrumentation

The study adopted a positivist philosophy which believes that reality is observable, stable and described from an objective view point (Saunders et al, 2019). The study adopted a cross-sectional design which involves gathering a variety of quantitative data. This data is related to many causes at a point regarding multiple variables and is analyzed to identify patterns of associations (Bell et al, 2022). The study purposively sampled 46 companies from a population of 91 water and sanitation companies in Kenya. Primary data was collected using a structured questionnaire served online while a secondary data collection sheet was applied in the case of secondary data.

#### 3.2 Stability of Instrumentation

Cronbach's Alpha coefficient was used to assess the instrument for internal consistency. A minimum coefficient threshold of 0.7 has been established as adequate (Saunders et al, 2019 & Zikmund et al, 2013). Construct validity was established using Kaiser-Meyer-Olkin measure of sampling adequacy and Bartlett's test of Sphericity. A coefficient of 0.7 is considered adequate (Saunders et al, 2019).

#### 3.3 Data Analysis and Results Presentation

Data analysis carried out included; descriptive analysis with comparison of means and standard deviations, factor analysis using principal components analysis, diagnostic testing and inferential analysis. The eleven statements measuring investing practices were evaluated using their respective means and standard deviations in the preliminary evaluation. Factor analysis and Varimax rotations grouped the eleven measures into 3 components measuring investing

practices. Diagnostic tests carried out included; normality, outliers, autocorrelations, multicollinearity and linearity. Hypothesis testing was carried out using a multiple linear regression model. Regression analysis generated the Model  $R^2$ , the ANOVA statistics and coefficients. The model was in the form:

$$\text{Sustainability} = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \epsilon;$$

where  $\beta_0, \beta_2i$  = regression coefficients,

$X_{ij}$  = Investing Practices and

$\epsilon$  = Stochastic error term

### 4. Findings and Discussions

#### 4.1 Response Rate

One hundred and eighty four (184) questionnaires were distributed electronically to the 46 water and sanitation companies selected. One hundred and fifty four responses were received resulting to a response rate of approximately 84%. This response rate was considered adequate and imply that the findings could be generalized in the study population (Kombo & Tromp, 2016)

#### 4.2 Reliability Results

Internal consistency of the data collection instrument was established using Cronbach's Alpha coefficient. The study generated a coefficient of 0.881 which was adequate as it was above the minimum threshold of 0.7 established by Saunders et al (2019) and Zikmund (2013). Construct validity was assessed using the Kaiser-Meyer-Olkin measure of sampling adequacy and Bartlett's test of Sphericity (Tobias & Carlson, 1969). The eleven (11) measures of risk management achieved a KMO coefficient of 0.856, with a p value of 0.000. These results were adequate as they were greater than the minimum KMO coefficient threshold of 0.7 (Saunders et al, 2019). The results further reveals that the statements used to measure the study variables were highly related and suitable for structure detection in Principal Component Analysis.

#### 4.3 Diagnostic Test Results

##### 4.3.1 Tests Results for Normality

Normally distribution of the response variable was assessed using the Q-Q plot. Additionally, box plot was generated to assess for outliers in the dataset. Box and whisker plots, provide a good pictorial representation of the distribution of the data and show extreme values in the data set (Saunders et al, 2019).

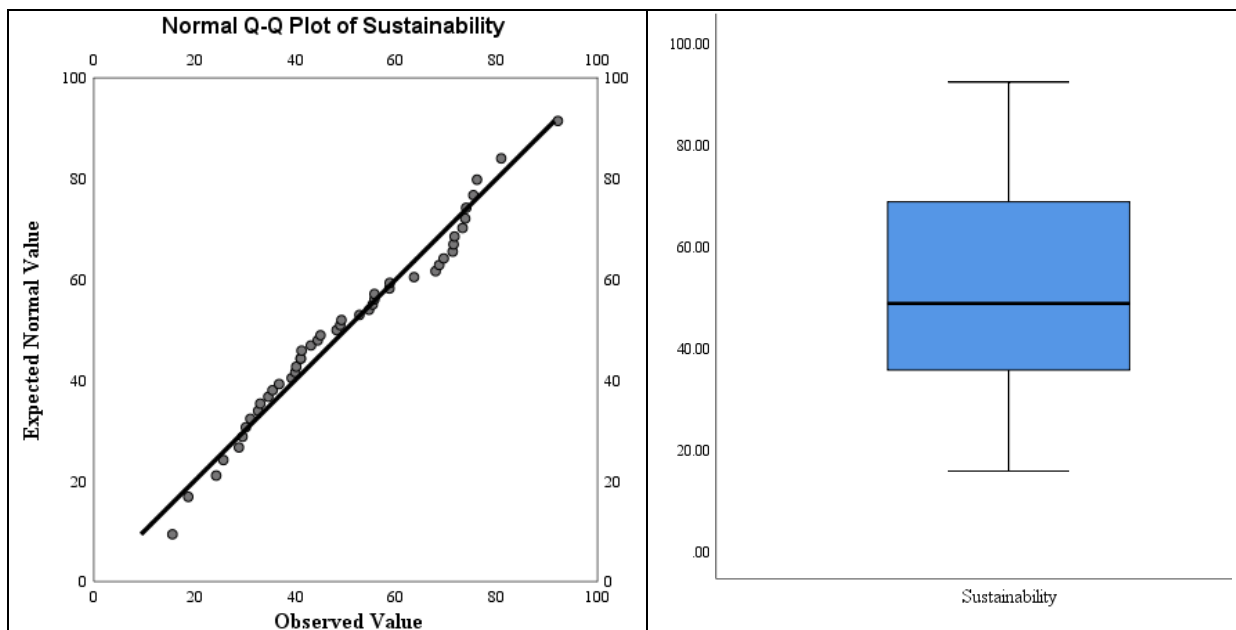


Figure 2: Q-Q Plot and Box Plot for Firm Sustainability

The results show the dataset for the response variable, firm sustainability was normally distributed and free from outliers. The results imply that the dataset is suitable for regression analysis (Saunders et al, 2019).

**4.3.2 Test Results for Multicollinearity of Independent Variable**

Multicollinearity of the data set was assessed using the tolerance and variance inflation factor (VIF). The test results are presented in Table 1

Table 1: Test Results for Multicollinearity of Independent Variables

Model	Collinearity Statistics	
	Tolerance	VIF
Investing Practices	.286	3.493

Table 1 show Tolerance of 0.286 and VIF coefficient of 3.493. The results show the dataset was not multicollinear as the tolerance was above 0.1 and the VIF coefficients were below 10 (Saunders et al, 2019). The results imply that the data set was appropriate for regression analysis (Hair et al, 2014).

**4.3.3 Test Results for Autocorrelation of Independent Variables**

Autocorrelation test was carried out using the Durbin Watson coefficient. The results show the *d*-statistic of 1.598 for investing practices. The *d* statistic was within the acceptable range of 1.5<*d*>2.5 (Hair et al, 2014). This finding imply that the measures for the study variable were not autocorrelated and means that the data was suitable for regression analysis (Saunders et al, 2019).

**4.3.4 Linearity Tests Results for the Study Variables**

Pearson’s correlation coefficient, *r* was used to assess the variables for a linear relationship requirement for regression analysis (Gogtay & Thatte, 2017). A coefficient *r*=0.867 and a *p* value of 0.000 was generated. The results imply that the data set was appropriate for regression analysis.

**4.4 Regression Results for Investing Practices and Sustainability**

The study objective was to assess the influence of investing practices on sustainability of water and sanitation companies in Kenya. A multiple linear regression analysis was carried out on the components measuring investing practices. The results are presented in Table 2

Table 2: Regression Results for Investing Practices and Sustainability

Investing Practices Components Model	R	R <sup>2</sup>	Sums of Squares	F (3,42)	Beta (β)	t	Sig
<b>Model Fitness</b>	0.924	0.854					
<b>ANOVA</b>							
Regression			13238.970	82.044			0.000
Residual			2259.108				
Total			15498.078				
<b>Coefficients</b>							
Constant					-47.683	-6.215	0.000
Expansion Investing Practices					4.350	3.058	0.004
Replacement Investing Practices					8.588	7.546	0.000
Modernization Investing Practices					14.806	11.607	0.000

Table 2 show the model summary results with R coefficient of 0.924 and an R<sup>2</sup> of 0.854. The R-square of 0.854 implies that the model accounts for approximately 85.4% of changes

in sustainability. The results imply that a unit change in investing practices would lead to 85.4% change in sustainability of water and sanitation companies in Kenya.

ANOVA results show F statistic of 82.044 with the associated p-value of 0.000. The results are significant since the p value of 0.000 is less than minimum threshold of 0.05 (Hair et al, 2014). Based on these results, the null hypothesis was rejected.

The results for coefficients show beta ( $\beta$ ) = -47.683 and a p-value = 0.000 for the constant. The results for expansion investing practices show  $\beta$  = 4.350 and a p-value = 0.004 which was significant as the p value was lower than the threshold of 0.05 (Saunders et al, 2019). This result implies that expansion investing practices have a positive and statistically significant influence on sustainability of water and sanitation companies in Kenya. The finding imply that a unit change in expansion investing practices would lead to 4.350 change in sustainability. The findings are similar to Ali and Altinkaya (2018) that expansion practices positively influence on firm value, performance and sustainability. The finding however differs with Maranga (2022) that expansion decisions negatively influence performance.

Results for replacement investing practices show  $\beta$  = 8.588 and a p-value of 0.000 which was significant as the p-value is lower than the minimum threshold of 0.05 (Saunders et al, 2019). These results imply that replacement investing practices has a positive and statistically significant influence on sustainability of water and sanitation companies in Kenya. The finding imply that a unit change in replacement would lead to 8.588 change in sustainability. The results differ with Ali & Altinkaya (2018) that asset replacement had a negative influence on profitability of manufacturing firms.

The results further show  $\beta$  = 14.806 for modernization investing practices with a p-value of 0.000 which was statistically significant as the p value is lower than the minimum threshold of 0.05 (Saunders et al, 2019). The finding imply that modernization practices have a positive and statistically significant influence on the sustainability of water and sanitation companies in Kenya. The finding imply that a unit change in modernization would lead to 14.806 change in sustainability. These results concurs with Nzewi et al (2016) finding that modernization decisions had a strong positive relationship with firm performance.

Overall results imply that modernization, expansion and replacement investing practices have a positive and significant effect on sustainability of water and sanitation companies in Kenya. The findings are similar with those by Washika (2019), Ali & Altinkaya (2018), Uwonda & Okello (2015), Ondari (2018); Musah (2018) and Morwabe & Muturi (2019) who concluded that investment decisions influence firm performance. The model was fitted as:  $Y = 4.350X_1 + 8.588X_2 + 14.806X_3 - 47.683$ , where  $Y$  = Sustainability,  $X_1$  = Expansion Investing Practices,  $X_2$  = Replacement Investing Practices,  $X_3$  = Modernization Investing Practices

## 5. Conclusions and recommendations

### 5.1 Summary of Findings

The study found that investing practises; expansion investing practices, replacement investing practices and modernization investing practices positively influence sustainability of water and sanitation companies in Kenya.

### 5.2 Study Recommendations

The study recommends the deepening of strategic investing practices that enhances sustainability including modernization, replacement and expansion investing practices.

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