

**PUBLIC PROCUREMENT PRACTICES AND  
SUSTAINABLE PERFORMANCE OF STATE  
CORPORATIONS IN KENYA**

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**JOMO KENYATTA UNIVERSITY  
OF  
AGRICULTURE AND TECHNOLOGY**

**2023**

**Public Procurement Practices and Sustainable Performance of State  
Corporations in Kenya**

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**A Thesis Submitted in Partial Fulfilment of the Requirements for  
the Degree of Doctor of Philosophy in Supply Chain Management  
of the Jomo Kenyatta University of Agriculture and Technology**

**2023**

**DECLARATION**

This thesis is my original work and has not been presented for a degree in any other university

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## **DEDICATION**

This thesis is dedicated to my husband Peter Karani, children Pearla Kendi, Hansel Muthomi and Collette Nkatha for their encouragement and moral support throughout the entire period of my study, May God bless you.

## **ACKNOWLEDGEMENT**

I wish to acknowledge and convey my earnest gratitude to my family and friends for their concern, support and patience. My supervisors, Dr. Noor Ismail Shale and Dr. Anthony Osoro, I wish to convey my sincere appreciation to you for being of incredible assistance in providing direction, guidance and supervision. I would also like to express my gratitude to JKUAT for offering me the opportunity to study in their institution and all staff for the support and the information they provided to me during the period of my studies. May God bless you all.

## TABLE OF CONTENTS

<b>DECLARATION.....</b>	<b>ii</b>
<b>DEDICATION.....</b>	<b>iii</b>
<b>ACKNOWLEDGEMENT .....</b>	<b>iv</b>
<b>TABLE OF CONTENTS.....</b>	<b>v</b>
<b>LIST OF FIGURES .....</b>	<b>xvi</b>
<b>LIST OF APPENDICES .....</b>	<b>xviii</b>
<b>DEFINITION OF TERMS.....</b>	<b>xxi</b>
<b>ABSTRACT .....</b>	<b>xxiv</b>
<b>CHAPTER ONE .....</b>	<b>1</b>
<b>INTRODUCTION.....</b>	<b>1</b>
1.1 Background of the Study.....	1
1.1.1 Global Perspective of Public Procurement Practices.....	3
1.1.2 Regional Perspective of Public Procurement Practices .....	5
1.1.3 Local Perspective of Public Procurement Practices .....	6
1.1.4 Sustainable Performance of State Corporations in Kenya.....	9
1.1.5 State Corporations in Kenya .....	10
1.2 Statement of the Problem .....	10
1.3 Objectives of the Study .....	12

1.3.1 General Objective of the Study.....	12
1.3.2 Specific Objective of the Study .....	12
1.4 Research Hypotheses .....	13
1.5 Significance of the Study .....	13
1.5.1 Public Sector .....	14
1.5.2 State Corporations.....	14
1.5.3 Policy Makers .....	14
1.5.4 Academicians.....	15
1.6 Scope of the Study .....	15
1.7 Limitations of the Study.....	16
<b>CHAPTER TWO .....</b>	<b>17</b>
<b>LITERATURE REVIEW.....</b>	<b>17</b>
2.1 Introduction.....	17
2.2 Theoretical Framework .....	17
2.2.1 Tendering Theory .....	17
2.2.2 Theory of Public Contracts .....	19
2.2.3 Public Value Theory .....	20
2.2.4 Inventory Control Theory .....	21
2.2.5 Theory of Regulatory Compliance .....	23

2.2.6 Triple Bottom Line Model .....	24
2.3 Conceptual Framework .....	25
2.3.1 Procurement Methods .....	27
2.3.2 Procurement Contract Management .....	30
2.3.3 Preferences and reservation in procurement .....	33
2.3.4 Inventory Management .....	35
2.3.5 Public Procurement Regulatory Bodies .....	37
2.3.6 Sustainable Performance of State Corporations in Kenya.....	39
2.4 Empirical Review .....	42
2.4.1 Procurement Methods and Sustainable Performance .....	42
2.4.2 Procurement Contract Management and Sustainable Performance.....	44
2.4.3 Preferences and Reservation in Procurement and Sustainable Performance	45
2.4.4 Inventory Management and Sustainable Performance .....	47
2.5 Critique of Existing Literature .....	49
2.6 Summary of the Literature .....	51
2.7 Research Gaps .....	52
<b>CHAPTER THREE .....</b>	<b>54</b>
<b>RESEARCH METHODOLOGY .....</b>	<b>54</b>
3.1 Introduction .....	54



3.2 Research Design.....	54
3.2.1 Research Philosophy.....	55
3.3 Target Population.....	55
3.4 Sampling Frame.....	56
3.5 Sample Size and Sampling Technique.....	56
3.6 Research Instruments.....	57
3.7 Data Collection Procedure.....	58
3.8 Pilot Test.....	59
3.8.1 Reliability of the Research Instrument.....	59
3.8.2 Validity of the Research Instrument.....	60
3.9 Data Analysis and Presentation.....	61
3.9.1 Descriptive Analysis.....	62
3.9.2 Content Analysis.....	62
3.9.3 Factor Analysis.....	62
3.9.4 Diagnostic Tests.....	63
3.9.5 Inferential analysis.....	68
3.9.6 Hypothesis Testing.....	71
3.9.7 Measurement of Variables.....	73

<b>CHAPTER FOUR.....</b>	<b>75</b>
<b>RESEARCH FINDINGS AND DISCUSSION.....</b>	<b>75</b>
4.1 Introduction.....	75
4.2 Response Rate of the Study.....	75
4.3 Pilot Test Results .....	76
4.3.1 Reliability of the Research Instrument .....	76
4.3.2 Validity of the Research Instrument .....	77
4.4 Demographic Analysis .....	79
4.4.1 Category of the Firm.....	80
4.4.2 Level of Education.....	81
4.4.3 Period of Service.....	82
4.4.4 Respondents Departments.....	83
4.5 Descriptive and Content Analysis of the Study Variables .....	83
4.5.1 Procurement Methods .....	83
4.5.2 Procurement Contract Management .....	90
4.5.3 Preferences and reservation in procurement .....	96
4.5.4 Inventory Management .....	103
4.5.5 Public Procurement Regulatory Bodies .....	110
4.5.6 Sustainable Performance of State Corporations in Kenya.....	117

4.6 Factor Analysis .....	122
4.6.1 Procurement Methods .....	123
4.6.2 Procurement Contract Management .....	123
4.6.3 Preferences and reservation in procurement .....	124
4.6.4 Inventory Management .....	125
4.6.5 Public Procurement Regulatory Bodies .....	126
4.7 Diagnostic Tests .....	127
4.7.1 Multicollinearity Test .....	127
4.7.2 Linearity Test .....	128
4.7.3 Autocorrelation Test .....	129
4.7.4 Heteroscedasticity Test .....	129
4.7.5 Normality Test .....	130
4.8 Correlation Analysis.....	132
4.9 Regression Analysis .....	135
4.9.1 Procurement Methods and Sustainable performance of state corporations	136
4.9.2 Procurement Contract Management .....	139
4.9.3 Preferences and reservation in procurement .....	143
4.9.4 Inventory Management .....	147
4.9.5 Overall Model Summary without Moderating Variable .....	151

4.9.6 The Moderating Effect of Public Procurement Regulatory Bodies .....	155
4.10 Optimal Model .....	160
<b>CHAPTER FIVE.....</b>	<b>162</b>
<b>SUMMARY, CONCLUSIONS AND RECOMMENDATIONS .....</b>	<b>162</b>
5.1 Introduction .....	162
5.2 Summary of Findings .....	162
5.2.1 Effect of Procurement Methods on Sustainable Performance of State Corporations in Kenya.....	163
5.2.2 Effect of Procurement Contract Management on Sustainable Performance of State Corporations in Kenya. ....	163
5.2.3 Effect of Preferences and Reservation in Procurement on Sustainable Performance of State Corporations in Kenya .....	164
5.2.4 Effect of Inventory Management on Sustainable Performance of State Corporations in Kenya.....	165
5.2.5 The Moderating effect of Public Procurement Regulatory Bodies on the Relationship between Public Procurement Practices and Sustainable Performance of State Corporations in Kenya. ....	166
5.3 Conclusion of the Study .....	167
5.3.1 Effect of Procurement Methods on Sustainable Performance of State Corporations in Kenya.....	168
5.3.2 Effect of Procurement Contract Management on Sustainable Performance of State Corporations in Kenya. ....	169

5.3.3 Effect of Preferences and Reservation in Procurement on Sustainable Performance of State Corporations in Kenya .....	170
5.3.4 Effect of Inventory Management on Sustainable Performance of State Corporations in Kenya.....	171
5.3.5 Moderating effect of Public Procurement Regulatory Bodies on the Relationship between Public Procurement Practices and Sustainable Performance of State Corporations in Kenya .....	172
5.4 Recommendations of the Study .....	172
5.4.1 Managerial Recommendations .....	172
5.4.2 Policy recommendations.....	175
5.4.3 Contribution to new Knowledge.....	177
5.4.4 Theoretical Implication.....	178
5.5 Areas for Further Studies .....	178
<b>REFERENCES.....</b>	<b>180</b>
<b>APPENDICES .....</b>	<b>198</b>

## LIST OF TABLES

<b>Table 3.1:</b> Target Population.....	56
<b>Table 3.2:</b> Sample Size.....	57
<b>Table 3.3:</b> Cronbach’s alpha ( $\alpha$ ) Rules of Thumb.....	60
<b>Tables 3.4:</b> Summary of Hypothesis Testing .....	72
<b>Table 3.5:</b> Measurement of Study Variables.....	74
<b>Table 4.1:</b> Response Rate.....	76
<b>Table 4.2:</b> Reliability Test of the Research Instrument.....	77
<b>Table 4.3:</b> Construct Validity .....	79
<b>Table 4.4:</b> Descriptive Statistics on Procurement Methods .....	88
<b>Table 4.5:</b> Descriptive Statistics on Procurement Contract Management.....	94
<b>Table 4.6:</b> Descriptive Statistics on Preferences and reservation in procurement .....	101
<b>Table 4.7:</b> Descriptive Statistics on Inventory Management .....	108
<b>Table 4.8:</b> Descriptive Statistics on public procurement regulatory bodies.....	115
<b>Table 4.9:</b> Descriptive Statistics on the Sustainable Performance of State Corporations .....	121
<b>Table 4.10:</b> Factor Analysis for Procurement Methods .....	123
<b>Table 4.11:</b> Factor Analysis on Procurement Contract Management .....	124
<b>Table 4.12:</b> Factor Analysis for Preferences and reservation in procurement .....	125
<b>Table 4.13:</b> Factor Analysis for Inventory Management .....	126

<b>Table 4.14:</b> Factor Analysis for Public Procurement Regulatory Bodies .....	127
<b>Table 4.15:</b> Multicollinearity Test.....	128
<b>Table 4.16:</b> Autocorrelation Test .....	129
<b>Table 4.17:</b> KS and SW Normality Tests.....	131
<b>Table 4.18:</b> Correlation Analysis .....	135
<b>Table 4.19:</b> Model Summary on Procurement Methods .....	136
<b>Table 4.20:</b> Analysis of Variance (ANOVA) Test on Procurement Methods .....	137
<b>Table 4.21:</b> Regression Coefficients on Procurement methods .....	138
<b>Table 4.22:</b> Model Summary on Procurement Contract Management.....	140
<b>Table 4.23:</b> Analysis of Variance (ANOVA) Test on Procurement Contract Management.....	141
<b>Table 4.24:</b> Regression Coefficients on Procurement Contract Management .....	141
<b>Table 4.25:</b> Model Summary on Preferences and reservation in procurement .....	144
<b>Table 4.26:</b> Analysis of Variance (ANOVA) Test on Preferences and reservation in procurement.....	144
<b>Table 4.27:</b> Regression Coefficients on Preferences and reservation in procurement..	145
<b>Table 4.28:</b> Model Summary on Inventory Management .....	148
<b>Table 4.29:</b> Analysis of Variance (ANOVA) Test on Inventory Management .....	148
<b>Table 4.30:</b> Regression Coefficients on Inventory Management.....	149
<b>Table 4.31:</b> Overall Model Summary without Moderating Variable .....	152

<b>Table 4.32:</b> Analysis of Variance (ANOVA) for the Overall Regression Model.....	152
<b>Table 4.33:</b> Regression Coefficients of the Overall Regression Model.....	153
<b>Table 4.34:</b> Model Summary of the Moderated Overall Regression Model.....	156
<b>Table 4.35:</b> Analysis of Variance (ANOVA) Test of the Moderated Overall Regression Model.....	157
<b>Table 4.36:</b> Regression Coefficients of the Moderated Overall Regression Model.....	158
<b>Table 4.37:</b> Summary of Hypotheses Testing .....	159



## LIST OF FIGURES

<b>Figure 2.1:</b> Conceptual Framework .....	26
<b>Figure 4.1:</b> Distribution of the Firms by Category.....	80
<b>Figure 4.2:</b> Distribution of the Respondents by the Level of Education.....	81
<b>Figure 4.3:</b> Distribution of the Respondents by the Length of Service.....	82
<b>Figure 4.4:</b> Distribution of Respondents by Department .....	83
<b>Figure 4.5:</b> Effect of Procurement Methods on Sustainable Performance of State Corporations .....	90
<b>Figure 4.6:</b> Effect of Procurement Contract Management on Sustainable Performance of State Corporations .....	96
<b>Figure 4.7:</b> Effect of preferences and reservation in procurement on sustainable performance of state corporations .....	103
<b>Figure 4.8:</b> Effect of Inventory Management on Sustainable Performance of State Corporations .....	109
<b>Figure 4.9:</b> Effect of public procurement regulatory bodies on the relationship between public procurement practices and sustainable performance of state corporations.....	116
<b>Figure 4.10:</b> Effect of Public Procurement Practices on Sustainable Performance of State Corporations .....	122
<b>Figure 4.11:</b> Heteroscedasticity test .....	129
<b>Figure 4.12:</b> Heteroscedasticity test .....	130
<b>Figure 4.13:</b> Q-Q Plot for the Normality Test.....	132

<b>Figure 4.14:</b> Scatter Plot on Procurement Methods .....	138
<b>Figure 4.15:</b> A Histogram on Procurement Methods .....	139
<b>Figure 4.16:</b> Scatter Plot on Procurement Contract Management .....	142
<b>Figure 4.17:</b> A Histogram on Procurement Contract Management .....	143
<b>Figure 4.18:</b> Scatter Plot on Preferences and reservation in procurement .....	146
<b>Figure 4.19:</b> Histogram on Preferences and Reservation in Procurement .....	147
<b>Figure 4.20:</b> Scatter Plot on Inventory Management .....	150
<b>Figure 4.21:</b> A Histogram on Inventory Management .....	150
<b>Figure 4.22:</b> Scatter Plot on the Overall Regression Model .....	154
<b>Figure 4.23:</b> A Histogram for the Overall Regression Model.....	155
<b>Figure 4.24:</b> Histogram of the Moderated Overall Regression Model .....	159
<b>Figure 4.25:</b> Revised Conceptual Framework for the Optimal Model .....	161

## LIST OF APPENDICES

<b>Appendix I:</b> Introduction Letter .....	198
<b>Appendix II:</b> Questionnaire .....	199
<b>Appendix III:</b> List of State Corporations in Kenya .....	207

## **ABBREVIATIONS AND ACRONYMS**

<b>AGPO</b>	Access to Government Procurement Opportunities
<b>ANOVA</b>	Analysis of Variance
<b>DW</b>	Durbin – Watson
<b>EFA</b>	Exploratory Factor Analysis
<b>EOQ</b>	Economic Order Quantity
<b>ERP</b>	Enterprise Resource Planning
<b>GDP</b>	Gross Domestic Product
<b>GoK</b>	Government of Kenya
<b>ISO</b>	International Organization for Standardization
<b>IT</b>	Information Technology
<b>JIT</b>	Just in Time
<b>KeRRA</b>	Kenya Rural Roads Authority
<b>KMO</b>	Kaiser-Meyer-Olkin
<b>MRO</b>	Maintenance, Repair and Operations
<b>MRPI</b>	Material Requirement Planning
<b>MRPII</b>	Manufacturing Resource Planning
<b>OLS</b>	Ordinary Least Squares
<b>PCA</b>	Principal Component Analysis

<b>PEs</b>	Procuring Entities
<b>PPA</b>	Public Procurement Act
<b>PPADA</b>	Public Procurement and Assets Disposal Act
<b>PPARB</b>	Public Procurement Administrative Review Board
<b>PPDA</b>	Public Procurement and Disposal Act
<b>PPOA</b>	Public Procurement Oversight Authority
<b>PPRA</b>	Public Procurement Regulatory Authority
<b>PWDs</b>	Persons with Disabilities
<b>Q-Q</b>	Quantile-Quantile
<b>RFP</b>	Request for Proposal
<b>RFQs</b>	Request for Quotations
<b>ROK</b>	Republic of Kenya
<b>SCAC</b>	State Corporations Advisory Committee
<b>SMEs</b>	Small and Medium Enterprises
<b>SPSS</b>	Statistical Package of Social Sciences
<b>TBL</b>	Triple Bottom Line
<b>VIF</b>	Variance Inflation Factor
<b>VMI</b>	Vendor Managed Inventory
<b>WIP</b>	Work-In-Progress

## DEFINITION OF TERMS

- Inventory Management** This is a system which involves the integration of information, transportation, acquisition, inspection, material handling, warehousing, packaging, and control of supplies and ensuring security of inventory. It is the activity of determining the rate, quantities and the procedures of materials to be stocked in an organization and regulation of receipts and issues of those stocks (Karani & Osoro, 2020).
- Preferences and Reservation in Procurement** This involves ensuring that contracts or portions of a contract are set aside for bidders who satisfy certain prescribed criteria in the public procurement and asset disposal Act to ensure non-discriminatory in respect of the targeted groups and to allow competition among the eligible persons (PPAD Act, 2015).
- Procurement Contract Management** These are those activities related to contract handling including invitation to and evaluation of bids; awarding and implementation of contracts; measurement, and payment calculation. This also entails monitoring contract associations, handling related issues, integrating essential contract modifications or changes (Nyaga & Mwangangi, 2019).
- Procurement Methods** These are the procedures used by the procuring entity to acquire goods, services and works. These methods can be competitive or non-competitive. There is preference of using competitive procurement methods given that they tend to promote transparency, economy efficiency and limit favoritism (Gatobu, 2020).

**Procurement** This refers to the acquisition by buying, renting, leasing, licensing, tenancy or by any other legal contractual means of any type of works, services or assets so as to achieve organizational or individual requirements (Mutangili, 2019).

**Public Procurement Practices** These are activities involved in acquiring goods, services and works by public authorities as per the set policies that govern the choice of suppliers, products and methods using public funds. These practices involve procurement processes, procurement planning, preferences and reservation, contract management, inventory management, store management and asset disposal (King'oo and Muli, 2019).

**Public Procurement Regulatory Bodies** These are organizations that are responsible for ensuring that public procuring entities comply with set rules and regulation where enforcement actions and increased penalties result to increased levels of compliance with public procurement law (PPAD Act, 2015).

**Public Procurement** This refers to the process by which public authorities, such as government departments or local authorities, acquire, hire or purchase work, goods or services using public funds (Sönnichsen & Clement, 2020).

**State Corporation** This is a state-owned company formed by a government which the public has major control over and spends state funds in the acquiring of goods and services for use by the public. In Kenya, the prerequisite of its establishment, management and

rules are set out under the State Corporations Act chapter 446 laws of Kenya (GoK, 2015).

**Sustainable Performance** According to Mugo and Odari (2018), Sustainable performance refers to all activities carried out by an organization that incorporate social responsibility, environmental protection, and financial growth when measuring the outcome of the organization's practices.



## ABSTRACT

In recent years there has been growing global pressure on all public procuring entities to improve sustainable performance through procurement practices. The main aim of this study was to assess the effect of public procurement practices on sustainable performance of state corporations in Kenya. The specific objectives of this study were procurement methods, procurement contract management, preferences and reservation in procurement and inventory management. The study was guided by tendering theory, theory of public contracts, public value theory, inventory control theory, theory of regulatory compliance and triple bottom line model. The study employed mixed methods research design to help in collecting both qualitative and quantitative data. This study was anchored on positivist Philosophy. The target population included all 187 registered state corporations in Kenya and the sampling frame consisted employees working in all 187 state corporations in Kenya. The study employed purposive sampling technique in selecting the sample size, the head of finance and the procurement function in 187 state corporations which formed 374 respondents. The study collected both primary and secondary data. Primary data was the main data for the study which was collected using a questionnaire. Secondary data was collected using a secondary data collection template and it was obtained from existing state corporations performance reports. Pilot testing was carried out to establish the data collection instrument's reliability and validity. Descriptive statistics was used to summarize and organize characteristics of a data set collected which was presented in form of means and standard deviations. The results showed that public procurement practices influence sustainable performance of state corporations in Kenya. Diagnostic tests were carried out to ascertain that the dataset met the assumptions of the regression model which included; multicollinearity test, linearity test, autocorrelation test, heteroscedasticity test and normality test. Correlation analysis was carried out to assess the existence of a relationship public procurement practices and sustainable performance. A regression analysis using multiple linear regression model was used to test the research hypotheses. Qualitative data was analyzed using content analysis. The analyzed data was presented in form of tables, graphs, histograms and Pie charts. The study findings revealed that procurement methods, procurement contract management, preferences and reservation in procurement and inventory management combined positively and significantly influenced sustainable performance of state corporations in Kenya. The moderating variable, public procurement regulatory bodies was found to have a moderating influence on the relationship between public procurement practices and sustainable performance of state corporations in Kenya. It was concluded that through proper implementation of public procurement practices such as procurement methods, procurement contract management, preferences and reservation in procurement and inventory management, the sustainable performance of state corporations in Kenya is positively affected. The study recommended that the management of the state corporations ought to ensure effective implementation of public procurement practices so as to improve their sustainable performance. Public procurement regulatory bodies should put more emphasis on enforcing the implementation of the public procurement practices to ensure adherence by all public procuring entities. The study assists policy makers in coming up with better policies on proper implementation of public procurement practices. This study was based on state corporations in Kenya and there is need to undertake similar studies in county governments, ministries and other institutions governed by public procurement regulatory framework to uncover underlying relationship between public procurement practices and sustainable performance.

## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background of the Study

According to Munyao and Moronge (2017), procurement is a critical component in the functioning of any state as it is used for acquiring of assets and services in such a way to meet a specific need. Public Procurement practices have certainly become gradually more significant factor in economic and business circles worldwide as it has a key responsibility in triumphant management of public resources and most countries have tried to incorporate it into a more strategic view of government hard work (Grandia & Meehan, 2017). Public procurement of supplies, works and services, is valued to account for 15-20% of GDP in developing countries, and up to 50% or more of aggregate state expenditure and it is therefore an area that needs attention in the face of increasing inefficient implementation of public procurement practices to ensure sustainable performance (Hussein & Makori, 2018). Procurement managers and stakeholders in the public Service serve institutions created and governed by a complex array of statutes, regulations, policies, and directives. They operate in an environment of increasingly intense scrutiny and accelerated changes driven by environmental regulations, technology, program reviews, and public and political expectations for service improvements (Etse & Asenso, 2014).

According to Prier, Schwerin and McCue (2016), currently scholars have commenced to pay increasing attention to how public sector acquire goods and services and ensure that all public procurement practices are carried out in a more sustainable way. Public procurement activities are sustainably aligned when there is integration of sustainable specification criteria when selecting suppliers that focuses on reduction of negative impact to the environment, supporting economic developments and social considerations such as fairness and equity (Panya, 2018). Accordingly, the implementation of the philosophies of sustainable development by public procuring entities can help public sector to develop advanced and enhanced technologies and to inspire sustainable developments (Camilleri, 2019). While there can be various ways to evaluate sustainability in an organization and its scopes this

study adopts a three pillars approach to measure sustainable performance that includes economic growth, social responsibility and environmental protection. With the rising global awareness and growing consumer realization over the volumes of natural resources needed for production of goods, the reduction of natural resources by waste and its shortage, industries globally are being pushed to embrace circular economy practices and make their business processes more sustainable (Gitari & Kabare, 2019).

Rono and Moronge (2019), observe that millions of dollars get wasted due to inefficient and ineffective procurement practices, structures, policies and procedures as well as failure to impose sanctions for violation of procurement rules thus resulting in poor sustainable performance. The level of adherence to public procurement practices can therefore determine whether a government meets its goals and objectives or not as well as affect many internal and external stakeholders. According to Ambe (2019), the last decade of the twentieth century has witnessed the start of the global evolution in the public procurement practices. Marendi and Awino (2016), assert that challenges in public procurement go beyond procurement regulations to include procurement process, methods, inventory management, contract management, assets disposal, organizational structure and work force. Public Procurement often constitutes the largest domestic market in developing countries. Depending on how it is managed, public procurement can thus contribute to the financial growth, social responsibility and environmental protection of these countries (Muange & Chirchir, 2018).

Indeed, public procurement practices provide means through which governments meet developmental needs such as the provision of physical infrastructure and the supply of essential medicines (Corsten, 2009). Again, many governments use public procurement practices to support the development of domestic industries, overcome regional economic imbalances, and support minority or disadvantaged communities (Ivar, Paula & Erik, 2011). After decades of chaotic Public Procurement systems, a greater part of developing countries, Kenya included, are now reforming the authorized, organizational and institutional frameworks for public procurement (Chalton, 2018). According to Ondigi and Muturi (2015), law involves obligatory

system of conduct predestined to enforce justice and lay down duty and resulting mostly from formal enactment by a ruler. The Public Procurement practices evidently covers the complete scope of public procurement, all steps of the acquiring process, procurement planning, procurement methods, assets disposal, contract management and inventory control (Sönnichsen & Clement, 2020).

Kumar, Patel and Singh (2017), stated that excellent Public Procurement practices are based on the values of openness, fairness, accountability, transparency, professionalism and integrity. To ensure increased achievement of value for money, procurement procedures are aimed to enhance competition between bidders for contracts. Chekol and Tehulu (2014), indicated proof from a number of sources that noncompetitive procurement processes can surge costs by 30% and above, and affirms that competitive procurement processes are the best to achieve value for money. According to Okong'o and Muturi (2017), study indicated that there were only 50% of states corporations that submitted mandatory reports on compliance with public procurement practices in regards to procurement procedures, procurement contract management, inventory control and asset management, assets disposal and preferences and reservation in procurement in 2015/2016 financial. The Compliance Rating scale that was applied indicated that below 50% to be non-compliant, 51-80% average compliant, 81-99% above average compliant and 100% fully compliant. And only 45% of states corporations that submitted mandatory reports had complied with public procurement practices (Mutangili, 2019).

### **1.1.1 Global Perspective of Public Procurement Practices**

Globally the economic environment is very turbulent and the need for organizations to be competitive through regulating public procurement practices in the global marketplace cannot be overstated (Etse, McMurray & Muenjohn, 2021). The author further stated that firms are under intense pressure from stakeholders to improve their sustainable performance through embracing sustainability initiatives as measure of performance as well as ensuring that organizations are adhering to procurement regulations. According to Ambe (2019), the global marketplace is characterized by intense competition and the constant search for new and innovative ways to reduce

costs and improve sustainable performance. Public procurement has its origins in the fiduciary obligation of government administrations to deliver services, products and works to their citizens or specific geographic region, city or town (Sönnichsen & Clement, 2020). Public procurement system is said to be well functioning if it achieves the objectives of transparency, competition, economy, fairness and accountability (Mrope, Namusonge & Iravo, 2017).

According to Arrowsmith, Linarelli and Wallace (2000), in developing and developed states, public procurement is progressively more accepted as necessary in delivering services, and it accounts for a high percentage of total spending. The major hindrance however, has been insufficient implementation of with public procurement Act, policies, practices and regulations. Corsten (2009), found that public procurement is assigned in all countries to endorse laws and policies in order to protect the public interests. It is also worthwhile to note that public procurement is a business within a political system and has therefore significant consideration for integrity, accountability and national interest (Sönnichsen & Clement, 2020). Furthermore, in developed as well as developing countries, a sound procurement system has to accomplish two sets of requirements which are management requirements and policy requirements (Pettersen, Nyland & Robbins, 2020).

World Bank assessment in 1999 made recommendations to bring legislative and systemic reforms for a strong and effective procurement regime in the country (Grandia & Meehan, 2017). According to Ambe (2019), public procurement globally is increasingly becoming a prevailing pedal for attaining economic, social ecological and technological goals. In modern ages, the sum of procurement spending has been on the rise leading to increased demand for more transparency, competitiveness and efficiency of procurement processes (Zubicic & Sims, 2011). Despite its importance and the greater attention being paid to public procurement, global information about the public procurement market is still scarce. In the Republic of Korea public procurement practices are being considered to be one improving country's economic growth, social responsibility and environmental protection as the government aim at ensuring achievement of economic efficiency, effectiveness, environmental concerns and value for money in all public procurement procedures. Through effective

implementation of public procurement practices, the country is able to enhance economic growth; product and service innovation and creation of employment (Etse *et al.*, 2021).

### **1.1.2 Regional Perspective of Public Procurement Practices**

In Africa, many public sector organizations view efficient public procurement practices as an add-on or an approach that costs more (John, Etim, & Ime, 2015). In truth, sustainable solutions can often cost less over the whole life of the purchase. Some key benefits include: value for money, protection and enhancement of the environment, more efficient use of resources, greater social inclusion, ethical trade, support for innovation, better risk management, lower whole-life costs, improved supplier relationships, a diverse and flexible supply chain and a competitive edge (Eyaa & Oluka, 2018). In many African states, public procurement accounts for a substantial part of fiscal expenditures, making sound procurement practices central not only for sound public financial management but also for inclusive growth (Corsten, 2009). According to Ameyaw, Mensah and Osei-Tutu (2012), Ghana went through an extensive government sector financial changes beginning in 1996. The aim of these changes was to progress public financial management and ensures the proper use of public finances. The changes led to the founding of a Public Procurement Oversight Group in 1999.

Public Procurement Oversight Group was formed to steer the design of a complete public procurement change programme (Kusi, Nyarku & Aggrey, 2014), a major part of the changes was the drafting of a public procurement bill in September 2002 that was approved into law on 31 December 2003. This law was called the Public Procurement Act (PPA) 2003 which provides for the institution of a Public Procurement Committee, which has a duty of providing policy direction, controlling, supervision and securing compliance with the system (Duraku, 2019). In South Africa public procurement Act is considered to be very important in ensuring fairness, accountability and nondiscrimination in the procurement process. This ensure that all groups in the society including special groups such as youth, women and persons with disabilities are not denied the privilege of to participate in the

public procurement process (Chekol & Tehulu, 2014). The public procurement Act and regulation gives the public procuring entities mandate of empowering special groups in the society through giving them preferential treatment in public procurement processes (Corsten, 2009).

### **1.1.3 Local Perspective of Public Procurement Practices**

According to Rono and Moronge (2019), public procurement in Kenya plays an essential role in the economic growth, social responsibility and environmental protection as it is a way through which government uses income raised yearly, for the execution of civic delivery of service. As such, a public procurement system that is economically not efficient consistently challenges the states activities when growing the economy (Kimote & Kinoti, 2018). Conscious of this important role, Article 227 of the Constitution of Kenya instructs the Parliament of Kenya to recommended a framework under which procedures in regards to procurement and disposal of public assets was executed. Kenya has specific Act passed by the state to structure and control procurement and procedures for assets disposal in the public sector (Ondigi & Muturi, 2015). On 25th November, 1998 public procurement reform programs were publicly commenced; basing the conclusions of the World Bank, which had carried out an evaluation on the public procurement in Kenya, and findings indicated that country public procurement system had massive weakness hence need to prevent it (Mutangili, 2019).

Public procurement weaknesses demanded the GoK to further transform the public procurement structure through enactment of Public Procurement and Disposal Act of 2005 (Nyaboke & Muturi, 2017). The Public Procurement and Disposal Act offered an authorized basis for accountable, competitive, transparent and effectiveness in public procurement procedures. The Act also incorporated the clearance of unserviceable, outdated or excess stores, assets and equipment by Public Procurement organizations (Chemirmir & Ndeto, 2021). So as to uphold PPOA in implementation of its responsibilities, an advisory board was initiated under section 21 of PPDA of 2005. Public Procurement and Disposal Regulation of 2009 was enacted on 16th March 2009, which was intended to improve economy by using

public procurement structure in support of investment and attaining of tax payer's value for money (Mbatia & Osoro, 2020). Public Procurement and Disposal (Preference and Reservation) Regulation was enacted in June 2011, with the plan to assist the improvement of local industry, and economic growth by coming up with preference and reservation to targeted procurement groups recognized under the regulations (Ndeto, Iravo & Sakwa, 2018).

All public procurement practices in all public procuring entities in Kenya are required to be carried out in accordance with Public Procurement and Assets Disposal Act, 2015 (King'oo & Muli, 2019). This Act was enacted in January 2016 abolishing the earlier Public Procurement and Disposal Act of 2005, and all public organs and public entities within Kenya are obliged to conform to this law (Owuoth & Mwangangi, 2015). The implementation of public procurement practices as per the Act is in relation to procurement planning, procurement processes, preferences and reservation in procurement, inventory management, disposal of assets and contract management (PPAD, Act 2015). PPAD, regulation main focus is to ensure the public procurement system is well managed so as to contribute to the country's economic development by maximizing value for money, efficiency, transparency, competitiveness and protection of the environment (Mkonu & Gichana, 2019). The Act stipulate principles in relation to procurements record keeping, opening of tenders, tender evaluations, procurement methods, Procurement of Consultancy Services, contracts management, preferences and reservations in procurement, inventory control and assets management and disposal of assets (Nyongesa & Osoro, 2019).

The Government of Kenya like other developing countries spends approximately 60% on development expenditures of its budget on procurement of goods, works, non-consultancy services and consultancies, excluding procurement on recurrent expenditure (Ndeto *et al.*, 2018). Channelling this spend towards environmentally friendly products and services contributes to the achievement of the Governments constitutional obligation of ensuring that there is sustainable exploitation, utilization, management and conservation of the environment and natural resources for the benefit of the Kenyan citizens (Kimote & Kinoti, 2018). The guiding principles of



the Public Procurement and Assets Disposal Act requires that a public procuring entity ensures that they adhere to the national values and principles, achieve the equality and freedom from discrimination, comply to affirmative action programmes, adhere to principles of integrity under the Leadership and Integrity Act, 2012 (Nyaboke & Muturi, 2017). Public organizations are also required to achieve the principles of public finance and the values and principles of public service, principles governing the procurement profession, international norms, ensures that they achieve maximization of value for money, promotion of local industry, sustainable development and protection of the environment; and promotion of citizen contractors (PPAD Act, 2015).

The Public Procurement Act in Kenya obliges that any public procuring entity contracting for supplies or consultancy services need do so in procurement structure that is accountable, transparent, fair, competitive, cost-effective and equitable. Several studies on public procurement, for instance a study by Marendi and Awino (2016), reveal that even after the initiation of the Regulations, public procurement still encounters issues of transparency and poor procurement performance (Nyongesa & Osoro, 2019). According to Hussein and Makori (2018), study found out that state corporations in Kenya experiences delivery of poor-quality goods and services, frequently running out of stock due to keeping inappropriate stock levels, wrong procurement methods, delay in contract delivery, not following 30% directive on preferential procurement activities and poor disposal of assets (Lemayian & Moronge, 2018). To a large extent this greatly affects the sustainable performance of states corporations. The public procurement and Asset Disposal Act of 2015 has mandated the treasury, public procurement Regulatory Authority and Public Procurement Administrative Review Board to regulate the Act so as to improve implementation level in all public procuring entities (Ondigi & Muturi, 2015). Public Procurement and Assets Disposal Regulation, 2020 was enacted to provide guidelines to the implementation of public procurement and Assets Disposal Act, 2015 (Mugo & Odari, 2018).

#### **1.1.4 Sustainable Performance of State Corporations in Kenya**

According to Ondigi and Muturi (2015), sustainable Performance involves integrating and achievement of environmentally, socially and financially feasible practices in carrying out organizational activities. The key focus is ensuring environmental protection, preservation of resources, waste reduction, cost savings and social responsibility (Kariuki & Aduda, 2016). Sustainable procurement performance is defined as the consideration of environmental protection, social responsibility and economic growth in sourcing of products and services so as to achieve reduction in cost, reduction in time between when an organization place an order and delivery, improved customer satisfaction, law adherence and compliance to procurement policies and regulations (Mugo & Odari, 2018). The dimension of how well an organization is attaining sustainable function has turned into an important aspect in current public entities authority (Muange & Chirchir, 2018). Various states entities have established sustainable performance management as a way to assess business and staff efficiency and effectiveness so as to ensure that state businesses achieve the requirements of the citizens (King'oo & Muli, 2019).

According to Kariuki and Aduda (2016), sustainable performance of state organizations in Kenya is important to ensure improving services offered to citizens in a more effective and efficient manner. Even with this significance, there is scarce agreement concerning the meaning, dimensionality and extent that bound improvement in study and knowledge of the concept (Ndeto *et al.*, 2018). Even though organizational performance has been understood in regards to financial elements, a number of researchers have come up with wider performance elements that include non-financial elements and sustainable aspects such as environmental protection and social responsibility (Kipruto, & Shale, 2018). Due to inadequacies of financial ways to measure performance of an organization, Triple Bottom Line Model with a wider stakeholder view has been implemented. TBL model assesses performance of an organization incorporating social responsibility, environmental protection, and economic growth when measuring the outcome of organizational practices (Kosgei & Kinoti, 2018).

### **1.1.5 State Corporations in Kenya**

The State Corporations Act (1987), amended in 2013 provides way through which an organization can be regarded to be a state corporation. A state corporation is a unit which the public has major control over and spends state funds in the acquiring of goods and services for use by the public (RoK, 2013). They are guided by state set of laws and selected bodies such as the State Corporations Advisory Committee (SCAC), and the Efficiency Monitoring Unit. Kenya has one hundred and eighty-seven (187) state corporations (Parastatals Taskforce Reforms, 2013), grouped into five (5) categories in regards to their responsibility and purpose. These state corporations are observed to have immense forthcoming to facilitate growth (Kosgei & Kinoti, 2018).

The majority of state corporations were initially initiated for the duration of the colonial era where most of them were in the agricultural segment which dominates the country's economy since the time of independence (Parastatals Taskforce Reforms, 2013). The creation of state corporations was determined by state yearning to speed up socio-economic progress, a call to restore regional economic inequity, citizen's involvement in economy and supporting native entrepreneurship (Parastatals Taskforce Reforms, 2013). State corporations play an essential role in the country. They are an avenue for the government to accomplish its mandate in the delivery of services to the public. They ensure that citizens have access to crucial services such as transport, education, health and housing. There is need to oversee and manage state corporations to help them carry out their mandate in a more efficient, effective and sustainable manner (RoK, 2015).

### **1.2 Statement of the Problem**

In recent years there has been growing global pressure on all public entities to improve sustainable performance (Mugo & Odari, 2018). In their study Onyango and Ondiek (2021), indicated that amidst environmental degradation, scarcity of resources, climate change, persistent global poverty and inequalities, the procurement profession is progressively being called upon to contribute to sustainable performance and developments. This is by ensuring that apart from

financial growth criteria, in addition social responsibility and environmental protection criteria need to be included when carrying out all procurement activities. Bilala and Odari (2018), found out that there has been little reporting on sustainable performance by public procuring entities compared to those in private entities. A study by Mutangili (2021), linked public procurement practices to sustainable performance of an organization, this raise concerns as to the degree to which public entities in Kenya are applying public procurement to achieve sustainable performance of their operation. The Privatization Authority in 2021 submitted a proposal to the National to privatize between 5 and 10 State corporations in the year 2024 due to poor sustainable performance.

According to King'oo and Muli (2019), the state corporations in Kenya have been reporting poor performance in relation to social responsibility, environmental protection and economic growth measures of performance with losses of about Ksh. 121 billion which is equal to 17% of the state budget annually. The findings by Ondigi and Muturi (2015), study indicated that approximately 500,000 businesses owned by disadvantaged groups in Kenya collapse annually, leading not only to unemployment and economic recession but also a reduction of the public procurement supply base for the domestic market. Despite the spirited efforts by the PPAD practices on preferences and reservation in procurement to allocate the disadvantaged groups at least 30% of procurement opportunities, most state corporations are not complying with these guidelines affecting their social- economic performance (Mbatia and Osoro, 2020). Jepchirchir and Noor (2019), in their study noted that more than 50% of states corporations are not environmental conscious when implementing public procurement practices which as a result has led to increased resources usage, inefficient water and energy consumption, and increased waste production in their operation activities. According to Kariuki and Aduda (2016), in spite of underpinning and backing from national governments and procurement institutions to formulate procurement guidelines and policies, several studies indicate diverse success in the attainment of sustainable performance in states corporations in Kenya.

Despite being confirmed to be economically, socially and environmentally helpful, popular examples of sustainable developments in public procuring entities are few today (Kipruto and Shale, 2018). Existing empirical studies include that of Ndeto, Iravo and Sakwa (2018), who assessed the effect of public procurement policy framework on inventory management performance of government ministries in Kenya using a cross sectional survey design, Mutangili (2021), who analysed the effect of public procurement on sustainable development in East Africa using a desk study review methodology and King'oo and Muli (2019), who carried out a study on the influence of procurement practices on organizational performance in Kenyan public sector using stratified sampling technique. Despite their contributions to the body of knowledge on public procurement, the reviewed empirical studies have mainly focused on different contexts, concepts, locale and methodologies which indicates that there is need to carry out a study on the effect of public procurement practices on sustainable performance. This study identified the contextual, conceptual and methodological gaps. Therefore, to address these gaps, this study sought to establish the effect of public procurement practices on sustainable performance of state corporations in Kenya.

### **1.3 Objectives of the Study**

#### **1.3.1 General Objective of the Study**

The general objective of this study was to establish the effect of public procurement practices on sustainable performance of state corporations in Kenya

#### **1.3.2 Specific Objective of the Study**

The specific objectives of this study were:

1. To assess the effect of procurement methods on sustainable performance of state corporations in Kenya
2. To establish the effect of procurement contract management on sustainable performance of state corporations in Kenya.

3. To evaluate the effect of preferences and reservation in procurement on sustainable performance of state corporations in Kenya
4. To examine the effect of inventory management on sustainable performance of state corporations in Kenya.
5. To analyze the moderating effect of public procurement regulatory bodies on the relationship between procurement methods, procurement contract management, preferences and reservation in procurement, inventory management and sustainable performance of state corporations in Kenya.

#### **1.4 Research Hypotheses**

**H<sub>01</sub>:** Procurement methods do not significantly affect the sustainable performance of state corporations in Kenya.

**H<sub>02</sub>:** Procurement contract management does not significantly affect the sustainable performance of state corporations in Kenya.

**H<sub>03</sub>:** Preferences and reservation in procurement does not significantly affect the sustainable performance of state corporations in Kenya.

**H<sub>04</sub>:** Inventory management does not significantly affect the sustainable performance of state corporations in Kenya.

**H<sub>05</sub>:** Public procurement regulatory bodies do not significantly moderate the relationship between procurement methods, procurement contract management, preferences and reservation in procurement, inventory management and sustainable performance of state corporations in Kenya.

#### **1.5 Significance of the Study**

According to Mrope *et al.* (2017), public procurement includes obligatory policy of behavior destined to put into effect fairness and lay down responsibility and resulting mainly from routine endorsement by a legislature when doing business with the government. Efficient public procurement practices are critical for good public financial management and effective budget implementation. The study intends to

develop an understanding of public procurement practices and suggested ways through which operational efficiency can be enhanced through adherence to procurement practices. In particular, the result of this research is of significant to the following;

### **1.5.1 Public Sector**

The research results offered better insight into the association between public procurement practices and sustainable performance of state corporations in Kenya. It was a key ingredient in the; planning, designing and implementation of a sound public procurement system to help align itself to the overall economic strategy so as to assist in enhancing sustainable performance in public sector.

### **1.5.2 State Corporations**

State businesses may take advantage of the research results to be better placed to deal with obstacles that hinder victorious implementation of public procurement practices. The findings will also help them in improving the acquiring, execution and incorporation of procurement activities in administration. Given that some state corporations in Kenya are established to operate in commercial affairs others to provide services to Kenyan citizens it is therefore imperative that proper implementation of public procurement practices can enhance the level of transparency and accountability of procurement funds, minimization of procurement spending, observance of procurement laws and overall sustainable performance. Through this study, heads of procurement function in state corporations will be able to effectively implement public procurement practices in acquiring of goods, services and works to satisfy the needs and requirements of the public.

### **1.5.3 Policy Makers**

The findings of this study provided policy makers with opportunities to revise and improve the existing policies associated with public procurement practices and sustainable performance of state corporations. This in turn was of great significant to Kenyan policy makers with the establishment of proactively making strategic

decisions in regards to selecting the most appropriate procurement method, effectively managing procurement contracts with contractors, adhering to preferences and reservations in procurement procedures and improving inventory management activities.

#### **1.5.4 Academicians**

The research findings will be of significance to the academic group as it adds to the growing body of writing on public procurement practices. Professional associations can use the results of the research to develop appropriate ways to ensure proper implementation of public procurement practices in public procuring entities. This is due to the fact that the findings of this study will form part of rich literature on procurement practices. The study will also be beneficial to upcoming researchers who will be interested in conducting studies in this or related field.

#### **1.6 Scope of the Study**

The research is restricted to establish the effect of public procurement practices on sustainable performance of state corporations in Kenya. The study concentrated on five variables; procurement methods, procurement contract management, preferences and reservation in procurement and inventory management. These variables were mainly used because the previous researchers have deemed them as significant public procurement practices and that several studies show that they indeed influence sustainable performance. The study used public procurement regulatory bodies to analyze the moderating effect on the relationship between public procurement practices and sustainable performance. The choice of the moderating variable was because public procurement regulatory bodies act as regulators of the implementation of public procurement law, Act and regulations to ensure public procuring entities comply with all set rules and guidelines as well as adhering to proper implementation of public procurement practices (PPAD Act, 2025). This study specifically focused on 187 state corporations in Kenya where about 75% of these state corporations are located in Nairobi County and the other about 25% are located in other counties in Kenya. The choice of state corporations was because according to Hussein and Makori (2018), over 70% of Kenya state corporation's



procurement practices are normally not in fully adhering to public procurement practices. Further state corporations are required to ensure that they adhere to public procurement practices in carrying out their procurement activities.

### **1.7 Limitations of the Study**

This study had some limitations. The study faced a challenge of some respondents being reluctant to respond to questions relating to sustainable performance of state corporations in Kenya for fear of information confidentiality not being honoured by the researcher as well as victimization. This limitation was overcome by providing the introductory letter from the University reassuring them that the information was strictly for academic purpose and would be treated with confidentiality. Another limitation was that some respondents delayed in responding to the questionnaires within the duration required. To mitigate this limitation, the researcher frequently provided additional questionnaires and also extended the response time. Securing the valuable time of head of procurement and heads of finance to respond to the questionnaires was a challenge, therefore, the study delimited this by giving the respondents adequate time to respond to the questionnaires and sensitized them on the benefits and significance of the study to the organization. Lastly, the state corporations in Kenya are located in different parts of the country posing a challenge in data collection. The study mitigated this challenge by engaging three research assistants and distributing questionnaires via use of google form.

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1 Introduction

A literature review is a description of available information on the area by accredited researchers (Kinyua, 2015). This segment document relevant writing on the public procurement practices. The chapter comes up with theoretical review, conceptual framework and empirical review to be used in regard to each variable in the research. Finally, it illustrates a critique of the existing information relevant to the research and gaps identified.

#### 2.2 Theoretical Framework

The theoretical framework of a study communicates to the thoughtful foundation on which the study takes place, and shape the relation between the theoretical part and practical mechanism of the examination embarked on (Bougie & Sekaran, 2019). According to Orodho (2004), excellent study ought to be based in theory. This research was guided by Tendering theory, Theory of public contracts, Public Value Theory, Inventory Control Theory, Theory of regulatory compliance and Triple Bottom Line model.

##### 2.2.1 Tendering Theory

Tendering theory is considered to be relevant for this study in order to understand the effect of procurement methods on sustainable performance of state corporations hence it gives theoretical background for this study. The proponent of this theory was Friedman (1956), who stated that to maximize value for money from tendering process, there is need to ensure that there is open and fair competition among bidders (Duraku, 2019). According to Runeson and Skitmore (1999), this theory explains the relations in public organizations and how they are supposed to ensure there is realization of value for money when carrying out procurement process. The theory indicates that when selecting a method of obtaining goods, services, works and consultancy services there is needs for a proper development of a specification

(Buuri, 2016). A comprehensive, clear and precise specification helps an organization in applying supplier selection criteria that is not only based on the lowest price wins but also conformance with the specification. The focus in this theory is that desired bidders are awarded the contract based on procuring entity achievement of competitiveness, transparency and value for money (Simeon, 2018).

Chelimo and Makori (2018), stated that when using a certain method of procurement in the tendering process, the goal should be to maximize revenue that is expected from a single tender where each tenderer submits one closed tender simultaneously. Tendering theory argues that there should be minimization of transaction costs which is the price that market participants are required to pay (Njoki & Kimiti, 2018). This is to help meet an agreement, come up with policies to establish the agreement, and ensure proper delivery system as part of this agreement in the procurement process (Kalatya & Moronge, 2017). It clarifies reasons why different organizations are required to select the most appropriate method of procurement in order to improve effectiveness and efficiency which lead to the organization performance (Njoki & Kimiti, 2018). Procurement process costs in states organizations are related to organization and administration of public, competitions, payment of independent experts, legal expertise of contracts, public tender reestablishing, costs coming up due the delay in the execution of public contracts, and complaint (Duraku, 2019).

Procurement process costs relating to public sector procurements are approximately 1.9% of the worth of the contract (Waigwa & Njeru, 2016). For that reason, the procurement managers are required to ensure there is effectiveness and efficiency in all their activities when attempting for the first time since repeating a procurement process might add administration costs which may lead to poor organizational performance (Kinyamasyo & Kihara, 2019). In public sector procurement the procurement process costs go further than acquisition cost but it includes even the cost of managing the contract which involves administration of contract, costs of contract enforcement, resolution of conflicts cost as well as decision-making (Ondigi & Muturi, 2015). Consequently, procurement staffs are required to control these costs well when choosing the best method of procurement and awarding tender to the

most competent supplier so as to ensure improving the overall organizational performance (Muli, Bwisa & Kihoro, 2016). The theory indicates that choosing the most appropriate method of procurement can help an organization achieve value for money, reduce procurement cost, acquire quality goods and services and also ensure fairness in the procurement process.

### **2.2.2 Theory of Public Contracts**

Theory of public contracts is considered to be relevant for this study in order to understand the effect of procurement contract management on sustainable performance of state corporations hence it gives theoretical background of this study. This theory was developed by Spiller (2008), to analyze how public procuring entities create and improve legal contracts (Aluonzi, Oluka & Nduhura, 2016). It evaluates how parties with contradictory interests develop formal and informal contracts through agreements (Ndunge & Mburu, 2017). The theory indicates that public procurement contracts appear to be characterized by formal, consistent, bureaucratic, inflexible processes (Telser, 1980). Public contracts are commonly seen to more rigid, necessitating regular formal renegotiation, with greater propensity to litigate, and giving weaker incentives (Tan & Lee, 2015). The theory indicates that higher prices and inefficiencies in the implementation of public contracts result from their specificity and rigidity, which is how public agents limit hazards from third-party opportunism (Komora & Kavale, 2020).

To ensure compliance with public procurement contracts it requires the presence of a third-party enforcer (Eriksson & Westerberg, 2009). This theory states that most public procurement contracts face risks of governmental opportunism as governments may perhaps issue legislation making a specific contract illegal even after the contract has been administered (Rashid, 2015). When getting into a relationship between a supplier and a procuring entity there is need to ensure that both parties achieve their own responsibilities to improve the performance of the contract (Chepng'etich, Waiganjo & Ismael, 2020). The theory indicates that procurement contractual relationships are essential to help the procuring entity deliver quality products and services to their clients (Komora & Kavale, 2020). If

deliveries are not done on time, then the organization may not be able to provide required services to their customers (Telser, 1980). Therefore, procurement function should implement a comprehensible approach to develop and institute collaborative relationships with suppliers and acquire best quality products, works and consultancy services grounded on realistic contractual terms and reasonable prices (Greif & Avner, 1993).

Bajari and Tadelis (2001), indicate that the proponents of this theory focus on enhancing involvement of competitive bidders in the purchasing processes so as to improve performance in operation. Such involvement is expected to improve extent of monitoring and enforcement of public procurement law by public agents and transfer the responsibility from the designated representatives to the taxpayers, being the key principals (Telser, 1980). This will lead to improved profitability, reduced lead time, improved customer satisfaction and delivery of quality services (Rashid, 2015). The contract theory observes procurement department as a link that exists among significant organizational individuals who work so as to attain of common procurement objectives and goals. Procurement management needs to work toward improving and developing good suppliers' relationships which will enhance organization's operations to improve business performance (Spiller, 2008). By ensuring proper procurement contract management through proper contract administration, contract monitoring and evaluation, prompt payment of suppliers and conflict resolutions helps the agents working towards achieving optimal organizations performance (Ndunge & Mburu, 2017).

### **2.2.3 Public Value Theory**

Public Value Theory is considered to be relevant for this study in order to understand the effect of preferences and reservation in procurement on sustainable performance of state corporations hence it gives theoretical background of this study. This theory was first introduced by Mark Moore (1995), who indicated that the theory provides public sector procurement managers with a better understanding of the limitations and opportunities within which they work, and the challenge to create publicly valuable outcomes (Bozeman, 2007). Bryson, Crosby and Bloomberg (2014), argue

that public value theory visualize a manager's role as going past implementation of law and observance to institutional standards. It includes looking out for opportunities to achieve considerable improvements to living standards of the public. Moore (1995), also notes that public value theory communicates a more proactive and strategic responsibility for public procurement sector managers who seek to find out, classify and produce public value, instead of just coming up with means for realizing mandated purposes.

The PPAD Act (2015), part VII has a condition for preferences and reservations in procurement specifically for renderers from minority groups in country, local bidders, women, youth, and persons living with disabilities. This was operationalized with the gazettelement of the Preference and Reservations Regulation (2011), and can be interpreted to mean positive discrimination (PPAD Act, 2015). According to Bozeman (2007), in states procuring entities, firms rendering services to public are directly made answerable to citizens and their democratic representatives. This theory was important in explaining how the execution of the preference and reservations regulations has created procurement opportunities for the SMEs and how this has made significant improvement to the lives of the citizens. Instead of acquiring goods and services at the lowest price, a public sector client can decide to use more to realize better whole organizations outcomes (Ngeno, Namusonge & Nteere, 2014). This may require focusing on regional development or local tenderers guidelines by selecting, and building suppliers who are more competent of involving local SMEs as subcontractors and or training or giving job opportunities for unemployed youth (Muraguri, 2013).

#### **2.2.4 Inventory Control Theory**

Inventory Control Theory is considered to be relevant for this study in order to understand the effect of inventory management on sustainable performance of state corporations hence it gives theoretical background of this study. The proponent of this theory was Thomson, (1953) who intended to furnish the concept of inventory management (John *et al.*, 2015). According to Finnell (2011), this theory was developed to analyze ways a procuring entity can attain competitive edge by

planning and controlling all the processes involved in developing a product such as designing, acquiring, value addition, transportation, warehousing, and distribution and return logistics. For the large organizations they apply different inventory control theories and mathematical formulas to assist in improving the manufacturing and warehousing of products and to assist in inventory cost minimization (Ofula, Ngugi & Mburu, 2020). At the same time small organizations apply ideas from different inventory control systems and philosophies to control their manufacturing and warehousing founded on their needs to meet customers' requirements and to minimize cost. It's the responsibility of the head of procurement function to ensure inventory costs in terms of storage, shortage, ordering, purchase and disposal costs are minimized to increase revenue and to meet customer requirements (Scarf, 2002).

According to Buxey (2006), resources competencies and capabilities of the organization are a package of the organization's assets. The entity is obliged to develop internal company processes, laws and policies that direct how resources required should be acquired, stored and managed when carrying out internal organizational activities (Muhalia, Ngugi & Moronge, 2021). These procedures are necessary in inventory sourcing and control decisions. In the same way, it is important to have a well-managed information system to make it easy for timely flow of inventory information between the organization and its external stakeholders (Ofula *et al.*, 2020). It is important to avoid overstocking to reduce storage costs and under stocking to reduce shortage cost.

Scarf (2002), further explains that overstocking is as a result of poor inventory management, inaccurate demand forecasting and inappropriate inventory control techniques, systems and models. Under stocking frequently interferes with production activities and leads to failure to meet customer requirements. Therefore, procurement activities of the organization and control of acquired materials is important in acquiring and managing of resources used in the organization (Mukopi & Iravo, 2015). Each organization is special from other organizations in regards to the unique resources and capabilities it has which requires effective planning and controlling of those resources. It indicates that appropriate management of inventory

in executing procurement function improves on sustainable procurement effectiveness and efficiency (John *et al.*, 2015).

### **2.2.5 Theory of Regulatory Compliance**

Theory of Regulatory Compliance is considered to be relevant for this study in order to understand the moderating effect of public procurement regulatory bodies on the relationship between procurement methods, procurement contract management, preferences and reservation in procurement, inventory management and sustainable performance of state corporations hence it gives theoretical background of this study. According to Arrowsmith, Linarelli and Wallace (2000), this theory was first proposed in the 1970's by Richard Fiene when the association between compliance with rules, practices and principles was linked to compliance with best practices standards and outcome data. According to Mrope *et al.* (2017), this theory focusses on the implication of complying with rules or regulations and the role played by public procurement regulatory bodies to enhance compliance with the law in a given organization. An assumption of this theory is that 100 percent law and regulatory compliance leads to improvement in products and services delivered in an organization (Sönnichsen & Clement, 2020). It hypothesizes that entities need to frequently try to ensure that they function with the bounds and standards of their respective societies and authorities. It states that an organizations value system is similar with the value system of the larger social structure of which the organization takes part in (Zubcic & Sims, 2011).

This theory which focuses on the link and relations between an entity and the public, gives an adequate and greater way for understanding state corporation's procurement activities (Mrope *et al.*, 2017). This clarifies why some laws and procedures developed to control the procurement practices and activities are in some cases compromised. For example, in most developing states, the public procurement function is transforming from a clerical non-strategic unit to an effective socio-economic unit that is capable of effecting decisions and improving products and services value to citizens (Arrowsmith *et al.*, 2000). The result of continued enforcement action ensures that an organization is able to cultivate a compliance



culture which has a direct effect on business compliant conduct. Developing countries have established their public procurement laws, regulations and policies. These establishment and changes have not been to regulations only, but also in the procurement procedures, methods, organizational structure, and changes in the workforce (Ambe, 2019).

### **2.2.6 Triple Bottom Line Model**

Triple Bottom line model is considered relevant in understanding the effect of public procurement practices on sustainable performance of state corporations in Kenya and hence provides the theoretical background for this study. This model was founded by John Elkington, (1998) who provided a sustainability framework that measures performance of an organization in three key areas including profit, people, and the planet (Eriksson & Westerberg, 2009). Performance in an organization is all about producing added value results in all organizational activities (Allaoui, Guo & Sarkis, 2019). Pettersen *et al.* (2020), argued that Triple bottom line model grows an organization accomplishment metrics to comprise the contributions to environmental well-being, social health, and a fair economy. This model focuses on ensuring sustainable performance of an organization in relation to environmental protection, social responsibility and economic growth (Eriksson & Westerberg, 2009). Today, entities and businesses are aware of good achievements in not just focusing their profit and loss statements. Rather, to get a perfect, well-rounded viewpoint of their processes and connections with the environment, people wellbeing, and economy, businesses must fully account for all costs connected with doing business by going past compliance (Asudi & Shale, 2019).

According to Camilleri (2019), this model set up the key of long-term strategies for companies making the transition to sustainability, based on three important dimensions of sustainable development: environmental protection, social responsibility, and economic benefits. Traditionally, profit has been the bottom line for organizations performance but there has an increased interest towards thinking as to what makes organizations successful and how to measure organization's success and performances (Corsten, 2009). TBL distinguish that the accountant's profit

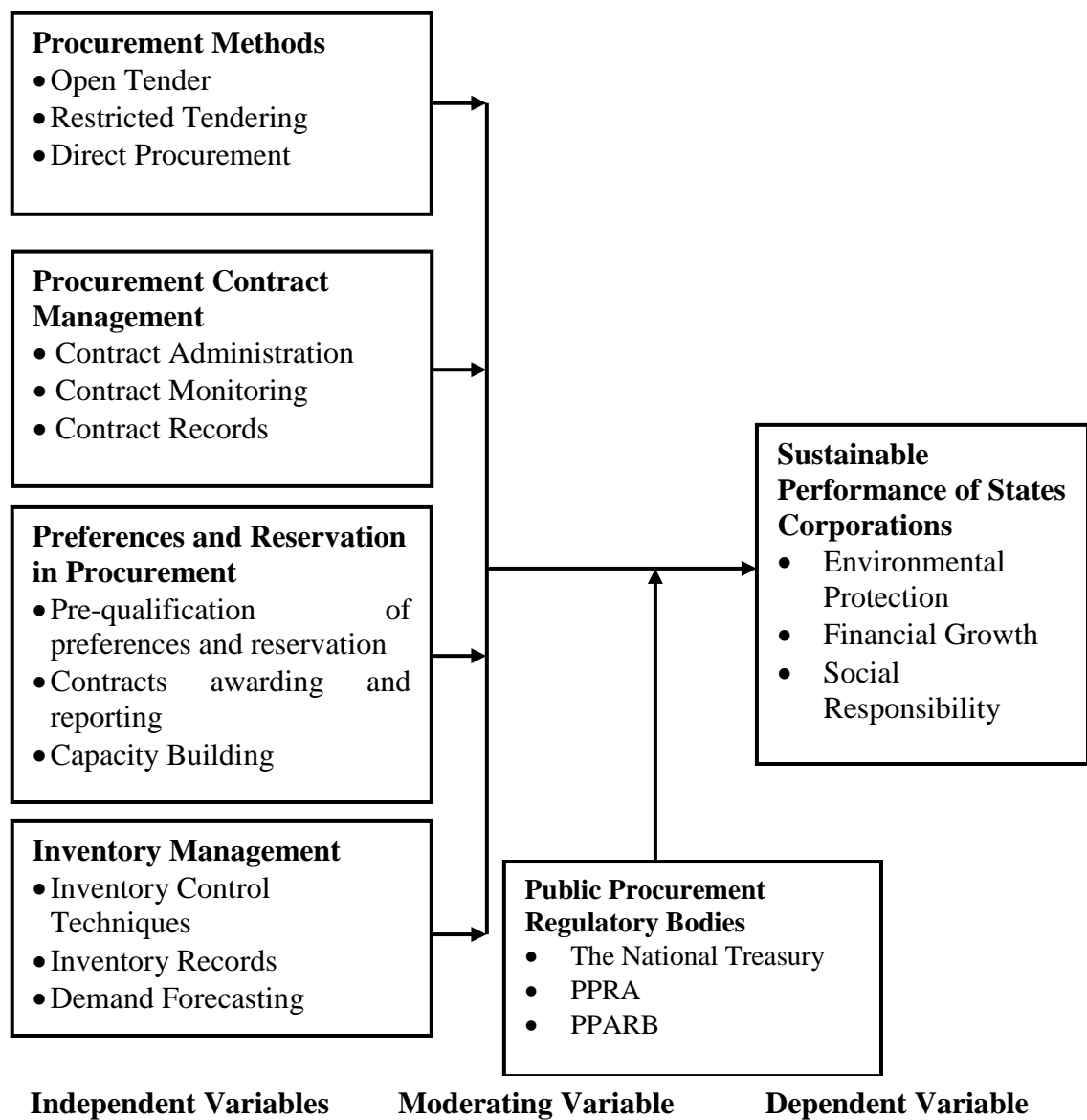
bottom line of measuring an organization's performance has limitations. Therefore, concluding that other elements for determining an organization achievement and performance are required. Other measures needed include: customer satisfaction, growth and development, environmental compliance and social fairness. This requires organizations to appreciate the contributions of the TBL in measuring organizational performance to go beyond the profit bottom line (Njogu & Gichinga, 2016).

The model state that, there is need to monitor activities that result to improvement of mutual knowledge and understanding of work requirement and outcomes, discuss performance feedback, pinpoint opportunities for learning and improvements, and assess performance outcomes (Eriksson & Westerberg, 2009). This way an organization will be able to improve and maintain a conducive workplace environment with continuous value addition, take advantage of changes in the environment, endeavors to achieve strategic objectives, encourages innovation, and supports training and professional development as ways of motivation employees towards improving organizational sustainable performance (Etse *et al.*, 2021). To improve performance an organization, need to avail the right products and services at affordable cost to enhance customer satisfaction throughout their operations to ensure sustainability (Mutangili, 2019). Professionalism, competitiveness, pro-activeness, transparency and responsiveness can help an organization improve its performance (Njogu & Gichinga, 2016). To realize anticipated performance goals an organization, need to ensure it continuously deliberate and recognize the need come up with innovative ways to improve performance such as timely delivery of products and services, responsiveness, skills and capability development through staff capacity building, supplier relationship management, accurate planning and forecasting organizational needs and continuous improvements (Mwangangi & Achuora, 2019).

### **2.3 Conceptual Framework**

Conceptual framework entails brief account of the occurrence underneath research that goes along with a graphical representation of the key variables of the research

(Bougie & Sekaran, 2019). Independent variables manipulate the dependent variables, while a dependent variable is a standard that can be forecasted. Independent variables in this research included: Procurement methods, procurement contract management, preferences and reservation in procurement, and inventory management. Sustainable performance of state corporations was the dependent variable. A range of aspects in every variable was examined on a Likert scale. The level to which every variable affect sustainable performance of state corporations was documented.



**Figure 2.1: Conceptual Framework**

### **2.3.1 Procurement Methods**

According to Gatobu (2020), procurement methods provide procedures that public procuring entities use to acquire products, consultancies and works. These methods can be competitive or non-competitive. There is preference of using competitive procurement methods in supplier selection and evaluation because that they tend to promote transparency, economy and efficiency (Wachiuri, Waiganjo, Noor & Odhiambo, 2018). Procurement encompasses the whole process of acquiring goods, works or services. It begins when an agency has identified a need and decides on its procurement requirement (Mogikoyo, Magutu & Dolo, 2017). There are different procurement methods that can be used in public procurement each with different condition for use. These are competitive tendering, direct procurement, and request for quotation (RFQ), restricted tendering, request for proposal (RFP), two stage tendering, force account, low value procurement, design competition, framework agreement, e- reverse auctioning, community participation (PPAD regulation, 2020). Contracting authority can choose amongst the methods provided (Salim & Kitheka, 2019).

According to PPAD Act (2015), open tendering is the preferred competitive procurement method used for procuring goods, services and works in public sector. Open tendering as per PPAD Act of 2015 involves invitation of prospective suppliers to compete for an advertised contract where the lowest tenderer in terms of price was accepted. However, the lowest bidder should be deemed competent to carry out the contract (Chelimo & Makori, 2018). It is supposed that this procurement method promotes effective competition amongst prospective suppliers therefore resulting to achievement of value for money and fairness in the procurement process. Restricted tendering is mostly used when the value and the conditions are not justifiable to the open tendering where by bids are obtained directly without floating the tender to the public (Buuri, 2016). Here the procuring entity uses its database of pre-qualified providers who are directly invited to tender. Although considered a competitive procurement method, competition is limited to only firms shortlisted or invited by the procuring entity (Ariko, Arani & Baraza, 2019). A process should be in place for

arriving at the number and specific firms that will be invited, that number however is dependent on the stipulations of the public procurement legal framework.

Request for quotation is a simplified tendering methodology where the procuring entity seeks to limit transactions costs, thus preferring to contact the firms that have proven track, when asking for quotes (Githinji & Moronge, 2018). This method is used for small value procurements of goods that are readily available off-the-shelf, small value construction works, or small value services procurements. According to Yegon and Mbeche (2018), the invitations are not complex in this method and it is considered non-competitive because the procuring entity determines which contractors, suppliers or service providers to request quotations from as long as a minimum of three are invited. Direct procurement is used where circumstances do not allow for competitive bidding. It is used for small quantities in case where time may not allow for competitive bidding (Gatobu, 2020). Njoki and Kimiti (2018), states that Direct Procurement Method is only applicable on ground of urgency or emergency when life and property are threatened and other methods are not practical. The use of this method should be preceded by a rigorous approval process before it is considered to ensure achievement of value for money. Where direct procurement method is used, the public procuring entity is required record the reasons upon which the decision was made to use the methods to ensure that they are in line with practices (Ariko *et al.*, 2019)

According to Ogembo and Muturi (2019), request for proposal is used when a procuring entity request suppliers, contractors or services providers to propose a specific solution to fulfilling a specific need. Potential suppliers are requested to submit technical and financial proposals in two separate envelopes. The technical specification is evaluated first and ranked according to evaluation criteria pre-established by the procuring entity and only the financial proposals of those firms that achieved the minimum qualifying mark (score), indicated in the RFP, are opened and evaluated (Githinji & Moronge, 2018). The sum of the combined weighted score of the technical and financial proposals determines the supplier to be selected with which the contract is negotiated. Two stage tendering is a procurement method where due to complexity or inadequate knowledge in projects, it is not possible to give

detailed specifications at that time of inviting the suppliers to participate in the procurement process (Mugo & Odari, 2018). In the first stage, bidders are requested to submit a technical proposal with their best solution for fulfilling the requirement. The proposal is evaluated and scored, and the firm with the highest ranked technical proposal is invited for discussions with the purpose of reaching agreement on the proposed technical solution. In the second stage, the highest ranked bidder is invited to first submit a financial proposal based on the agreed technical solution in the first stage, and then to contract negotiations (Njoki & Kimiti, 2018).

According to Ndei and Mutuku (2021), electronic reverse auction is a procurement method where, suppliers compete to be awarded a tender by the procuring entity and prices will typically decrease as the sellers undercut each other. It is an online, real-time, declining-price auction between one buying organization and a group of pre-qualified suppliers (Oteki, 2019). A reverse auction is similar to a unique bid auction as the basic principle remains the same; however, a unique bid auction follows the traditional auction format more closely as each bid is kept confidential and one clear winner is defined after the auction finishes. A framework agreement is a procurement method which involves an agreement with suppliers to establish terms governing contracts that may be given as per the period of the agreement (Kisimbii & Maalim, 2019). In other words, it is a general term for agreements that set out terms and conditions for making specific purchases. This method sets out the terms particularly relating to price, quality and quantity under which individual contracts can be active within the duration of the agreement normally a maximum of 4 years (Iregi & Kipkorir, 2017).

According to Okundi and Kitheka (2019), force account, is construction by the use of the Borrower's own personnel and equipment which may be the only practical method for constructing some kinds of works. The use of force account may be justified where: quantities of work involved cannot be defined in advance; works are small and scattered or in remote locations for which qualified construction firms are unlikely to bid at reasonable prices; and work is required to be carried out without disrupting ongoing operations (Rono & Moronge, 2019). Low value procurement is a method used when procuring low value items which are not procured on frequent

basis and are not covered in framework agreement. Design competition is a procurement method for acquiring competitive tender for services which are creative in nature architecture, landscaping, engineering, urban design projects, physical planning and fine arts (Salim & Kitheka, 2019).

Competitive negotiation method is used where proposals are solicited from a number of qualified suppliers to permit reasonable competition consistent with the nature and requirements of the Procurement (Shiundu & Rotich, 2014). Negotiations are normally conducted with more than one of the suppliers' submitting offers with a view to reaching agreement on the technical quality, price, other terms of the proposed contract and specifications may be necessary. Specifically Permitted Procurement Procedure is a procurement method which must be specially permitted by the Authority (Simeon, 2018). It may include concession & design competition. Community participation is a procurement method used where a procuring entity may involve a beneficiary community to participate in the delivery of services if it is established that it shall contribute to the economy, sustainability of the project, creation of employment and value for money (Waigwa & Njeru, 2016).

### **2.3.2 Procurement Contract Management**

Namusonge, Mukulu and Kirima (2015), asserts that various organizations involved in acquiring goods and services lack proper ways of managing procurement contract. The lack of proper procurement contracts management is still a major limitation to the procurement performance in different countries (Ndei & Mutuku, 2021). This has resulted to the need for companies to emphasis on training and developing of their staff on contract management. PPAD Act (2015), indicated that the public procurement law ensure that procurement practitioners adhere to proper implementation of procurement contracts. Many procurement units of organizations in public sectors staff lack necessary expertise and specialized procurement contract knowledge even with the actions taken on the road to improving professional procurement human resources (Kimundu, & Moronge, 2019). Contract management focuses on ensuring that all contacting parties conform to all the terms and conditions

of the contract, as well as recording and agreeing with any needed changes in the contract implementation (Nyaga & Mwangangi, 2019).

Contract management is a procedure that comprises undertakings required to achieve in order to recognize its benefits (Yegon & Mbeche, 2018). The most important contract management activities include contractor monitoring and acceptance management; managing contract relationships; contract administration; dispute resolution; and contract closure (Eriksson & Westerberg, 2009). Contract management is the procuring entity's responsibility over a period of the contract to ensure that the contractual agreement is met by all parties involved in the contract (Komora & Kavale, 2020). Contract life cycle management involves contract development, administration, implementation and monitoring to ensure performance of the contract and ensuring contractual risks are minimized (Ogembo & Muturi, 2019). Procurement contract management should be effectively implemented as it is important in ensuring sustainable performance of an organization; therefore, there is need for the procuring entities to successfully ensure that procurement contracts are well managed (Ochola & Kithaka, 2019).

The procurement contract management activities in public procurement involves contract administration, service delivery management, relationship management, contract monitoring and contract records management (Moffat & Mwangi, 2019). Contract administration focuses on keeping an updated contract form, planning and monitoring changes in contract; ensuring that contractors are paid on time; monitoring use of assets; coming up with reports; and use of appropriate procedures in contract termination (Ndunge & Mburu, 2017). Contract administration begins with setting clear contract performance measurement criteria that need to be adhered to by parties involved. The criteria should provide the guidelines on contract deliverables. The objective of contract administration is to ensure the contract is adequately carried out and the duties contracting parties are properly performed (Batetah & Wabala, 2021). Effective contract administration reduces the risks of contractual disputes. It is important for contract administrators to clearly understand the requirements of the contract and be in a position to discuss contract requirements



to contractual parties to ensure performance of the contract (Kibogo & Mwangangi, 2014).

According to Kimundu and Moronge (2019), contract monitoring and acceptance management is all about making sure that all contracting parties achieve their obligations as per agreed contractual terms. Managing relationships within the contract helps the procuring entity to improve supplier performance through supplier development, early supplier involvement and payment of suppliers on time (Komora & Kavale, 2020). It entails tracking contract progress to identify contract variations from the actual plan. Contract monitoring ensures that the contracted supplier sufficiently perform the contracted services as per the terms and condition of the contract (Kosgei & Kinoti, 2018). Dispute resolution involved dealing with all conflicts arising from contract through use of the most appropriate conflict resolution methods. Lastly, contract closure occurs after all terms and condition of the contract have been met and achieved by all contracting parties (Kosgei & Kinoti, 2018). Proper management of procurement contracts through maintaining proper records of the contract helps an organization in improving contract performance and maintaining long term relationship with suppliers. This leads to the ability of an organization to acquire quality goods and services, timely delivery, increased revenue and improves customer satisfaction (Aluonzi *et al.*, 2016).

According to Kibogo and Mwangangi (2014), capability in public procurement conveys to the staff's education, skills, qualifications and professional approach regarding how they perform their duties which leads to efficiency and effectiveness in contract management. According to PPOA Audit Report (2014), poor contract management in Kenyan public organizations is still on the rise (Namusonge *et al.*, 2015). Procurement employees and everyone involved in all activities and processes pertaining to acquiring products, works and services for the public are supposed to be familiar and understand the purchasing guidelines, regulations, rules and laws so as to be able to comply. Owuoth and Mwangangi (2015), states that procurement practitioners will comply with the laws and regulations if they understand and recognize them as clear. Chogo, Idua, Banafa and Adem (2020), indicated that if the law is not clear to procurement practitioners, then it will lead to likelihood for

procurement law noncompliance and that procurement laws and policies that are not well-known leads to poor compliance levels.

### **2.3.3 Preferences and reservation in procurement**

According to Mwangi, Karanja and Namusonge (2017), preferences and reservation activities in public procurement involves ensuring that contracts or portions of a contract are set aside for bidders who satisfy certain prescribed criteria in the public procurement regulation. This is done to ensure that special groups are not disadvantaged in the procurement process by giving them an opportunity to develop themselves economically (Gitari & Kabare, 2019). The focus of this scheme is to ensure SMEs, local bidders, youth, women and persons with disabilities are not discriminated when obtaining works, goods and services in public procurement procedures. This obligation focusses on groups in the society alleged to be deprived of, equal access to resources, services and tools which are suitable for their survival (Marendi & Awino, 2016). Sustainable performance can be enhanced through implementation of preference and reservation policies that are effective in public procurement.

The preference and reservation regulations permit public procuring entities carrying out procurement activities to apportion procurement opportunities to special groups that includes youth, women and PWDs (Lemayian & Moronge, 2018). The public procuring entities are required to develop procurement plans allocating total reservation of at least 30% of the procurement opportunities to the disadvantaged groups. The guideline also directs the procuring entities on how to publicize and assess the tenders submitted by the special groups (Marendi & Awino, 2016). Public procuring entities are supposed to ensure that quarterly reports are submitted to PPRA for compliance audits. All categories of goods, works and services to be acquired on preferential basis to special groups will be essential to be included in public procuring entity procurement plans (Mbatia & Osoro, 2020). All preferential procurement opportunities are only available to businesses owned by special groups and legally registered either in the form of a sole-proprietorship, partnership or registered company (Muange & Chirchir, 2018).

The Kenyan government has recognized the importance of SMEs and put in place rules establishing public procurement law for promotion of these special groups (Nyongesa & Osoro, 2019). Further, the government has specified the legal quotas for PP suppliers for SMEs and other disadvantaged groups' proportion is capped at 30% of all the contracts awarded. However, the main challenges in implementing these regulations include conflict of interest, availability of resources, nature of products and services, resistance of buyers and qualification and ability of SMEs to deliver on the requirements (Kimote & Kinoti, 2018). Other challenges include lack of clear regulatory framework and guidelines open to public scrutiny, poor accessibility, inadequate advertising of procurement opportunities, excessive bureaucracy and documentation and unclear selection criteria (Muange & Chirchir, 2018). State corporations require adequate resources for service delivery. The resources include human, financial, information and material. The human resources are the employees that work for these corporations.

According to Munyao and Moronge (2017), the exclusive drive of the Access to Government Procurement Opportunities (AGPO) in Kenya was to guarantee that women, youth and persons with disabilities are able to actively participate in public procurement activities without discrimination. The benefits accrued by disadvantaged groups registering for the AGPO includes the ability to take part in 30% of public procuring entities tenders, to qualify for Local Purchase Orders financing from the Youth/Women Enterprise Development Fund, being excluded from bid bonds, and invoice discounting with financial institutions (Mutangili, 2021). The Kenyan government is absolutely keen in funding disadvantaged groups in Kenya. Public procurement is critical in various sectors of government as goods, services and works needs to be procured in order to meet increasing demand of its citizen's needs (Mwangi *et al.*, 2017). Youths, women and persons with disabilities are able to fast-track economic growth of a country. Encouraging youths, women and Persons with disabilities to participate in government procurement opportunities will improve economic and social development of a country (Ngeno *et al.*, 2014).

Mrope *et al.* (2017), defines human capital as the knowledge, skills and abilities of the people employed in an organization. Financial resources are generated and some

remitted from the central government. Effective execution of Reservations in procurement requirement requires adequate financial resources (Mueni & Moronge, 2018). In spite of procurement contributing between 10 - 40% of the country's GDP, concerns on the way in which public organizations use the resources that are given to them has often raised doubts that value for money has not been realized (Muraguri, 2013). Compliance with public procurement practices can help procuring entities create job opportunities for special groups as well as improve general performance of public procuring entities (Munyao & Moronge, 2017).

### **2.3.4 Inventory Management**

Inventory Management is carried out by organizations to ensure proper monitoring of inventory levels in relation to amount ordered, lead time, storage costs and when to replenish stock (Obura, 2015). It involves the recording and observing of inventory level, predicting future orders, and deciding on when and how to store inventory (Mulandi & Ismail, 2019). Organizations keep inventories for the following reasons: to meet customers' requirements and demands; to ensure uninterrupted flow of production, to prevent stock outs and to meet anticipated customer demands. Inventories involves those items which are either accrued for sale or they are in the process of processing or in the form of raw materials using in manufacturing process (Mukopi & Iravo, 2015). Inventory consists of three types that includes raw materials, work-in-progress (WIP), and finished products. Other types of inventories are classified in relation to the functions they serve that includes Maintenance, Repair and Operation (MRO) inventories, buffer stock, transit inventories, anticipation inventories and dead stock (Mkonu & Gichana, 2019).

According to Lukkarinen and Majava (2020), the main aim of inventory management, hence, is to ensure that the organization had the right quantities and qualities of inventory kept, available at the right time to meet requirements to customers as well as minimizing carrying cost. Jephchirchir and Noor (2019), observe that inventory management is associated with all activities established to guarantee that customers access a specific product or service. It enables the coordination of the activities purchasing, manufacturing along with distribution in order to meet the

marketing needs of ensuring that products are available to a client. Equally private and public organizations have been making good utilizing IT systems in an effort to improve inventory management (Karani & Osoro, 2020). Different approaches of stock control applied in various procurement processes can enhance visibility and routine efficacy without bias to supplier's competition (Namusonge *et al.*, 2018).

Inventory planning and control has various advantages which are: improvement in contract compliance, reducing on the procurement expenditures, better participation of staff, and reduced handling costs (King'oo & Muli, 2019). Inventory management deals with ensuring that appropriate stock levels are kept, balancing between inventories related costs and ensuring meeting customer requirement as and when required (Mukopi & Iravo, 2015). Inventory grouping is an element of inventory management with benefits of inventory planning and control, procurement, warehousing of inventory, material handling, material identification and accounting inventory kept in an organization (Ofula *et al.*, 2020). According to Obura (2015), Current inventory models, philosophies and systems includes Economic Order Quantity (EOQ), ABC Analysis, Enterprise Resource Planning (ERP), Material Requirement Planning (MRPI), Manufacturing Resource Planning (MRPII), Vendor Managed Inventory (VMI), Bar Coding and Just in Time (JIT). These systems and models enable an organization to effectively monitor inventory in store to avoid overstocking and under stocking (Muhalia, Ngugi & Moronge, 2021).

Inventory management models and techniques facilitate an organization control and uphold required stock levels in order to accomplish essential operational performance (Karani & Osoro, 2020). Inventory management should be geared towards achieving customer requirements in the right quality and quantity at the right time. For an organization to meet requirements of customer there is need to ensuring avoiding shortages of inventory and monitoring costs of inventory (Jepchirchir & Noor, 2019). It is also important to have accurate demand forecasting techniques to maintain required stock levels. Inventory records are very critical in ensuring proper monitoring of stock in store so as to maintain appropriate stock levels. Careful inventory management needs assessing the costs of upholding appropriate levels of stock so as to minimize inventory costs (Hussein & Makori, 2018).

Maintaining ideal inventory levels decreases the cost of possible disruptions in business operations due to shortages of inventory, minimizes replenishment costs, and guards against changes in products prices (Lemayian & Moronge, 2018). Inventory management necessitates a suitable way of deciding what to order, how much to order and when to order and ways in which all items in stock can be tracked to ensure no issues of inventory shortages and overstocking (Lukkarinen & Majava, 2020). Decisions relating to inventory are dependent on inventory in stock, forecasted demand information, lead time and inventory related costs. According to Obura (2015), the absence of suitable inventory control systems in government entities will make it difficult for analysis of expenditures on a macro-economic level. The latitude of stock level control activities ensure monitoring the reordering lead time, reordering of products and materials, reverse logistics management activities to ensure returned product are re-used, refurbished, recycled or remanufactured to obtain their maximum value and effective planning for demand, controlling inventory storage costs, disposal planning and asset management, stock taking, proper utilization of available storage space, stock assessment, price determination and total quality improvement (Mukopi & Iravo, 2015). With a proper controlling and monitoring of these requirements, it is possible to achieve an ideal stock level, which is a continuous process as the market needs keeps on changing (Finnell, 2011).

### **2.3.5 Public Procurement Regulatory Bodies**

Public procurement regulatory bodies act as regulators of the implementation of public procurement law, Act and regulations to ensure organizations comply with all set rules and guidelines (Eyaa & Oluka, 2018). Chogo, Idua, Banafa, and Adem (2020), analyzed factors affecting procurement law compliance in public secondary schools in Kenya. The findings examined that employee capability, e-procurement, managing procurement records and style of administration affected procurement performance at the organization. Enforcement of public procurement practices requires public procuring entities to submit mandatory compliance reports in regards to compliance with various sections of the Act in regards to procurement activities. This is to help public procurement regulatory bodies ensure enforcement of public procurement practices (Grandia, & Meehan, 2017).

According to PPAD Act (2015), the national Treasury, PPRA and PPARB are mandated by the PPAD Act, 2015 to enforce standards and procedures developed under the Act. Their mandate is to; act on complaints received on procurement and asset disposal proceedings; to undertake investigations and debar a person from participating in procurement and asset disposal proceedings (Mrope *et al.*, 2017). The Accounting officer with the help of the head of procurement function are required to ensure that the procuring entity is compliant with the Public Procurement and Assets Disposal Act (Lemayian & Moronge, 2018). They are also supposed to ensure regulations and directives in their procurement and asset disposal undertakings and see to it that the mandatory reports are submitted in the prescribed format. Chalton (2018), argue that procuring entities will take into consideration the risk of sanctions, set by the procurement law in case of non-compliance.

Public procurement regulatory bodies ensure that all procurement activities are regulated and that public procuring entities have structures in place to support effective application of procurement practices (PPAD Regulation, 2020). All procurement professionals involved in procurement process are supposed to comply with public procurement guidelines and rules. If procurement professionals are not trained on public procurement practices, procedures and, lack awareness then there will be cases on noncompliance therefore regulatory bodies are mandated to create awareness of all public procurement practices to ensure compliance. Shiundu and Rotich (2014), in their study indicated that more effect on procurement compliance can be as a result of the internal incentives developed by the entity. Nyaboke and Muturi (2017), uphold that enforcement has a superior regulatory effect ahead of the violators and reminds managers involved in corporate management of their duties and the risks involved with the failure to achieve those duties. They also indicated that enforcement action focusing on making sure that compliance plays a key role in corporate governance. Similarly, Sönnichsen & Clement (2020), argued that compliance should go past just observing applicable laws and regulations and should enlarge to complying with standards of superior governance.

Entities might decide to implement unproductive compliance guideline if regulations violations may be beneficial in circumstances where the legal system available

under-enforces, either due to penalties set too low or due detection ineffectiveness (Marende & Awino, 2016). The legal sanctions threats are vital to ensure increasing practices compliance levels and that regulatory actions have aggregate effect on the responsiveness of regulated entities. It is beneficial to entities appreciate that regulation violators will be disciplined by the law (Mbatia & Osoro, 2020). Procuring entities take in to accounts the risk of sanctions, set by the public procurement regulation in case of non-compliance with practices. The public procurement regulatory bodies ensure maintaining transparent, fair, efficient and competitive procurement systems to ensure sustainable performance of public procuring entities (Muange & Chirchir, 2018).

The public procurement regulatory bodies are mandated to ensure that all public procurement activities are carried out in regards to competitiveness, value for money, Accountability, equity, fairness and transparency (Munyao & Moronge, 2017). These bodies ensure public procurement offer quality goods, works and services through open and transparent competition amongst all bidders and that all contracts are well managed to improve performance (Mukura, Shalle, Kanda & Ngatia, 2016). However, taking regard on the proper implementation of public procurement practices is paramount in ensuring public procurement objectives (Mutangili, 2019). Therefore, to achieve the objective of the public procurement, there is need to regulate the implementation of public procurement regulation. Despite public procurement regulatory bodies efforts to enforce compliance there has been challenges in adhering to public procurement practices include lack of accountability, discrimination, conflict of interest, lack of transparency and lack of training (Ndeto *et al.*, 2018).

### **2.3.6 Sustainable Performance of State Corporations in Kenya**

According to Mugo and Odari (2018), sustainable performance is concerned about environmental protection, social responsibility and economic growth considerations in carrying out organization's activities so as to achieve overall goals and objectives of organization. It involves integrating and achievement of environmentally and financially feasible practices such as re using, re-manufacturing, recycling,



refurbishing and waste management into the comprehensive supply chain lifecycle, from product design and development, to acquiring of raw material, production, packaging, transportation, warehousing, distribution, consumption, return and disposal (Onyango & Ondiek, 2021). The sustainable performance in public procurement focuses on ensuring that improved resource productivity is encouraged by implementing ways to continually re-use and re-cycle the disposed assets after the end the product life cycle (Prier *et al.*, 2016). The consciousness that industries are growing with the continuing and fast global industrialization indicates the need of implementing sustainable procurement practices. Various organizations and industries across the world have started measuring sustainable performance in their business operations to alleviate negative environmental concerns, as sustainable supply chain practices and a circular economy result in waste reduction and responsible material usage (Sönnichsen & Clement, 2020).

Sustainability in public procurement summarizes a number of different priorities: environmental protection, preservation of resources, waste reduction, cost savings and social responsibility (Bilala & Odari, 2018). Social aspects encompass use of open and transparent competitive procurement processes, involvement of relevant stakeholders in organizational processes, create rights and obligations, and ensuring decent remuneration and good working conditions, workers' rights to form and collectively bargain (Camilleri, 2019). Environmental sustainability occurs when processes, and activities reduce negative environmental impact of organizations products and operations. Economic sustainability is used to analyse strategies used to enhance proper utilization of resources, adoption of advanced technologies in business operations and efficient allocation of available resources to improve organizational profitability (Etse *et al.*, 2021). Therefore, sustainable performance ensure that an organization is able to streamline procurements, enhancing resource usage and extending products life cycle, reducing water and energy consumption, reducing carbon emissions, plastics and organic waste based on the principles of eco-design, reducing, re manufacturing, reuse and recycling (Mwangangi & Achuora, 2019)

Achievement of an organizational goal is considered in form of cost reduction, reduction in lead time, customer satisfaction, quality improvement and compliance to policies, laws and regulations (Kariuki & Aduda, 2016). Procurement activities and procedures have a correlation to the improvement of business economic growth, social responsibility and environmental protection which is seen through sustainable performance. The customer perspective focus at how fulfilled the organization's customers are and it discuss the ways in which value addition is to be created to improve customer satisfaction (Mbatia & Osoro, 2020). A customer is considered to be satisfied through supply of quality products and services, timely delivery and cost reduction which therefore give customers a reason to pay for that product or service (Peter, Rotich & Ochiri, 2018). If an organization fails to provide the right products and services that cost effectively satisfy the customer requirements in both the short and long term then income will not be produced and business might fail (Mutangili, 2019). There are some cases customers perceive they are acquiring a better product because of a good brand image of an organization which leads to perceived quality.

Despite increased revenue being a key driver, most organizations focus on the customer and their experience with the organization (Asudi & Shale, 2019). They try to ensure their customers are satisfied which is the key to their competitive advantage. The procurement procedures are linked to other activities of the organization and on their performance as well (King'oo & Muli, 2019). According to Kariuki and Aduda (2016), quality of goods and services is very essential of any organization which is conveyed in terms of physical products sold by an organization to its customer and service they provide to these customers. How quality is perceived greatly defer from customer to customer since different customers consider what meets their needs as quality and different customers have different needs (Kipruto & Shale, 2018). Professionalism, transparency, environmental protection and competitiveness can help enhance sustainable performance in an organization (Njogu & Gichinga, 2016). To achieve a competitive advantage, an organization has to ensure that they are able to attain competitive operational strategies of quality goods and services, reliability, flexibility, responsiveness, timeliness, effectiveness and efficiency (Saudi, Juniati, Kozicka & Razimi, 2019).

## **2.4 Empirical Review**

### **2.4.1 Procurement Methods and Sustainable Performance**

Prier *et al.* (2016), carried out a study on Implementation of sustainable public procurement methods and policies and organizational performance. The study pointed out that, regulations, working measures and routine principles are set for human resources to facilitate their understanding on what is required of them. This can enhance organizational overall efficiency and effectiveness (Mbatia & Osoro, 2020). The findings also indicated that organizational performance is greatly affected by the procurement methods. Government entrust authority to the state organizations managers who then delegate the authority to the procurement employees so as to carry out procurement activities and procedures. Enforcement has a superior regulatory effect further than the person who violates and reminds managers and all those in corporate management of their duties and the risks involved in case they fail to perform those duties (King'oo & Muli, 2019)

Iregi and Kipkorir (2017), carried out a study on the effects of Procurement Processes on the Performance of Public Sector Organizations in Kenya. The study sought to assess the effect of procurement approaches and methods on firm performance. A descriptive research design was adopted and a sample of 109 firms was surveyed using a structured questionnaire. The findings revealed that procurement methods and practices had a significant influence on the performance of Public Sector Organizations in Kenya (Githinji & Moronge, 2018). The study indicated that open tender system influences Public Sector Organizations in that it ensures competitive prices and is a flexible system as it reduces the cost of business and overstocking expenses (Buuri, 2016).

Gatobu (2020), study on the influence of procurement process on the performance of public entities found that on average projects procured using single sourcing procurement method were on average 3% over budget and delivered 2% behind project schedule while one step projects were on average over budget and delivered 3.5% behind schedule. He further found that the direct procurement method performed the worst in regard to budget and schedule and were on average 5.6% over

budget and delivered 3.5% behind schedule (Chelimo & Makori, 2018). The study found that the obstacles of effective use of single sourcing methods in public procurement included lengthy lead times and high transactions costs. It was recommended that all public procuring entities should follow appropriate procedures indicated in the Act when selecting the method of procurement of goods, works and consultancy services so as to ensure transparency and competitiveness (Cheruiyot, 2018).

Chelimo and Makori (2018), analyzed influence of procurement procedures on performance of road construction sector in Kenya. The study population was 169 respondents from KERRA. The findings of the study indicated that procurement planning is typically the first step of procurement procedure. The procuring entity need to develop competencies of procurement officers who are involved in procurement planning as per the approved budgets (Etse & Asenso, 2014). The recommendations of the study were that procuring entities need to select most appropriate methods of procurement methods to ensure procurement performance. There was need to use open tender method of procurement to facilitate a competitive procurement process. The study all recommended that the all-public procuring entities need to manage and monitor effectively all contracts with their suppliers to improve performance (Gatobu, 2020).

Githinji and Moronge (2018), in their study analyzed the effect of procurement methods on performance of public hospitals in Kenya, using a case of Kenyatta National Hospital. The study used a descriptive research design with a target population of 5,000 employees of Kenyatta National Hospital. The study findings indicated that direct procurement method and restricted tendering were statistically insignificant (Kalatya & Moronge, 2017). The conclusion of the study was that a combination of all methods of procurement does not necessary lead to better performance of an entity. Further, the study concluded that open tendering which is a competitive method of procurement results to improved performance of an organization. The study recommended that there is need for procuring entities to consider competitive methods of procurement over restricted tendering and direct procurement (Kanyari & Moronge, 2019).

## **2.4.2 Procurement Contract Management and Sustainable Performance**

Aluonzi, *et al.* (2016), carried out a study on the effects of the contract management on effectiveness and efficiency of road projects in Uganda. The study recorded that contract administration entails three various aspects; realization of the three goals of product quality, timely delivery and in line with the budget. In this context, Kimundu and Moronge, (2019), point out that contract management is divided into upstream and downstream supply chain activities that requires proper monitoring, establishments of collaborative buyer supplier relationships, proper reporting on contract progress, and management of contracts variations and conflicts managements. The study recommended that for successful implementation of contracts, there is need to ensure that all contracts awarded are in signed contract form, proper monitoring of variations in contracts, keeping up to date contract records and ensuring timely payment of contractors (Moffat & Mwangi, 2019).

Komora and Kavale (2020), in a study on the influence of supplier relationship management on procurement performance of Coast Water Service Board, the study findings indicated that poor supplier relationship management leads loss of income generated from a successful contract. The study also indicated that that poorly managed supplier relationship affects the procuring entity's trustworthiness through a snowball effect. This suggests the trouble to internally sell and enforce future contracts (Rono & Moronge, 2019). Therefore, it is important for an entity to outline its prospects evidently in the contract. The entity needs should be well recorded and that employees in all management levels and users need to be involved in the establishment of specifications and keeping record. The study concluded that the aim of supplier relationship management in contract management is the maximization of the productivity, effectiveness and value for money in all procurement contractual relationship (Moffat & Mwangi, 2019).

Nyaga and Mwangangi (2019), carried out a study on the influence of contract management practices on performance of public sector in Kiambu County, Kenya. The findings of the study indicated that procurement regulators admitted that many PEs were not managing their contracts properly and among areas of concern included

failure to appoint inspection and acceptance committees to inspect delivery of goods so as to ascertain quantity and quality as per contract requirements (Ogembo & Muturi, 2019). They pointed out that in works procurement contracts where more funds were normally committed relative to goods and services, works supervisors to oversee the implementation of construction works were not appointed. The study recommended that there is need to ensure that all contracts are well executed, administered and monitored to improve the general performance of the organization (Batetah & Wabala, 2021).

Kimundu and Moronge (2019), carried out research on Influence of contract management on procurement performance in manufacturing firms of Kenya. The findings of the study indicated that procurement contracts performance indicators involve attainment of value for money, quality products and services, reduced lead time, procurement contracts cost reduction, timely contract closure and termination (Ochola & Kitheka, 2019). The study also noted that for a successful contract management the contracting parties should consider; appropriate contract administration, management of service and products delivery, managing relationships with suppliers, conflict resolutions, contract monitoring and effective contract termination procedures in line with public procurement practices. The study recommended that there is need to enforce all public procurement contracts to ensure compliance with public procurement regulation requirements (Chepng etich, Waiganjo & Ismael, 2020).

#### **2.4.3 Preferences and Reservation in Procurement and Sustainable Performance**

Mwangi *et al.* (2017), carried out a study on determinants of Compliance with Access to Government Procurement Opportunities (AGPO) Regulations for Special Groups by Public Universities in Kenya. The findings of the study indicated poor compliance with public procurement practices on giving equal opportunities to special groups in the society. The results of the study also indicated that is that tendering process is one of the productive areas for unethical practices leading to poor administration of preferential procurement contracts (Chogo *et al.*, 2020). The

study recommended that there is need for enlargement of capabilities through training preferences and reservation in procurement so that they can be able to participate in tendering process and to ensure involvement of all stakeholders in the tendering process and the use of best strategic sourcing practices. Also, it recommended that all public procuring entities should strive to comply with public procurement practices to ensure equal sharing of public procurement opportunities (Gitari & Kabare, 2019).

Ngeno *et al.* (2014), carried out research on the effect of discriminatory public procurement practices on organizational performance: A survey of public sector corporations in Kenya: The findings indicated that discrimination when awarding of contract reduces opportunities for procuring entities to achieve innovation (Iregi & Kipkorir, 2017). It indicated the presence of widespread unethical practices, control from political environment and force from trade unions in the tendering process. Generally, the trust from the public on the tendering process is absent. The study also found out that the execution of tendering process is not in compliance with the procurement Act on preferences and reservations leading to lack of proper advertisement, shortened bidding periods and improper specification (Kalatya & Moronge, 2017).

Etse and Asenso (2014), carried out a study on the challenges facing public procurement audit of Ashanti regional office of Ghana audit services. A sample size of two hundred (200) participants was carefully chosen from Health and Educational institutions in Ashanti Region. The primary data was collected using questionnaires and interviews. The research indicated that the Public Procurement Act, needed to be amended to improve fiscal transparency, effectiveness, efficiency, and enhance competition between the local industries (Kanyari & Moronge, 2019). The study indicated that there is need to deal with the challenges of non-compliance with public procurement Act by coming up with strict enforcement procedures (Kimote & Kinoti, 2018).

A study by Muraguri (2013), analyzed the implementation of the Youth Preference and Reservations Policy in Public Procurement in Kenya. The findings of the study indicate that that public procurement preference and reservation policy among the youth, women and persons living with disabilities still not been fully implemented (King'oo & Muli, 2019). On average the public procuring entities have not fully prioritized the special groups in their procurement opportunities. To achieve requirements of preferences and reservations in public procurement there is need for adopting strict measures that include strict procedures and compliance to achieve the goal of preferences and reservations in public procurement. Compliance with procurement reservation practices can also be enhanced through enforcement by public procurement regulatory bodies (Kinyamasyo & Kihara, 2019).

Gitari and Kabare (2019), carried out a study on the factors affecting access to procurement opportunities in Public secondary schools by small and medium enterprises in Kenya. The study found out that on the number of contracts awarded to the preference and reservation groups, indicted that out of all preference and reservations contracts awarded by procuring entities, persons living with disabilities were awarded the least number of contracts across all the categories of procuring entities (Marendi & Awino, 2016). The findings also indicated that some entities were awarding nil contracts to this target group. The study further noted that a number of state organizations had failed to reserve at least the 30% required minimum of their procurement expenditures to the disadvantaged groups. The study recommended the need to train employees on preferential procurement directives and ways in which the procuring entities can ensure compliance to these directives. The study also recommended the need to ensure that all special groups are well trained on preferential procurement opportunities and the documentation required to winning a tender (Muange & Chirchir, 2018).

#### **2.4.4 Inventory Management and Sustainable Performance**

Jepchirchir and Noor (2019), carried out a study on the effects of inventory optimization on performance of government ministries in Kenya. The research adapted a case study research design. The study found out that inventory



management policy, staff competencies and use of automated record management had an important outcome on inventory management. The study also indicated that efficiency of inventory management can be influenced by proper inventory planning, control and warehousing management (Mukopi & Iravo, 2015). For further research, the study identified gaps on the other factors affecting Inventory Management. The study recommends that other factors which affect inventory management policies, training of staff is important in improving inventory management practices should be studied. The study also recommended that further research should be done on the forecasting of inventory management, storage space and storage equipment with a view of enhancing the excellence of the practices (Mulandi & Ismail, 2019).

Karani and Osoro (2020), carried out research on the determinants of Inventory Management Practices on Service Delivery in Trans Nzoia County Level Four County Hospital, Kenya. The finding of the study indicates that inventory control helps organization achieve improvement in strategic organizational performance. It suggested that optimum resource be allocated and frequently reviewed to match with the changing market environment so as to improve procurement performance (Obura, 2015). The study also found out that proper inventory management system can help an organization in proper storage of stocks and easy access to materials in a warehouse, reduction of obsolete stock and general reduction of all inventory related costs. The study also found that proper inventory planning and control is known as one of the most important aspects of an organization that needs capacity and competence to improve overall performance of an organization. The study recommended that to achieve competitive advantage, there is need to apply modern inventory management systems (Ofula *et al.*, 2020).

John *et al.* (2015), carried out a study on Inventory management practices and operational performance of flour milling firms in Lagos, Nigeria. Descriptive research method, specifically survey, and case study was employed in the study. The target population of the research was is 647. A sample size of 237 respondents was arrived at using the Taro Yamane formula for sample size determination from a finite population. Data were generated using questionnaire, oral interviews, observations, books, journals and the internet (Okundi & Kitheka, 2019) The study findings

indicated a positive significant correlation between effective inventory management and performance of an organization. The study concluded that the performance of an organization greatly depends on proper management of stock (Mueni & Moronge, 2018).

Obura (2015), carried out a study on the influence of vendor managed inventory on organization performance in a manufacturing industry in Kenya. The research used a descriptive research design. The study findings indicated that inventory management system, models, strategies and supplier relationship management influence performance of manufacturing organizations (Mukopi & Iravo, 2015). The study also indicated that inventory reduction, inventory security, and inventory revenue affect the performance of manufacturing organizations. The study concluded that proper inventory planning and control models, accurate demand forecasting and use of appropriate assets disposal procedures are very useful to improving performance of an organization (Muhalia *et al.*, 2021).

## **2.5 Critique of Existing Literature**

The empirical analysis shows that some of the researches have been carried out in the western and African states and others in Kenya. Presented information has established immense limitations in the public procurement structure (Cheruiyot, 2018). Reviewed empirical researches have paid attention to public procurement regulatory framework and tend to neglect the substantial and important contribution of public procurement practices (Cheruiyot, 2018; Okong'o & Muturi, 2018; Hussein & Makori, 2018; Kimundu & Moronge, 2019). These practices are in relation to procurement methods, procurement contract management, preferences and reservation in procurement and inventory management to the compliance with public procurement practices in state corporations (Muange & Chirchir, 2018).

A number of empirical studies (Kumar *et al.*, 2017; Abdullahi *et al.*, 2022; Ameyaw *et al.*, 2012; Etse *et al.*, 2021; Marendi & Awino, 2016) mainly focused on public procurement law and regulation. Munyao and Moronge (2017), carried out a study on the effect of public procurement framework on disposal of obsolete stock in the public sector in Kenya. This study focused on the main facets of the PP regulatory

framework, which involves the practices and the procedures that are in place to control public procurement in Kenya. This limited the study from exploring other public procurement legal aspects that influence performance of an organization. The study did not analyze how public procurement practices affect sustainable performance of an organization therefore cannot be generalized. Eyaa and Oluka (2018), researched on causes of non-compliance in public procurement in Uganda using a structured questionnaire and regression analysis was applied for data analysis. The study did not analyze the structure of the country's procurement legal framework and how it affects the performance of PEs therefore living a knowledge gap.

Mugo and Odari (2018), analyzed the factors affecting procurement performance in mobile telecommunications original equipment manufacturers. The study focus was on logistics capacity, product tariff engineering, inventory control and internal system control as factors affecting procurement performance in mobile telecommunications this limited the study to only four factors leaving a research gap. Kimote and Kinoti (2018), evaluated factors affecting implementation of procurement policies in county governments in Kenya. The study failed to indicate all factors to consider for successful implementation of law in public sector. Mbatia and Osoro (2020), researched on Factors Affecting Ethics and Anti-Corruption Commission on Performance of Procurement Personnel in Trans-Nzoia County, Kenya. The research was limited to a single public entity whose results may not be replicated on other public entities in the same ministry.

Njogu and Gichinga (2016), carried out a study on factors Influencing Procurement Performance in State Corporations in Kenya a Case of Kenya Ports Authority. The study was limited to only commercial state corporations whose results cannot be generalized on did not indicate the impact of the public procurement law to other state corporations. Shiundu and Rotich (2014), researched on factors affecting efficiency of procurement systems at the City Council of Nairobi. The study was limited to a single public entity whose results may not be generalized on other public entities in the same ministry (Bilala & Odari, 2018). However, all these studies leave

an empirical gap on the relationship between public procurement practices and sustainable performance of states corporations in Kenya.

## **2.6 Summary of the Literature**

There are several researchers who have developed models and theories on public procurement practices implementation. The theories and models give ways and guidelines helping policy makers and officers in making key decisions regarding issues in public procurement issues to ensure compliance through achieving value for money. This study analyzed six theories and then developed a conceptual framework on which the research is anchored. The research operationalized both dependent and independent variables through analysis of available current literature which formed the basis for the empirical information and contextualization of the statement of the research problem. As per the theories and empirical studies determined, it is obvious that public procurement law and regulations is still a key area of study that need further research intended at enlarge the available literature.

The theories and models can be duplicated in different organizations. Further empirical information is also essential to examine theories and models and offer explanation for public procurement law compliance issues existing and to enlarge a body of relevant knowledge so as to improve sustainable performance. According to the reviewed theories and relevant information in this area of study, public procurement practices offer for the appropriate actions to be pursued when procuring goods, managing procurement contract, carrying out preferences and reservation in procurement and managing inventory in state organizations. The chapter also presented a conceptual framework that demonstrated the effect of public procurement practices on sustainable performance with the conceptualization of the variables. A critical empirical review relating to public procurement practices on sustainable performance and critique of the existing literature to obtain research gaps have been discussed and presented. The empirical review identified conceptual and methodological gap.

## 2.7 Research Gaps

It is apparent that effect of public procurement practices on sustainable performance of state organizations is analytically significant since quality improvement, revenue growth, return on investment, customer satisfaction, social responsibility and environmental protection is paramount in any public organization worldwide (Gatobu, 2020). Despite the role of procurement practices in public sector, the number of researches that have analyzed the effect of public procurement practices on sustainable performance is still insignificant (Mulandi & Ismail, 2019). From the examination of the written and published information on public procurement practices and sustainable performance of states corporations, the research recognizes that there exist conceptual, contextual, geographical and methodological gaps. Literature obtainable signify that, studies available are mostly done on developed countries and not focusing more developing states such as in Africa and others have used different methodologies (Ongeri & Osoro, 2021).

Furthermore, empirical review also confirmed that available studies (Cheruiyot, 2018; Chogo et al., 2020; Etse & Asenso, 2014; Njogu, & Gichinga, 2016) have focused more on factors affecting public procurement performance, practices, regulation, audit and level of compliance (Okong'o & Muturi, 2018). The reviewed studies indicate that very little has been documented about the relationship between public procurement practices and sustainable performance (Kipruto & Shale, 2018). The studies that have focused on public procurement practices and performance of an organization especially that of King'oo and Muli (2019); Kalatya and Moronge, (2017); & Moronge (2018) have mainly analysed different public procurement practices and measured organizational performance using social and economic measures leaving out environmental protection as measure of performance thus presenting a conceptual gap. The current study, therefore, filled the identified conceptual gap by taking into consideration procurement methods, procurement contract management, preferences and reservation in procurement and inventory management as public procurement practices and using environmental protection as a measure of sustainable performance.

In addition, some reviewed studies (Githinji & Moronge, 2018; Hussein & Makori, 2018; Karani & Osoro, 2020; Kimundu & Moronge, 2019), show inconsistent findings on the relationship between public procurement practices and performance. The inconsistent findings gap identified from reviewed studies necessitated the need to carry out a study in this area to provide a clear understanding and adequate knowledge on the relationship between public procurement practices and sustainable performance of state corporation in Kenya (Ondigi, & Muturi, 2019). This will lead to proper implementation of public procurement practices which will lead to improved sustainable performance of state corporations in Kenya. This study has clearly addressed the recommended conceptual, contextual and methodological gap by bridging it with new knowledge on the effect of public procurement practices and sustainable performance of state corporations in Kenya and proposing recommendations on ways to improve implementation of public procurement practices so as to improve sustainable performance of state corporations.

## CHAPTER THREE

### RESEARCH METHODOLOGY

#### 3.1 Introduction

This chapter explains research design and methodology used in this research. It discusses study philosophy, design of the research, population of the study, sample and sampling techniques and research instruments for data collection, procedure for data collection and pilot study, data analysis and presentation, statistical models used in data analysis and testing of the hypothesis.

#### 3.2 Research Design

The research design applied in this research was mixed-methods research design. Research design is a model or an action plan upon which the entire study is built; dictates the manner in which a study is conducted and provides the road map of a study in terms of the sample size, instruments for data collection and procedure used in the analysis of data (Rajasekar & Verma, 2013). According to Kinyua (2015), mixed methods research is the type of research in which the study uses both features of qualitative and quantitative research approaches in data collection, analysis and presentation. The study applied mixed-methods research to collect both quantitative and qualitative data concurrently to have equal value for understanding the research problem. Babbie (2020), mixed methods research is appropriate in research process proposes that quantitative or qualitative data alone may not adequately response to the study research question. This research design combines elements of quantitative research and qualitative research in order to answer your research question (Kothari, 2017). The general objective of mixed methods research, of using both qualitative and quantitative research features, is to enlarge and support a study's findings and conclusions (Bougie & Sekaran, 2019). The use of mixed methods research was ideal for this study because it was possible to contextualized understandings of qualitative data and to generalize the findings as well as have valid insights of quantitative data (Oso & Onen, 2009).

### **3.2.1 Research Philosophy**

A research Philosophy is a belief concerning the approach in which data concerning a phenomenon is supposed to be collected, examined and applied. There are two main research philosophies identified as positivist and Phenomenology (Kombo & Tromp, 2006). Phenomenology as a philosophy gives a theoretical recommendation to researchers to appreciate phenomena at the level of subjective reality. Positivist research philosophy accommodate old and new knowledge and it also indicates that the social world can be understood in an objective way and that the scientist should analyze data on an objective basis without involving personal values and should work independently (Kothari, 2017). This study was anchored on positivist study philosophy because it accommodated objectivity in data collection and analysis and also because it focuses on belief in hypothesis before study and statistical explanation of conclusions from hypothesis that can be empirically tested (Cooper & Schindler, 2003). Ngechu (2004), also used this research philosophy on the role of human resource management in cultural integration process among selected post combined Kenyan commercial banks. The research used positivist philosophy focusing on the fact that so as to empirically ascertain affiliation linking the study variables, hypotheses developed was testing and findings were generalized to general population.

### **3.3 Target Population**

Rajasekar and Verma (2013), defines target population as a universal set of all people involved in a real or hypothetical group of people, events or objects to which the research wants to generalize the result after findings. The target population of this study included all 187 registered state corporations in Kenya. The attention to this population of the analysis was determined by the reality that state organizations are among public procuring entities regulated by public procurement regulatory framework and they are required to fully implement public procurement practices (Duraku, 2019). Again, these organizations have been reporting poor implementation of public procurement practices (Mutangili, 2019). Table 3.1 shows the classification of the state corporations in Kenya



**Table 3.1: Target Population**

<b>SN</b>	<b>Categories of State corporations</b>	<b>No. of Corporations</b>	<b>Percentage (%)</b>
1	Purely Commercial State Corporations	34	18.2%
2	State Corporations with Strategic Functions	21	11.2%
3	Executive Agencies	62	33.2%
4	Independent Regulatory Agencies	25	13.3%
5	Research Institutions, Public Universities, Tertiary Education and Training Institutions	45	24.1%
	<b>Total</b>	<b>187</b>	<b>100%</b>

**Source: State Corporations Advisory Committee (2020)**

### **3.4 Sampling Frame**

According to Kothari (2017), a sampling frame consist of the list of sample units from which a study sample is drawn. In this study, to ensure adequate coverage of the population of the state corporation in Kenya, the sampling frame consisted employees working in all 187 state corporations in Kenya. The state corporations are stratified into: Purely Commercial State Corporations; State Corporations with Strategic Functions; Executive Agencies; Independent Regulatory Agencies and Research Institutions, Public Universities, Tertiary Education and Training Institutions.

### **3.5 Sample Size and Sampling Technique**

According to Gupta and Gupta, (2022), a sample size is a number of items, objects or people that are selected from a larger population to participate in a study. A sample size should be a representative of the population to ensure that the findings of the study are generalized to the entire population. The study employed purposive sampling technique in selecting the sample size, the head of finance and the procurement function in 187 state corporations which formed 374 respondents. Purposive sampling is a sampling technique in which the respondents are selected on researcher's own judgment because they have characteristics needed in the study sample. The finance function was selected because is accountable for developing

public procurement entity's budgets and generating spend and revenue reports, and procurement function being a service department is required to adhere to the set budgets, as well as ensuring that purchases are well received and paid for by finance function (PPAD Act, 2015). Both finance and procurement function work in collaboration to ensure the public procuring entity complies with the public procurement and Assets Disposal Regulation, 2020 (Munyao & Moronge, 2017). The head of finance and the head of procurement function were selected because they have similar skills, knowledge, experience and exposure in the area of research (Rono & Moronge, 2019).

**Table 3.2: Sample Size**

SN	Categories of State corporations	No. of Corporations	No. of Respondents	Percentage (%)
1	Purely Commercial State Corporations	34	68	18.2%
2	State Corporations with Strategic Functions	21	42	11.2%
3	Executive Agencies	62	124	33.2%
4	Independent Regulatory Agencies	25	50	13.3%
5	Research Institutions, Public Universities, Tertiary Education and Training Institutions	45	90	24.1%
	<b>Total</b>	<b>187</b>	<b>374</b>	<b>100%</b>

**Source: State Corporations Advisory Committee (2020)**

### 3.6 Research Instruments

The study collected both primary and secondary data. Primary data was collected using a questionnaire. A questionnaire is a study tool used to collect information over a big sample with the goal of converting study goals into specific questions, and answers for each question are present in the data for testing hypothesis (Kothari, 2017). This tool is considered appropriate because it provides a relatively simple and direct approach to the study. This instrument was the most excellent to gather information from this type of employees since they have busy programs. Questionnaire is also regarded as helpful tool for data gathering since it helps

respondents to give to a large extent of their judgment to the problem being analyzed (Ngechu, 2004). The questionnaire comprised of two main sections which included brief instructions at the start of each section. The first section collected demographic information of the respondents and the second section collected data on all the independent variables (procurement methods, procurement contract management, preferences and reservation in procurement and inventory management), moderating variable (public procurement regulatory bodies) and dependent variable (sustainable performance of state corporations in Kenya). Both quantitative and qualitative questions were included in the questionnaire. While qualitative questions allowed respondents to freely express their opinions, quantitative questions were designed to elicit certain responses in line with the researcher's interests. Secondary data was collected using a secondary data collection template and it was obtained from existing state corporations performance reports.

### **3.7 Data Collection Procedure**

This research collected primary and secondary data as per the objectives of the study. According to Kakuru (2019), procedures for data collection are steps involved in collecting portion of data that is required for study process. The participating organizations were approached by use of a consent letter addressed to the organizations management. Drop and pick/online method was used to administer the questionnaire. The researcher engaged research assistants who had the knowledge of the area of study to administer the research instrument to the sample so as to gather primary information (Kombo & Tromp, 2006). The questionnaire was given to the head of finance and the head of procurement function after a brief set of instructions. Subjects (the head of finance and the head of procurement function) were requested to grant informed permission and indicate if they were available and willing to avail more information when called upon. Participation was on voluntary basis. Research assistant assisted researcher in administering the research instrument to the respondents. The filled questionnaires were picked after one week and an extension of one week was given to those who had not filled the questionnaire (Gupta & Gupta, 2022). Those who had not completed filling in the instrument after one-week

extension were treated as non-response. Secondary data was obtained from existing state corporations performance report using a secondary data collection template.

### **3.8 Pilot Test**

A pilot test is an assessment designed to verify reliability and validity of given results and collect information prior to conducting a large study aimed at improving the latter's quality and efficiency (Kombo & Tromp, 2006). It can disclose deficiencies in the design of a proposed experiment or procedure; these can be addressed before time and help resources to be expanded on large scale studies (Kakuru, 2019). As per Kothari (2017), the number used for pilot test can be between 1% and 10% of the target population. This study examined the suitability of the research tool on 10% of the target population of 374 respondents, which resulted to 37 respondents. The study data collection tool was analyzed using nineteen (19) state organizations that were included in the study target population. The reason for carrying out a pilot study was to ascertain the dependability and suitability of the data collection tool and study design and in order to enhance validity (Kalatya & Moronge, 2017). A pilot test assists the researcher in determining if there are flaws, limitations or other weaknesses in the research instruments and or research design so as to allow revisions and or adjustments in good time prior to the conducting of the fieldwork.

#### **3.8.1 Reliability of the Research Instrument**

According to Cooper and Schindler (2003), reliability is a gauge of the extent to which a research tool provides dependable outcome after continual tests. An instrument is reliable when it can measure a variable accurately and obtain the same results over a period of times. However, reliability in research is affected by random errors which the researcher will overcome through pre-testing. Reliability test was done by calculating the Cronbach's co-efficient since it is recognized to be a good direct measure of internal reliability (Cronbach, 1951). The SPSS for windows reliability test program was used to give the ( $\alpha$ ) value to determine the reliability of research instruments using pilot study results where the acceptable value for test variables range from 0.7 to 0.9 (Cooper & Schindler, 2003). Correlation co-efficient

greater or equals to 0.7 was accepted because it is considered to indicate a higher level of reliability. Kombo and tromp (2006), give rules of thumb as given in table 3.2.... to establish the level of Cronbach's alpha ( $\alpha$ ) value that is acceptable which was used in this research.

**Table 3.3: Cronbach's alpha ( $\alpha$ ) Rules of Thumb.**

<b>Cronbach's alpha (<math>\alpha</math>)</b>	<b>Internal consistency</b>
$\alpha \geq 0.9$	Excellent
$0.8 \leq \alpha < 0.9$	Good
$0.7 \leq \alpha < 0.8$	Acceptable
$0.6 \leq \alpha < 0.7$	Questionable
$0.5 \leq \alpha < 0.6$	Poor
$\alpha < 0.5$	Unacceptable

**Source: George and Mallery (2003)**

### **3.8.2 Validity of the Research Instrument**

According to Gupta and Gupta (2022), validity of research data collection tool is explained as the degree to which the tool measures or tests what it was designed or required to test or measure. Three types of validity measured in this study comprises of face, construct and content validity (Saunders, 2014). Face validity refers to the level to which an assessment is subjectively regarded as covering the thought it purports to assess (Kothari, 2017). Construct validity refers to the appropriateness of the gauge used for the purpose of operationalizing the theoretical construct and measuring it (Kinyua, 2015). Content validity on the other hand is the level to which the items on a research instrument are demonstrative of the universe of behaviour that the instrument was intended to sample (Bougie & Sekaran, 2019).

To test face validity, the research instrument was subjected to study supervisors and two experts in the area of public procurement and supply chain management so as to establish coherency and comprehensiveness of the appropriateness of the research questions (Kanyari & Moronge, 2019). This was meant to evaluate the clarity of the research instrument questions for the purpose of improving the quality of the research tool thus increasing its validity. Construct validity was measured from the

correlations of research questions. Positive and significant correlations are projected for convergent validity while for divergent validity, research questions are anticipated to positively and significantly correlate with one another, but not with items from other dimensions (Orodho, 2004). In this study, construct validity was evaluated using Principal Component Analysis (PCA) used to validate hypothetical constructs by clustering those indicators or characteristics that appear to correlate highly with each other, KMO and Bartlett's Test. The rule of the thumb is that the KMO measure of sampling adequacy should be above 0.60 while the Bartlett's test should be less than 0.05. Finally, content validity was tested through thorough literature review which was carried out to find necessary questions to measure the variables of the study as shown in the conceptual framework.

### **3.9 Data Analysis and Presentation**

Data processing refers to examining what has been collected in a survey or experiment and making deductions and inferences (Kombo & Tromp, 2006). This refers to examining the collected data and making discussions, inferences and conclusions (Kothari, 2017). Consequently, data analysis followed Bougie and Sekaran (2019), four stage process for data analysis: data preparation for analysis, getting a feel for the data, testing the goodness for the data and testing the hypotheses. The filled by questionnaires were edited to ensure they are complete for analysis. They were then assigned codes and checked for any errors or omissions (Babbie, 2020). Collected data was analyzed using Statistical Package for Social Sciences (SPSS) version 26 since it has capability to analyze data with ease and accuracy (Karani & Osoro, 2020). Quantitative data gathered using questionnaires were assigned codes and analyzed. After collecting the data, the researcher pre-processed it to eliminate unwanted and unusable data which would interfere with the analyses. Quantitative data collected in this research was analyzed using descriptive and inferential statistics. The analyzed data was then presented using tables, percentages, pie charts, histograms and graphs. The results of the study were tested at significance level of 5% (Ngechu, 2004).

### **3.9.1 Descriptive Analysis**

Descriptive statistics defines what the data indicates and comprise measures of central tendency specifically the mean for data in the Likert scale variables in the questionnaire (Kombo & Tromp, 2006). The measure of dispersion especially standard deviation was used in order to analyse the fundamental characteristics in the data on state corporations in Kenya. Percentages were used to determine the distribution of sample across various demographic variables while mean scores of the variables were used to find out the scope to which public procurement practices affect sustainable performance of state corporations (Ngechu, 2004). Standard deviation represented the degree of variability in the responses data from the mean. The data was presented using frequency distribution tables. Descriptive statistics offers the basic features of the data collected on the study variables and afford the incentive for conducting advance analyses on the data (Rajasekar & Verma, 2013).

### **3.9.2 Content Analysis**

Qualitative data from the study was analyzed through content analysis. Ngechu (2004), explains content analysis as a method for making inferences by systematically and objectively recognizing particular attributes of messages around common themes and therefore use the same to relate to trends. Content analysis is a research tool used to find specific words, themes, or ideas in a given set of qualitative data. Researchers can quantify and examine the occurrence, significance, and connections of such specific words, themes, or concepts using content analysis (Kakuru, 2019). The research identified themes around which respondents' statements were compared. In order to obtain understanding of the meaning and context of the content, content analysis offers a methodical means to spot patterns, ideas, and bigger themes within the data.

### **3.9.3 Factor Analysis**

Factor analysis assists in gauging of the substantive importance of a certain variable to the factor and it is used to identify and remove hidden constructs or variable items that do not meet the objectives of the study and which may not be apparent from

direct analysis (Yong & Pearce, 2013). Exploratory Factor Analysis (EFA) was used for the reason of reduction of variables which is a statistical method for determining the association among the variables in a dataset (Kakuru, 2019). This type of analysis provides a factor structure which involves categorizing of variables per strong correlations). During exploratory factor analysis, factors gathered are used by assessing principal output components to assess how reliable their internal measures are. These may be uncorrelated factors, and they can also help in determining individual item quality. The study may load any item on any factor. They can use many different estimators to choose these loadings, including maximum likelihood (Ndung'u, Were & Mwangangi, 2020).

Using EFA, researchers can primarily group correlating indicators and variables so they can assess the reliability of the internal factor structure (Yong & Pearce, 2013). When using exploratory factor analysis, researchers assume that there are underlying factors for every set of variables they can observe (Ngeno *et al.*, 2014). They also assume that these often-unobserved factors can help them understand how and why the relationships between their observed variable's function. When conducting an exploratory factor analysis, the following assumptions are considered: measurements are correct, factors don't correlate, factors correlate to one another and that these correlations determine factor loadings and results are in a simple structure. The Kaiser-Meyer-Olkin measure of sampling adequacy (KMO-test) was used to measure the adequacy of the sample where the sample was found to be adequate if the value of KMO is greater than 0.5 (Bougie & Sekaran, 2019).

### **3.9.4 Diagnostic Tests**

Statistical test for assumption of the regression model were carried out using multicollinearity, linearity, autocorrelation, heteroscedasticity and normality test.

#### **3.9.4.1 Multicollinearity Test**

Multicollinearity Test is used to determine existence of high correlation between variables in a multiple regression model (Bougie & Sekaran, 2019). If there is a high correlation between the independent variables, then relation between them of the



dependent variable was disrupted. As such, a good regression model should not be a correlation between independent variables, or may be mutually collinear but not highly correlated (Kibogo & Mwangangi, 2014). A key objective of the regression analysis is to separate the association between each independent variable and the dependent variable. The interpretation of a regression coefficient is that it represents the mean change in the dependent variable for each 1-unit change in an independent variable when you hold all of the other independent variables constant. The idea is that can the value of one independent variable can be changed and not the others. However, when independent variables are correlated, it indicates that changes in one variable are associated with shifts in another variable (Kinyamasyo & Kihara, 2019).

The stronger the correlation, the more difficult it is to change one variable without changing another. It becomes difficult for the model to estimate the relationship between each independent variable and the dependent variable independently because the independent variables tend to change in unison (Kipruto & Shale, 2018). If a variable is affected by multicollinearity can be identified and the strength of the correlation, there is a way of determining whether there is need to fix it. The variance inflation factor (VIF) identifies correlation between independent variables and the strength of that correlation. Statistical software calculates a VIF for each independent variable. VIFs start at 1 and have no upper limit (Kosgei & Kinoti, 2018).

A value of 1 indicates that there is no correlation between this independent variable and any others. VIFs between 1 and 5 suggest that there is a moderate correlation, but it is not severe enough to warrant corrective measures. VIFs greater than 5 represent critical levels of multicollinearity where the coefficients are poorly estimated, and the p-values are questionable (Kumar *et al.*, 2017). Variance Inflation Factor (VIF) was applied to test for multicollinearity. If there is no relationship or correlation between two independent variables, then all the VIFs was 1 (Kinyua, 2015). Then there was multicollinearity associated with a variable if VIF of that variable is around or greater than 5. Where this happened then one these variables were eliminated from the regression model (Cohen *et al.*, 2013).

### 3.9.4.2 Linearity Test

According to Kombo and Tromp (2006), Linearity test is used to determine whether two or more variables have a significant linear relationship or not. The assumption of linear regression is that there is a linear relationship between the independent variable,  $x$ , and the dependent variable,  $y$ . For the study to detect if this assumption is met is to create a scatter plot of  $x$  vs.  $y$ . This allows in visualizing to see if there is a linear relationship between the two variables. If it looks like the points in the plot could fall along a straight line, then there exists some type of linear relationship between the two variables and this assumption is met (Kusi *et al.*, 2014). The results of these tests can then be used to help make decisions in determining the regression model that can be used appropriately. If the values for  $x$  and  $y$  in the scatter plot indicates that there is not a linear relationship between the two variables, then the options available include applying a nonlinear transformation to the independent and/or dependent variable (Lukkarinen & Majava, 2020). Common examples include taking the log, the square root, or the reciprocal of the independent and/or dependent variable. Another option is to add another independent variable to the model. For example, if the plot of  $x$  vs.  $y$  has a parabolic shape, then it might make sense to add  $X^2$  as an additional independent variable in the model (Kakuru, 2019).

Linearity testing can be done by the Sig. linearity and Sig. deviation from linearity in Table ANOVA (Ngechu, 2004). Value Sig. linearity indicates the extent to which the independent variable value just in a straight line. If the value of Sig. linearity < significance level ( $\alpha$ ), then the linear regression can be used to explain the influence of variables that exist. While the value of Sig. deviation from linearity shows what the data is used as linear. If the value of Sig. deviation from linearity > significance level ( $\alpha$ ), then the linear regression can be used to explain the influence of variables that exist (Saunders, 2014). The test for linearity means that two variables, " $x$ " and " $y$ ," are linked by a mathematical equation " $y = cx$ ," where " $c$ " is any constant number. The reason for testing for linearity it is due to the fact that many statistical methods need an assumption of linearity of data (Cooper & Schindler, 2003).

### 3.9.4.3 Autocorrelation Test

Autocorrelation test is used to see that there is a linear relation between the errors on a series of observations, sorted by time (time series) (Saunders, 2014). The presence of correlation in error terms drastically reduces model's accuracy. Autocorrelation test needs to be done if the analyzed data is time series data on the condition that must be met is not autocorrelation. The assumption of linear regression is that the residuals are independent. To test if this assumption is met there is need to look at a residual time series plot, which is a plot of residuals vs. time (Mbatl & Osoro, 2020). Ideally, most of the residual autocorrelations should fall within the 95% confidence bands around zero, which are located at about  $\pm 2$  over the square root of  $n$ , where  $n$  is the sample size. Autocorrelation can formally be tested if the assumption is met using the Durbin-Watson test. Durbin – Watson (DW) statistic must lie between 0 and 4. If  $DW = 2$ , implies no autocorrelation,  $0 < DW < 2$  implies positive autocorrelation while  $2 < DW < 4$  indicates negative autocorrelation. Also, you can see residual vs time plot and look for the seasonal or correlated pattern in residual values (Mkonu & Gichana, 2019).

The autocorrelation function can be used to detect non-randomness in data and also to identify an appropriate time series model if the data are not random. Autocorrelation is essentially a correlation coefficient, but instead of correlation being between two different variables, the correlation is between two values of the same variable at times  $X_i$  and  $X_{i+k}$  (Ngechu, 2004). Depending on the nature of the way this assumption is violated, the available options for violations includes; For positive serial correlation, consider adding lags of the dependent and/or independent variable to the model. For negative serial correlation, check to make sure that none of the study variables are over differenced. For seasonal correlation, consider adding seasonal dummy variables to the model (Mogikoyo *et al.*, 2017).

### 3.9.4.4 Heteroscedasticity Test

According to Cohen *et al.* (2013), Heteroscedasticity is used in situations where the variance of the residuals is unequal over a range of measured values. The presence of non-constant variance in the error terms results in heteroscedasticity. Generally, non-

constant variance arises in presence of outliers or extreme leverage values. Look like, these values get too much weight, thereby disproportionately influences the model's performance (Mose *et al.*, 2018). When this phenomenon occurs, the confidence interval for out of sample prediction tends to be unrealistically wide or narrow. When running a regression analysis, heteroscedasticity results in an unequal scatter of the residuals (also known as the error term). When observing a plot of the residuals, a fan or cone shape indicates the presence of heteroscedasticity (Mueni & Moronge, 2018).

In statistics, heteroscedasticity is seen as a problem because regressions involving ordinary least squares (OLS) assume that the residuals are drawn from a population with constant variance (Muhalia *et al.*, 2021). If there is an unequal scatter of residuals, the population used in the regression contains unequal variance, and therefore the analysis results may be invalid. Regression formula obtained by assuming confounding variables (error) has a constant residual variance (range of errors approximately equal). Heteroscedasticity occurs if there is residual variance is not constant. The regression model is good if there is no heteroscedasticity. Heteroscedasticity testing can be done by Glejser Test method (Orodho, 2004). Glejser test is conducted by regression between independent variable and absolute residual as dependent variable. The result value of test can be seen from value of significant. If the significance value  $> 0.05$ , then there is no heteroscedasticity. Conversely, if the significance value  $< 0.05$ , then occurs heteroscedasticity. Also, presence of heteroscedasticity can be checked by looking at residual vs fitted values plot. If heteroscedasticity exists, the plot would exhibit a funnel shape pattern. Also, Breusch-Pagan / Cook – Weisberg test or White general test can be used to detect whether heteroscedasticity exists (Mukura *et al.*, 2016).

#### **3.9.4.5 Normality Test**

Normality helps in understanding the shape of the distribution so as to predict dependent variables scores (Bougie & Sekaran, 2019). It is used to define whether or not there is normal distribution of data. If the error terms are non- normally distributed, confidence intervals may become too wide or narrow. Once confidence

interval becomes unstable, it leads to difficulty in estimating coefficients based on minimization of least squares. Presence of non-normal distribution suggests that there are a few unusual data points which must be studied closely to make a better model. Good research data is the one which has a normal distribution (Muli *et al.*, 2016). To check for normal distribution QQ plot is used. A Q-Q plot, short for quantile-quantile plot, is a type of plot that we can use to determine whether or not the residuals of a model follow a normal distribution. Also, statistical tests of normality such as Kolmogorov-Smirnov test, Shapiro-Wilk, Jarque-Barre, or D Agostino-Pearson test can be performed. However, these tests are sensitive to large sample sizes that is, they often conclude that the residuals are not normal when the sample size is large (Mutuku *et al.*, 2021).

The study used a Q-Q plot to check the assumption of linear regression that the residuals are normally distributed. The normal distribution (bell shaped) means the data is spread equally so that it can represent the population (Namusonge *et al.*, 2015) Data that is not normal can be distinguished from the level of skewed (skewness). If the data tends to be skewed to the left is called positive skewness, if the data tend to be skewed to the right is called negative skewness, and the data is said to be normal if the data is symmetrical (Rajasekar & Verma, 2013). If the normality assumption is violated, the available options are that: First, verify that any outliers aren't t having a huge impact on the distribution. If there are outliers present, make sure that they are real values and that they aren't data entry errors. Next, apply a nonlinear transformation to the independent and/or dependent variable. Common examples include taking the log, the square root, or the reciprocal of the independent and/or dependent variable (Ndeto *et al.*, 2018).

### **3.9.5 Inferential analysis**

According to Kothari (2017), inferential analysis makes inferences and predictions about widespread data by in view of a sample data from the original data. It uses likelihood to test hypotheses and make approximation using sample data. Inferential statistics that involved correlation and regression analysis were applied to analyze quantitative data.

### **3.9.5.1 Correlation Analysis**

Correlation analysis is a statistical technique used to compute the association and gauge the strength of the linear relationship between dependent and independent variables. It determines the magnitude of the dependent variable's change as a result of the independent variable's change (Kothari, 2017). Pearson product moment Coefficient correlation was used to show the strength of the connection between the variables used in the research. Correlation analysis was used to check the association between independent variables and dependent variable. A correlation matrix was established to give summary of the correlation analysis results (Orodho, 2004).

Regression analysis was adopted in this study since it has one dependent variable that is assumed to be a function of two or more independent variables. This is informed by the fact that the study has to make a prediction about the dependent variable based on its covariance with all the affected independent variables (Kariuki & Aduda, 2016). The sample correlation coefficient, abbreviated  $r$ , measures the direction and magnitude of the linear link between the dependent and independent variables and runs from  $-1$  to  $+1$ . The coefficient of determination,  $R^2$ , gave information on the accuracy of fit of the regression model.  $R^2$  is the percentage of variance in the dependent variable that is explained by the variation in the independent variable (Bougie & Sekaran, 2019). If  $R^2$  will fall near 1, then most of the variation in the independent variable shall be explained by the regression model, indicating that the regression model shall be assumed to fit the data well. On the contrary, incase  $R^2$  shall be found to fall near 0, then most of the data variation shall be explained by the regression model since in such instance, it is presumed that the regression model fits the data poorly (Babbie, 2020).

### **3.9.5.2 Regression Analysis**

A multiple linear regression analysis was used to establish a mathematical model that explains the link involving the dependent variable and the significant independent variables previously shown through correlation analysis. This regression model was used because it provides a sufficient and flexible framework that suits the needs of a lot of analysts and has been adopted in similar past studies (Babbie, 2020). The

coefficient of the significant variables as determined by correlation analysis was established. The following summary of a multiple linear regression model was applied to model the data:

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

Where;

Y= Sustainable Performance of State Corporations

$\beta_0$ =constant

$\beta_i$  is the coefficient for  $X_i$  (i=1, 2,3,4)

$X_1$ =Procurement Methods

$X_2$ =Procurement Contract Management

$X_3$ = Preferences and Reservation in Procurement

$X_4$ =Inventory Management

$\varepsilon$ =Error term.

In the equation above,  $\beta_0$  is the Y- intercept (Constant) whose influence on the model is insignificant,  $X_1, X_2, X_3$  and  $X_4$  are model coefficients that are significantly large so as to have a significant influence on the model.

For testing the moderating effect, the following model was used:

$$Y = \beta_0 + \beta_1 X_1 Z + \beta_2 X_2 Z + \beta_3 X_3 Z + \beta_4 X_4 Z + \varepsilon$$

Where;

Y= Sustainable Performance of State Corporations

$\beta_0$ =constant

$\beta_i$  is the coefficient for  $X_i$  (i=1, 2,3,4)

$X_1$ =Procurement Methods

$X_2$ =Procurement Contract Management

$X_3$ = Preferences and reservation in procurement

$X_4$ =Inventory Management

Z= Public Procurement Regulatory Bodies (Moderating Variable)

$\varepsilon$ =Error term.

Similar studies that have used the regression analysis include Cohen, Cohen, West and Aiken (2013), on the correlation between ISO 9001:2000 quality systems certification with operational business performance.

### 3.9.6 Hypothesis Testing

1. *H<sub>0</sub>: Procurement methods do not significantly affect the sustainable performance of state corporations in Kenya.*

This study hypothesis was tested where the correspond P-value computed; if P-value  $< \alpha$  which is the significance level then the null hypothesis was rejected and adopted alternative hypothesis that procurement methods positively affect sustainable performance of state corporations in Kenya at  $\alpha$ - significance level.

2. *H<sub>0</sub>: Procurement contract management does not significantly affect the sustainable performance of state corporations in Kenya.*

This study hypothesis was tested where the correspond P-value computed; if P-value  $< \alpha$  which is the significance level then the null hypothesis was rejected and adopted alternative hypothesis that procurement contract management positively affect sustainable performance of state corporations in Kenya at  $\alpha$ - significance level.

3. *H<sub>0</sub>: Preferences and reservation in procurement does not significantly affect the sustainable performance of state corporations in Kenya.*

This study hypothesis was tested where the correspond P-value computed; if P-value  $< \alpha$  which is the significance level then the null hypothesis was rejected and adopted alternative hypothesis that preferences and reservation in procurement positively affect sustainable performance of state corporations in Kenya at  $\alpha$ - significance level.

4. *H<sub>0</sub>: Inventory management does not significantly affect the sustainable performance of state corporations in Kenya.*

This study hypothesis was tested where the correspond P-value computed; if P-value  $< \alpha$  which is the significance level then the null hypothesis was rejected and adopted alternative hypothesis that inventory management positively affect sustainable performance of state corporations in Kenya at  $\alpha$ - significance level.



5.  $H_0$ : Public procurement regulatory bodies do not significantly moderate the relationship between procurement methods, procurement contract management, preferences and reservation in procurement, inventory management and sustainable performance of state corporations in Kenya

This study hypothesis was tested where the correspond P-value computed; if P-value  $< \alpha$  which is the significance level then the null hypothesis was rejected and adopted alternative hypothesis that public procurement regulatory bodies have a positive significant moderating effect of the public procurement practices and sustainable performance of state corporations in Kenya.

**Tables 3.4: Summary of Hypothesis Testing**

$H_0$	Hypothesis	Regression Model Equation	Test conducted
$H_{01}$	Procurement methods do not significantly affect the sustainable performance of state corporations in Kenya.	$Y = \beta_0 + \beta_1 X_1 + \varepsilon$	Model Summary, ANOVA, Regression coefficients.
$H_{02}$	Procurement contract management does not significantly affect the sustainable performance of state corporations in Kenya.	$Y = \beta_0 + \beta_2 X_2 + \varepsilon$	Model Summary, ANOVA, Regression coefficients
$H_{03}$	Preferences and reservation in procurement does not significantly affect the sustainable performance of state corporations in Kenya.	$Y = \beta_0 + \beta_3 X_3 + \varepsilon$	Model Summary, ANOVA, Regression coefficients
$H_{04}$	Inventory management does not significantly affect the sustainable performance of state corporations in Kenya.	$Y = \beta_0 + \beta_4 X_4 + \varepsilon$	Model Summary, ANOVA, Regression coefficients.
$H_5$	Public procurement regulatory bodies do not significantly moderate the relationship between procurement methods, procurement contract management, preferences and reservation in procurement, inventory management and sustainable performance of state corporations in Kenya.	$Y = \beta_0 + \beta_1 X_1 * Z + \beta_2 X_2 * Z + \beta_3 X_3 * Z + \beta_4 X_4 * Z + \varepsilon$	Baron and Kenny test

### **3.9.7 Measurement of Variables**

Open-ended questions rating scales were used to help respondents include information that may not be incorporated in the closed-ended questions (Cooper & Schindler, 2003). In this research, Likert scales were mostly used in the questionnaire since they can be assessed easily through standard techniques like, factor analysis and logistic regression analysis (Oso & Onen, 2009). The hypotheses to examine the correlation that exist between dependent and independent variables was tested using multiple linear regression model.

**Table 3.5: Measurement of Study Variables**

Objective	Variable	Indicators	Measurement Scale	Research Approach	Data analysis technique	Tools of data analysis
1. To assess the effect of procurement methods on sustainable performance of state corporations in Kenya	Procurement Methods	-Open tender -Restricted tendering -Direct procurement	Ordinal	Qualitative and Quantitative techniques	Descriptive Statistics, Content analysis and inferential statistics	Mean, standard deviations, measures of central tendency, measures of dispersion, regression model
2. To establish the effect of procurement contract management on sustainable performance of state corporations in Kenya.	Procurement Contract management	-Contract administration -Contract monitoring -Contract records	Ordinal	Qualitative and Quantitative techniques	Descriptive Statistics, Content analysis and inferential statistics	Mean, standard deviations, measures of central tendency, measures of dispersion, regression model
3. To determine the effect of preferences and reservation in procurement on sustainable performance of state corporations in Kenya	Preferences and reservation in procurement	-Youth -Women -Persons with Disabilities	Ordinal	Qualitative and Quantitative techniques	Descriptive Statistics, Content analysis and inferential statistics	Mean, standard deviations, measures of central tendency, measures of dispersion, regression model
4. To examine the effect of inventory management on sustainable performance of state corporations in Kenya	Inventory management	-Inventory control techniques -Inventory records -Demand Forecasting	Ordinal	Qualitative and Quantitative techniques	Descriptive Statistics, Content analysis and inferential statistics	Mean, standard deviations, measures of central tendency, measures of dispersion, regression model
5. To analyze the moderating effect of public procurement regulatory bodies on the relationship between procurement methods, procurement contracts management, Preferences and reservation in procurement, inventory management and sustainable performance of state corporations in Kenya	3 Public Procurement Regulatory Bodies	-The National treasury -PPRA -PPARB	Ordinal	Qualitative and Quantitative techniques	Descriptive Statistics, Content analysis and inferential statistics	Mean, standard deviations, measures of central tendency, measures of dispersion, regression model
	Sustainable Performance of States Corporations	-Environmental protection -Financial growth -Social responsibility	Ordinal	Qualitative and Quantitative techniques	Descriptive Statistics, Content analysis and inferential statistics	Mean, standard deviations, measures of central tendency, measures of dispersion, regression model

## CHAPTER FOUR

### RESEARCH FINDINGS AND DISCUSSION

#### 4.1 Introduction

This chapter presents the findings of the study on the effect of public procurement practices on sustainable performance of state corporations in Kenya. The chapter begins by covering the response rate of the research instruments followed by the results of the pilot study. The chapter highlights the distribution of the respondents by their length of service and position held at the organization. The descriptive analysis and content analysis of the major study findings are systematically presented based on the study objectives. The findings on the regression analysis are also presented.

#### 4.2 Response Rate of the Study

The study sought to find out the rate at which the targeted respondents participated in the study. This would help to determine whether the study attained a reliable number of respondents to make conclusions and recommendations. The study employed purposive sampling technique in selecting the sample size, the head of finance and the procurement function in 187 state corporations which formed 374 respondents. 10% of the sample size was used to carry out the pilot test which resulted to 37 respondents picked from 19 state corporations. The 19 corporations used for pilot study were excluded from the main study. The main study focused on 337 respondents after deducting 37 respondents who had participated in the pilot study. The study respondents were surveyed using a structured and semi-structured questionnaire. A response rate of 90.2% (304 respondents) was achieved and the data used for analysis. This therefore makes the study appropriate to make conclusions and recommendations since according to Cohen *et al.* (2013), a response rate of 60% and above in a study is adequate for making conclusions and recommendations. The response rate is as shown in table 4.1.

**Table 4.1: Response Rate**

<b>Category</b>	<b>Frequency</b>	<b>Percentage</b>
Sampled Population	337	100%
Responses	304	90.2%
Non-Responses	33	9.8%

### **4.3 Pilot Test Results**

Mugenda and Mugenda (2003), states that a relatively small sample of 10 to 20 respondents can be chosen from the population during piloting which is not included in the sample chosen for the main study. According to Kothari (2017), 10% of study population is appropriate for pilot test. The pilot test brings out the weaknesses of (if any) the questionnaire and the survey technique. It also enables the researcher to assess the question validity and reliability of the data collected. According to Ngechu (2004), pre-testing the questionnaire is of essence, this is done to obtain feedback, check whether it is effective and well understood by respondents. In this study 10% of the sample size was used to carry out the pilot test. The sample size was 374 thus 37 respondents were used for the pilot study. These were picked from 19 state corporations. The state corporations used for pilot test were omitted from the main study. This was so as to ensure that the respondents for the pilot study are not replicated in the main study.

#### **4.3.1 Reliability of the Research Instrument**

Reliability is the extent to which data collection techniques or analysis procedures will yield consistent findings (accuracy and precision of a measurement procedure) (Cronbach, 1951). It establishes if the measure is able to yield the same results on other occasions, similar observations are reached by other observers and transparency in the raw data. Reliability was used to check the internal consistency of the data measuring instrument.

Cronbach's coefficient alpha which determines the internal consistency or the average correlation of items within the test was used to test for reliability. Alpha values range from zero (0) (meaning: no internal consistency) to one (1) (meaning:

complete internal consistency). The acceptable value for test variables is that above 0.70 (Cooper & Schindler, 2003) and this was the threshold used in this study. Table 4.2 shows the results of the reliability of the research instrument. The findings revealed that all the variables had Cronbach's coefficient alpha higher than 0.70 hence the instrument was ruled to be reliable.

**Table 4.2: Reliability Test of the Research Instrument**

<b>Variable</b>	<b>Cronbach's Alpha</b>	<b>Number of Items</b>	<b>N (number of respondents)</b>	<b>Decision</b>
Procurement Methods	0.929	9	37	$\alpha > 0.7$
Procurement Contract Management	0.884	9	37	Items are reliable $\alpha > 0.7$
Preferences and reservation in procurement	0.930	9	37	Items are reliable $\alpha > 0.7$
Inventory Management	0.890	9	37	Items are reliable $\alpha > 0.7$
Public Procurement Regulatory Bodies	0.956	9	37	Items are reliable $\alpha > 0.7$
Sustainable Performance of State Corporations	0.955	9	37	Items are reliable $\alpha > 0.7$

#### **4.3.2 Validity of the Research Instrument**

The pilot study also measured the validity of the research instrument. Instrument validity ensures the ability of an instrument to measure the intended concept (Babbie, 2020). It is the extent to which an instrument measures what it is supposed to measure and performs as it is designed to perform (Bell, Bryman & Harley, 2022). It is used to determine whether the research instrument actually measures what it anticipated to measure (Bougie & Sekaran, 2019). The main objective of the validity analysis is to provide the research instrument that allows the researchers to find the objective of the research study.

This study used face, construct and content validity. Construct validity refers to the suitability of the scale used for the purpose of operationalizing the theoretical construct and measuring it. Content on the other hand is the degree to which the items on a test are representative of the universe of behaviour that the test was designed to sample (Oso & Onen, 2009). To verify content validity, a thorough literature review was conducted to identify necessary items to measure the variables of the study as shown in the conceptual framework. The questionnaire was further subjected to supervisors and two experts in the field of supply chain and public procurement management in order to ascertain face validity, coherency and comprehensiveness of the suitability of the survey items. This was meant to assess the clarity of the instrument items so that those items found to be inadequate in measuring the variables were either discarded or modified to improve the quality of the research instrument thus increasing its validity.

Finally, construct validity was assessed from the correlations of items. Positive and significant correlations are expected for convergent validity while for divergent validity, items are expected to positively and significantly correlate with one another, but not with items from other dimensions (Orodho, 2004). In this study, construct validity was assessed using KMO and Bartlett's Test. The rule of the thumb is that the KMO measure of sampling adequacy should be above 0.60 while the Bartlett's test should be less than 0.05. As the findings on Table 4.3 reveal, all the variables had met the threshold hence the instrument was valid as far as construct validity is concerned.

**Table 4.3: Construct Validity**

<b>Variable</b>	<b>Test results</b>		
<b>Procurement Methods</b>	Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.769
	Bartlett's Test of Sphericity	Approx. Chi-Square	131.830
		df	36
		Sig.	.000
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.742	
<b>Procurement Contract Management</b>	Bartlett's Test of Sphericity	Approx. Chi-Square	131.830
		df	36
		Sig.	.000
	Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.852
<b>Preferences and reservation in procurement</b>	Bartlett's Test of Sphericity	Approx. Chi-Square	170.990
		df	36
		Sig.	.000
	Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.717
<b>Inventory Management</b>	Bartlett's Test of Sphericity	Approx. Chi-Square	174.478
		df	36
		Sig.	.000
	Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.841
<b>Public Procurement Regulatory Bodies</b>	Bartlett's Test of Sphericity	Approx. Chi-Square	244.963
		df	36
		Sig.	.000
	Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.719
<b>Sustainable Performance of State Corporations</b>	Bartlett's Test of Sphericity	Approx. Chi-Square	378.567
		df	36
		Sig.	.000

#### 4.4 Demographic Analysis

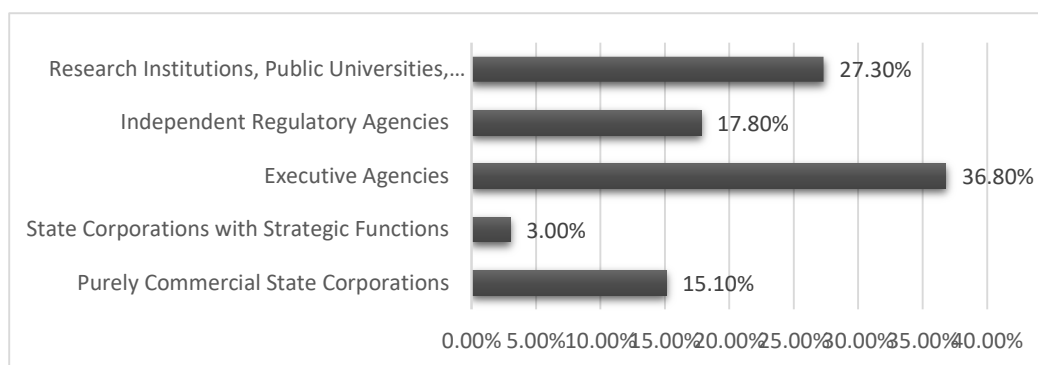
To enhance the feasibility of a study, it is a prerequisite to ask the respondents the background information as a way of developing a concrete relationship between the respondents and the researcher (Ngechu, 2004). In this regard, the study asked the respondents the demographic information which included the category of the state corporations, the period of service at the firm and the respondent's level of education



as well as nature of the business. This is presented in tables and figures as shown below.

#### 4.4.1 Category of the Firm

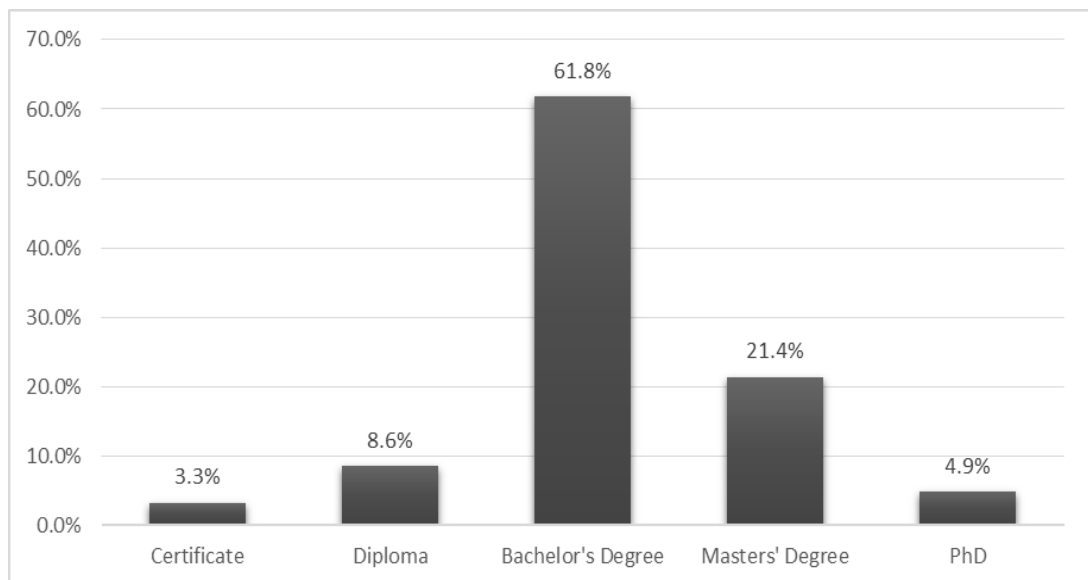
The study sought to establish the category of the state corporations surveyed. Generally, the state corporations are categorized into five main categories which are Purely Commercial State Corporations, State Corporations with Strategic Functions, Executive Agencies, Independent Regulatory Agencies and Research Institutions, Public Universities, Tertiary Education and Training Institutions. The findings as shown in Figure 4.1 revealed that most of the corporations surveyed under executive agencies category were 112 (36.8%), followed by Public Universities, Tertiary Education and Training Institutions category with 83 (27.3%), Independent Regulatory Agencies were 54 (17.8%) while those of the Purely Commercial State Corporations were 46 (15.1%). State Corporations with Strategic Functions were the minimal with 9 (3.0%). The findings implied that the study obtained responses from all the 5 categories of state corporations hence the results in the main aspects of the study would be composite of all the views and perspectives from the entire sector. These findings tally with the findings of Okundi and Kitheka (2019), who established that for a conclusive study there is need to obtain views from the entire target population.



**Figure 4.1: Distribution of the Firms by Category**

#### 4.4.2 Level of Education

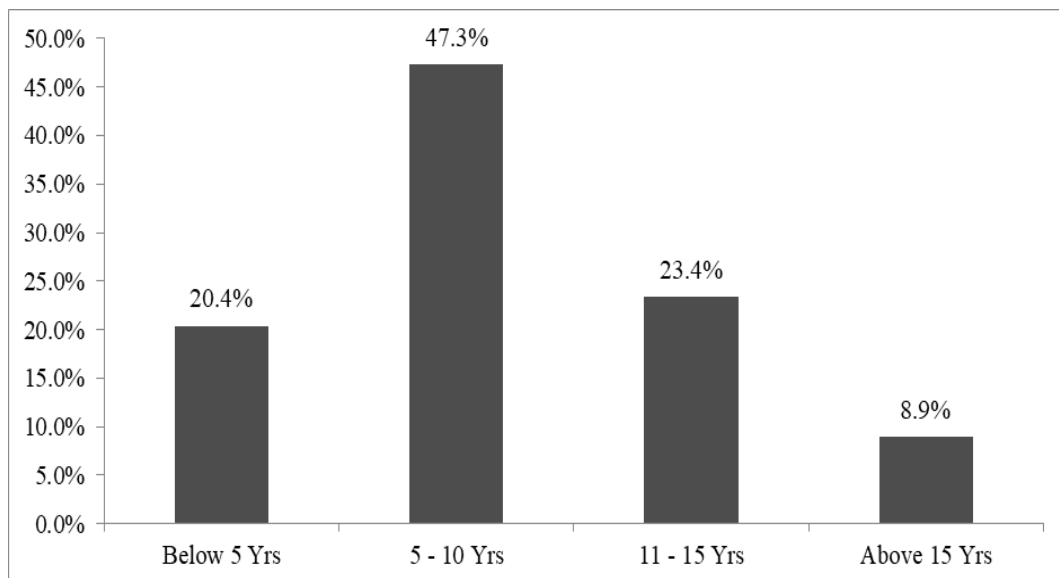
The study sought to establish the level of education among the respondents. This was in a bid to assess whether the respondents met the educational threshold that could enable them to effectively respond to the study questions. The findings as shown in Figure 4.2 revealed that majority of the respondents 188 (61.8%) had bachelor's degree as their highest educational qualification, followed by those with master's degree with 65 (21.4%) and diploma with 26 (8.6%). The respondents with PhD and certificate as their highest level of education were the minority with 15 (4.9%) and 10 (3.3%) respectively. The findings imply that all the respondents surveyed for this study had at least higher educational qualification hence they would have the ability to comprehend with the questions and motive of the study and effectively respond to the questions. These results agree with that of Ratemo, Bula and Makhamara (2021), who established that career development and the education qualifications influences the level of interpretation of issues affecting public procurement in public organizations.



**Figure 4.2: Distribution of the Respondents by the Level of Education**

#### 4.4.3 Period of Service

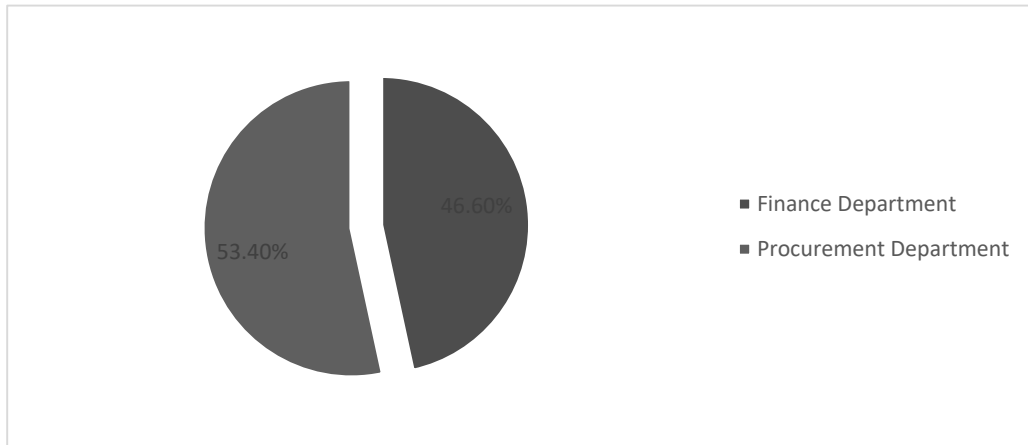
The study sought to establish the distribution of the respondents by their period (in years) of service in their respective state corporations. The findings as shown in Figure 4.3 revealed that most of the respondents 144 (47.3%) had been in their respective organizations for a period between 5 and 10 years, 71 (23.4%) had worked in their respective organizations for a period of between 11 and 15 years while 62 (20.4%) of the respondents had been in their respective organizations for less than 5 years. Only 27 (8.9%) of the respondents had worked in their respective firms for more than 15 years. The findings imply that all the respondents surveyed in the study had been in their respective corporations for a longer period of time hence they could be in apposition to understand and give the relevant information in regard to PP Practices among the state corporations. These findings are in line with the findings of Mulandi and Ismail (2019), who observed that for development of human resources competencies in the area of their specialization to be realized employee should remain in an organization for longer period of time.



**Figure 4.3: Distribution of the Respondents by the Length of Service**

#### 4.4.4 Respondents Departments

The respondents were asked to indicate the departments in which they were attached to. The findings as shown in Figure 4.4 revealed that majority of the respondents 162 (53.4%) were from the procurement department while 142 (46.5%) of the respondents were from the finance department. These findings tally with the findings of Munyao and Morongo (2017), who indicated research data need to be collected from respondents with similar skills, knowledge, experience and exposure in the area of research.



**Figure 4.4: Distribution of Respondents by Department**

#### 4.5 Descriptive and Content Analysis of the Study Variables

This subsection covers the descriptive analysis of the study variables. The main descriptive statistics captured include the percentages, mean and the standard deviation. The findings are systematically presented as per the specific objectives of the study.

##### 4.5.1 Procurement Methods

The first objective of the study was to assess the effect of procurement methods on sustainable performance of state corporations in Kenya.

#### **4.5.1.1 Descriptive Analysis of procurement Methods**

The respondents were asked to indicate their level of agreement on specific statements drawn from the three key sub-constructs of procurement methods. A five-points Likert's scale was used where 1 was strongly disagree, 2 was disagree, 3 was neutral, 4 was agree and 5 was strongly agree. Table 4.4 summarizes the findings.

The study sought to know the extent to which the respondents agreed on the given statement relating to open tender a construct of methods of procurement on sustainable performance of state corporations. The findings revealed that 114(37.5%) of the respondents strongly agreed with the statement "Our entity ensures that all open tenders are advertised in the dedicated Government tenders' portals / our website" 143 (47%) agreed, 18 (5.9%) were neutral, 21 (6.9%) disagreed while 8(2.6%) strongly disagreed with the statement. Majority of the respondents 257(84.5%) of the respondent agreed that all open tenders were advertised in the dedicated government websites and portals for every interested and qualified member of the public to apply while 29(9.5%) disagreed with the statement. The respondent agreed that their organization ensures that all open tenders are advertised in the dedicated Government tenders' portals or website as indicated by the mean and standard deviation of 4.09 and 0.96 respectively.

On the statement "All open tender procurements in our organization have clear technical specifications that follow objective qualifications criteria" as indicated in table 4.4, 3(1%) of the respondent had strongly disagreed, 9(3%) disagreed, 23(7.6%) were neutral, 166(54.6%) agreed while 103(33.9%) strongly agreed with the statement. Cumulatively, majority of the respondents 269(88.5%) agreed while 12(4%) disagreed with the statement that all open tender procurements have clear technical specifications that follow objective qualifications criteria. The findings had the mean and the standard deviation of 4.17 and 0.77 respectively which was an indication that the respondent agreed that their organization ensures that all open tender procurements have clear technical specifications that follow objective qualifications criteria.

Result in table 4.4 indicated that 8(2.6%) of the respondent strongly disagreed with the statement “Our organization strictly follow all laid down procedures in Provision of open tender documents.”, 24(7.9%) of the respondent disagreed, 61(20.1%) were neutral, 138(45.4%) agreed while 73(24%) of the respondent strongly agreed. Therefore, majority of the respondents at 211(69.4%) agreed with the statement while the rest 32(10.5%) disagreed. The findings revealed that the respondent agreed that their organization strictly follow all laid down procedures in provision of open tender documents as indicated by the mean and the standard deviation of 3.99 and 0.97 respectively. These findings are in tandem with the findings of Wachiuri *et.al.* (2018), who argued that one of the main causes of ineffectiveness in the tendering process between businesses and the government is misuse of restricted tendering and carrying out such processes of tendering without involvement of all key stakeholders.

The study sought to know the extent to which the respondents agreed on the given statement relating to restricted tendering a construct of methods of procurement on sustainable performance of state corporations. Result in table 4.4 indicated that 15(4.9%) of the respondent strongly disagreed with the statement “Our entity uses restricted tendering strictly in cases where the works are specialized in nature”, 21(6.9%) of the respondent disagreed, 37(12.2%) were neutral, 139(45.7%) agreed while 92(30.3%) of the respondent strongly agreed. Therefore, majority of the respondents at 231(76%) per cent agreed with the statement while 36(11.8%) disagreed with the statement. The findings indicated that the respondents agreed that their entity uses restricted tendering strictly in cases where the works are specialized in nature as indicated by the mean and the standard deviation of 3.98 and 1.06 respectively.

On the statement “Our organization has a database of pre-qualified providers who are invited to tender in restricted tendering process” as indicated in table 4.4, 82(26.9%) of the respondent had strongly disagreed, 88(28.8%) disagreed, 33(10.9%) were neutral, 40(13.1%) agreed while 32(10.4%) strongly agreed with the statement. Cumulatively, Majority of the respondents 170(55.7%) disagreed while 72(23.6%) agreed with the statement. The findings had the mean and the standard deviation of 3.51 and 1.20 respectively, this was an indication that the respondents disagreed that

their organization has a database of pre-qualified providers who are invited to tender in restricted tendering process.

Result in table 4.4 indicated that 99(32.6%) of the respondent strongly disagreed with the statement “The evaluation committee in our organization always meet to consent to the use of restricted tendering”, 71(23.3%) of the respondent disagreed, 8(2.6%) were neutral, 49(16.1%) agreed while 77(25.4%) of the respondent strongly agreed. Therefore, majority of the respondents at 170(55.9%) disagreed with the statement while 126(41.5%) agreed with the statement. The findings indicated that the respondents disagreed that the evaluation committee always meet to consent to the use of restricted tendering as indicated by the mean and the standard deviation of 2.08 and 0.87 respectively. The findings are in line with those by Mogikoyo *et al.* (2017), who established that the procurement procedures applied by most of the state agencies are not effectively in line with what is articulated under the PPAD practices and this could affect the efficiency and goodwill of the entire process towards promoting the sustainable performance of these agencies

The study sought to know the extent to which the respondents agreed on the given statement relating to direct procurement a construct of methods of procurement on sustainable performance of state corporations. Result in table 4.4 indicated that 9(3%) of the respondent strongly disagreed with the statement “Our entity uses direct procurement strictly where circumstances do not allow for competitive tendering”, 29(9.5%) of the respondent disagreed, 38(12.5%) were neutral, 132(43.4%) agreed while 96(31.6%) of the respondent strongly agreed. Therefore, majority of the respondents at 228(75%) agreed with the statement while 38(12.5%) disagreed with the statement. The findings had the mean and the standard deviation of 3.91 and 1.04 respectively which indicated that the respondents agreed that direct procurement method is used in their organization strictly where circumstances do not allow for competitive tendering process.

On the statement “Our entity uses direct procurement strictly where the total cost is within the threshold set in the tender document” as indicated in table 4.4, 17(5.6%) of the respondent had strongly disagreed, 30(9.9%) disagreed, 43(13.8%) were

neutral, 144(47.4%) agreed while 71(23.4%) strongly agreed with the statement. Cumulatively, majority 215(70.8%) agreed while 47(15.5%) disagreed with the statement. The findings indicated agreed that direct procurement is strictly used where the total cost is within the threshold set in the tender document as indicated by the mean and the standard deviation of 4.03 and 1.09 respectively.

Result in table 4.4 indicated that 45(14.8%) of the respondent strongly disagreed with the statement “Our entity has streamlined processes in place to manage direct procurement requirements to ensure its effectiveness”, 73(24%) of the respondent disagreed, 77(25.3%) were neutral, 61(20.1%) agreed while 48(15.8%) of the respondent strongly agreed. Therefore, majority of the respondents 118(38.8%) disagreed with the statement while 109(35.9%) agreed with the statement. The findings had the mean and the standard deviation of 2.98 and 1.29 respectively which indicated that the respondent disagreed that their organization has streamlined processes in place to manage direct procurement requirements to ensure its effectiveness. The findings echo the findings of Iregi and Kipkorir (2017), who observed that procurement methods were essential in determining how effective the entire procurement process was towards promoting firm’s sustainable performance.



**Table 4.4: Descriptive Statistics on Procurement Methods**

Statements	N	SD	D	N	A	SA	Mean	Std. Dev.
Our entity ensures that all open tenders are advertised in the dedicated Government tenders' portals / our website	304	2.6%	6.9%	5.9%	47%	37.5%	4.09	0.96
All open tender procurements in our organization have clear technical specifications that follow objective qualifications criteria	304	1%	3%	7.6%	54.6%	33.9%	4.17	0.77
Our organization strictly follow all laid down procedures in Provision of open tender documents.	304	2.6%	7.9%	20.1%	45.4%	24%	3.99	0.97
Our entity uses restricted tendering strictly in cases where the works are specialized in nature	304	4.9%	6.9%	12.2%	45.7%	30.3%	3.98	1.06
Our organization has a database of pre-qualified providers who are invited to tender in restricted tendering process	304	26.9%	28.8%	10.9%	13.1%	10.4%	3.51	1.20
The evaluation committee in our organization always meet to consent to the use of restricted tendering	304	32.6%	23.3%	2.6%	16.1%	25.4%	2.08	0.87
Our entity uses direct procurement strictly where circumstances do not allow for competitive tendering.	304	3%	9.5%	12.5%	43.4%	31.6%	3.91	1.04
Our entity uses direct procurement strictly where the total cost is within the threshold set in the tender document.	304	5.6%	9.9%	13.8%	47.4%	23.4%	4.03	1.09
Our entity has a streamlined process in place to manage direct procurement requirements to ensure its effectiveness	304	14.8%	24%	25.3%	20.1%	15.8%	2.98	1.29

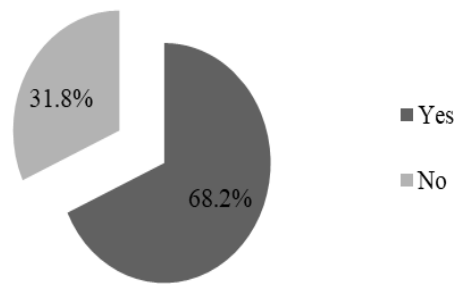
**Key:** SD= Strongly Disagree, D= Disagree, U= Uncertain, A= Agree, SA= Strongly Agree

#### 4.5.1.2 Content Analysis of Procurement Methods

The respondents were asked to indicate whether or not procurement methods affected the sustainable performance of their respective state corporations. The findings as shown in Figure 4.5 revealed that majority of respondents 207(68.2%) indicated 'Yes' that procurement methods affected the sustainable performance of their respective state corporations while 97(31.8%) of the respondent indicated 'No' that that procurement methods affected the sustainable performance of their respective state corporations. The respondents who indicated 'Yes' were further asked to explain the effectiveness of procurement methods towards enhancing the sustainable performance of their respective state corporations. The findings were analyzed qualitatively and it was established that majority of the respondents 207(68.2%) were of the opinion that procurement methods were effective towards enhancing the sustainable performance of the state corporations. When asked to explain their

opinion on how procurement methods affect sustainable performance, majority indicated that procurement methods as stipulated in the public procurement Act's guiding principles on protection of environment that through incorporation of green procurement criteria in procurement process, an entity can reduce negative environmental impact, achieve value for money, ensure fairness and transparency, achieve innovation and reduce costs of procurement.

The respondents also stated that, previously state corporations lacked properly guided procurement methods, but through the Act and the regulation, procedures are well streamlined, and if the appropriate methods of procurement are well implemented, the corporations can achieve sustainable perform better. The respondents further indicated that while the procurement methods were properly articulated under the PPAD regulation, the procurement officials in their respective entities were not committed towards proper implementation of procurement methods as stipulated in the public procurement law especially on protection of environment, affirmative action and maximization of value for money. One other repetitive comment among most of the respondents was that there was more political interference that affected the adherence to the procurement methods practices set by the public procurement regulation affecting sustainable performance. The findings echo the findings of Gatobu (2020), indicated that the public procuring entities should follow appropriate procedures indicated in the public procurement law when selecting the method of procurement of goods, works and consultancy services so as to ensure sustainable performance.



**Figure 4.5: Effect of Procurement Methods on Sustainable Performance of State Corporations**

#### **4.5.2 Procurement Contract Management**

The second objective of the study was to establish the effect of procurement contract management on sustainable performance of state corporations in Kenya.

##### **4.5.2.1 Descriptive Analysis of Procurement Contract Management**

The study sought to establish the contract administration, contract monitoring and contract documentation as the main aspects of procurement contract management on the sustainable performance of state corporations. The respondents were asked to indicate their level of agreement or disagreement with statements drawn from these aspects. This was based on a five-points Likert's scale was used where 1 was strongly disagree, 2 was disagree, 3 was neutral, 4 was agree and 5 was strongly agree. The findings are as shown in Table 4.5.

The study sought to know the extent to which the respondents agreed on the given statement relating to contract administration a construct of procurement contract management on sustainable performance of state corporations. The findings in table 4.5 revealed that 39(12.8%) of the respondents strongly disagreed with the statement "All formed contracts in our organization are in written signed contract form" 70(23%) disagreed, 67(22%) were neutral, 66(21.7%) agreed while 62(20.4%) strongly agreed with the statement. Majority of the respondents 128(42.1%) agreed with the statement that all formed contracts are in written signed contract form while 107(35.8%) disagreed as indicated by the mean and standard deviation of 4.09 and 0.96 respectively.

On the statement “The contractors in our organization are always paid on time” as indicated in table 4.5, 167(54.9%) of the respondent had strongly disagreed, 49(16.1%) disagreed, and 10(3.2%) were neutral, 31(10.3%) agreed while 17(5.5%) strongly agreed with the statement. Cumulatively, majority 216(71%) disagreed while 48(15.8%) agreed with the statement that the contractors in our organization are always paid on time. The findings had the mean and the standard deviation of 3.05 and 1.08 respectively which was an indication that the respondents agreed that the contractors in their organization are always paid on time.

Result in table 4.5 indicated that 5(1.6%) of the respondent strongly disagreed with the statement “Any variation of a contract in our entity is considered after twelve months from the date of signing the contract”, 26(8.6%) of the respondent disagreed, 37(12.2%) were neutral, 177(58.2%) agreed while 59(19.4%) of the respondent strongly agreed. Therefore, majority of the respondents at 236(77.6%) agreed with the statement while 31(10.2%) disagreed with the statement. The findings indicated that the respondents agreed that any variation of a contract in their entity is considered after twelve months from the date of signing the contract which was shown by the mean and the standard deviation of 3.85 and 0.88 respectively. These findings are in tandem with the findings of Kibogo and Mwangangi (2014), who observed that procurement contract management in cases where payments are not done on time and proper adherence to the agreement terms affects the relationship between the supplier and the organization and this puts the customers at the helm of dissatisfaction.

The study sought to know the extent to which the respondents agreed on the given statement relating to contract monitoring a construct of procurement contract management on sustainable performance of state corporations. The findings in table 4.5 revealed that 10(3.3%) of the respondents strongly disagreed with the statement “Our entity ensures regular monitoring of the contracts to achieve all delivery or performance obligations” 31(10.2%) disagreed, 37(12.2%) were neutral, 143(47%) agreed while 83(27.3%) strongly agreed with the statement. Majority of the respondents 226(74.3%) agreed with the statement that there is regular monitoring of the contracts to ensure that all delivery or performance obligations are met while 41

respondents equivalent to 13.5% disagreed with the statement. The findings had the mean and standard deviation of 3.84 and 1.03 respectively which was an indication that the respondents agreed that their entity ensures regular monitoring of the contracts to achieve all delivery or performance obligations.

When respondents were asked of their opinion on the statement “Our organization upholds strategies to enhance positive relationship with the contractors” as indicated in table 4.5, 139 of the respondent equivalents to 45.6% strongly disagreed, 46(15.1%) disagreed, and 37(12.2%) were neutral, 13(4.4%) agreed while 69(22.7%) strongly agreed with the statement. Cumulatively, 185 of the respondents equivalent 60.7% disagreed with the statement while 82(27.1%) agreed with the statement. The findings had the mean and the standard deviation of 3.93 and 1.15 respectively which was an indication that the respondents agreed that their organization upholds strategies to enhance positive relationship with the contractors.

On the statement that “Our entity regularly maintains an updated form of the contract and reporting” 25 of the respondents which was equivalent to 8.2% strongly disagreed with the statement, 43(14.1%) of the respondent disagreed, 39(12.8%) were neutral, 136(44.7%) agreed while 61(20.1%) of the respondent strongly agreed. Therefore, majority of the respondents 197 equivalent to 64.8% agreed with the statement while 68(22.3%) of the respondents disagreed with the statement. The findings indicated that respondents agreed that their entity regularly maintains an updated form of the contract and reporting as shown by the mean and the standard deviation of 3.97 and 1.19 respectively. These findings agree with the findings of Abdullahi, Ibrahim and Bala (2022), who found out that while most of the organizations especially in the public sector would be keen on adhering to the process of contract management as the law provides, their commitment towards having the best contractor and maintaining such contracts is inadequate.

The study sought to know the extent to which the respondents agreed on the given statement relating to contract documentation, the third construct of procurement contract management on sustainable performance of state corporations. The findings in table 4.5 revealed that 16(5.3%) of the respondents strongly disagreed with the

statement “Our organization keeps comprehensive contract records” 62(20.4%) disagreed, 44(14.5%) were neutral, 131(43.1%) agreed while 51(16.8%) strongly agreed with the statement. As per the findings, majority of the respondents 182 equivalents to 59.9% agreed with the statement while 78(25.7%) of the respondents disagreed. The findings had the mean and standard deviation of 4.07 and 1.14 respectively which was an indication that the respondents agreed that their organization keeps comprehensive contract records.

On the statement “All contractors in our entity submit the required documentation as specified in the tender document” as indicated in table 4.5, 28(9.2%) of the respondent strongly disagreed, 59(19.4%) disagreed, and 41(13.5%) were neutral, 117(38.5%) agreed while 59(19.4%) strongly agreed with the statement. Cumulatively, majority of the respondents 176 equivalent to 57.7% agreed with the statement while a few 87(28.6%) disagreed. The findings indicated that the respondents agreed that all contractors in their entity submit the required documentation as specified in the tender document as shown by the mean and the standard deviation of 4.09 and 1.25 respectively.

When the respondents were asked of their opinion on the statement “All contract documents in our organization are made clear to all parties involved in the contract” as indicated in table 4.5, 15 of the respondents which was equivalent to 4.9% strongly disagreed with the statement, 35(11.5%) of the respondent disagreed, 45(14.8%) were neutral, 142(46.7%) agreed while 67(22%) of the respondent strongly agreed. Therefore, majority of the respondents 209 equivalent to 68.7% agreed with the statement while a few 50 (16.4%) disagreed with the statement. The findings had the mean and the standard deviation of 4.01 and 1.08 respectively which indicated that the respondents agreed that all contract documents in their organization are made clear to all parties involved in the contract. These findings are in tandem with the findings of Rajab, (2018) who indicated that procurement contract management is a vital process as far as organizational sustainable performance is concerned hence it should be upheld on the basis of having the best contractor and having such contractors on board for future reference.

**Table 4.5: Descriptive Statistics on Procurement Contract Management**

Statements	N	SD	D	N	A	SA	Mean	Std. Dev.
All formed contract in our organization are in written signed contract form	304	12.8%	23%	22%	21.7%	20.4%	3.13	1.32
The contractors in our organization are always paid on time	304	54.9%	16.1%	3.2%	10.3%	5.5%	3.05	1.08
Any variation of a contract in our entity is considered after twelve months from the date of signing the contract	304	1.6%	8.6%	12.2%	58.2%	19.4%	3.85	0.88
Our entity ensures regular monitoring of the contracts to achieve all delivery or performance obligations	304	3.3%	10.2%	12.2%	47%	27.3%	3.84	1.03
Our organization upholds strategies to enhance positive relationship with the contractors	304	45.6%	15.1%	12.2%	4.4%	22.7%	3.93	1.15
Our entity regularly maintains an updated form of the contract and reporting	304	8.2%	14.1%	12.8%	44.7%	20.1%	3.97	1.19
Our organization keeps comprehensive contract records	304	5.3%	20.4%	14.5%	43.1%	16.8%	4.07	1.14
All contractors in our entity submit the required documentation as specified in the tender document	304	9.2%	19.4%	13.5%	38.5%	19.4%	4.09	1.25
All contract documents in our organization are made clear to all parties involved in the contract	304	4.9%	11.5%	14.8%	46.7%	22%	4.01	1.08

Key: SD= Strongly Disagree, D= Disagree, U= Uncertain, A= Agree, SA= Strongly Agree

#### 4.5.2.1 Content Analysis of Procurement Contract Management

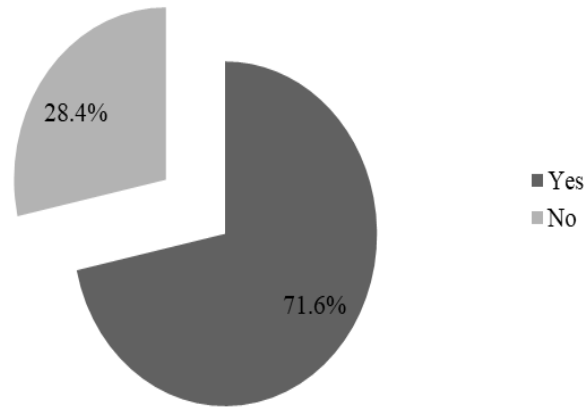
The study sought to establish the respondent's views on whether procurement contract management affected sustainable performance of states corporations in Kenya. The findings as shown in figure 4.6 revealed that majority of the respondents 281 (71.6%) indicated 'Yes' that indeed procurement contract management affected the sustainable performance of their respective corporations while 86 (28.4%) of the respondent indicated 'No' that procurement contract management affected the sustainable performance of their respective corporations. The respondents who indicated 'Yes' were further asked to explain their opinion in regard to the effectiveness of procurement contract management towards influencing the sustainable performance of the state corporations. The findings were qualitatively analyzed and the results revealed that majority of the respondents 281 equivalent to 71.6% were of the opinion that contract management effectively contributed to the sustainable performance of their respective state corporations.

When asked to explain their opinion majority of the respondents indicated that contractors were key to the sustainable performance of the institutions, thus

managing them effectively through proper implementation of procurement contract management practices provided under the regulation and the Act was an essential way of enhancing the sustainable performance of the corporations. They indicated that state corporations majorly rely on contractors to deliver most of their services. These contractors are like agents to the state corporations. When contractors are properly managed just as it is captured and guided under the Act and the regulation, the state corporations will deliver their mandate more effectively. They were of the opinion that proper management of procurement contracts leads to sustainable performance of an organization through achievement of timely delivery of contracts, proper contract relationships, proper risk management, delivery of quality goods, services and works, value for money and contract cost reduction.

The findings imply that while majority of the respondents feel that the procurement contract management as constituted affected the sustainable performance of the state corporations, a significant number indicated that the implementation of procurement contract management practices it's not carried out in a way to enhance sustainable performance an indication that the corporations ought to improve on their prospects of procurement contract management to achieve sustainable performance. This finding agrees with that of Kimundu and Moronge (2019), noted that for a successful contract management the contracting parties should consider; appropriate contract administration, management of service and products delivery, managing relationships with suppliers, conflict resolutions, contract monitoring and effective contract termination procedures in line with public procurement regulation.





**Figure 4:6: Effect of Procurement Contract Management on Sustainable Performance of State Corporations**

### **4.5.3 Preferences and reservation in procurement**

The third objective of the study was to evaluate the effect Preferences and reservation in procurement on sustainable performance of state corporations in Kenya.

#### **4.5.3.1 Descriptive Analysis of Preferences and reservation in procurement**

The respondents were asked to indicate their levels of agreement or disagreement on specific statement drawn from the sub-constructs of preferences and reservations in procurement which were: firms’ pre-qualification of Preferences and reservation, reporting on contracts awarded to preferences and reservation and capacity building on preference and reservation. A five-points Likert’s scale was used where 1 was strongly disagree, 2 was disagree, 3 was neutral, 4 was agree and 5 was strongly agree. The findings are as shown in Table 4.6

The study sought to know the extent to which the respondents agreed on the given statement relating to pre-qualification of preferences and reservation in procurement a measure of preferences and reservation in procurement on sustainable performance of state corporations. The findings in table 4.6 revealed that 27(8.9%) of the respondents strongly disagreed with the statement “To qualify for a specific preference or reservation in our organization, all special groups always provide

evidence of eligibility” 31(10.2%) disagreed, 41(13.5%) were neutral, 123(40.5%) agreed while 82(27%) strongly agreed with the statement. The findings indicated that majority of the respondents 205 equivalent to 67.5% agreed with the statement while a few 58(19.1%) disagreed with the mean and standard deviation of 3.87 and 1.22 respectively. This mean and standard deviation indicated that the respondents agreed that their organization ensures that all special groups must provide evidence of eligibility to qualify for a specific preference or reservation.

On the statement “Our organization ensures that all procurement opportunities available for special groups are always advertised in the state’s portal and website” as indicated in table 4.6, 30 equivalents to 9.9% of the respondent strongly disagreed, 53(17.4%) disagreed, and 56(18.4%) were neutral, 110(36.2%) agreed while 55(18.1%) strongly agreed with the statement. Cumulatively, majority 165(54.3%) of the respondents agreed while 83(27.3%) agreed with the statement. The findings had the mean and the standard deviation of 4.05 and 1.23 respectively which indicated that the respondents agreed that their organization ensures that all procurement opportunities available for special groups are always advertised in the state’s portal and website.

When the respondents were asked of their level of agreement to the statement “Our organization ensures that all submissions from special groups are evaluated as required by tender evaluation criteria” as indicated in table 4.6 12(3.9%) of the respondent strongly disagreed with the statement, 24(7.9%) of the respondent disagreed, 38(12.5%) were neutral, 150(49.3%) agreed while 80(26.3%) of the respondent strongly agreed. Therefore, majority of the respondents at 230(75.6%) agreed with the statement while a few 36(11.8%) of the respondents disagreed with the statement. The findings indicated that the respondents agreed that their organization ensures that all submissions from special groups are evaluated as required by tender evaluation criteria as shown by the mean and the standard deviation of 3.86 and 1.02 respectively. These findings are in tandem with the findings of Mwangi *et al.* (2017), that it is essential for state corporations to adhere to the PPADR guidelines on preferences and reservation in procurement especially as

far as youths are concerned if equitable and effective procurement procedures are to be achieved in the state agencies.

The study sought to know the extent to which the respondents agreed on the given statement relating to special groups contracts awarding and reporting a measure of preferences and reservation in procurement on sustainable performance of state corporations. The respondents were asked to indicate the extent to which they agreed with the statement “Our organization has set 30% aside of all procurement value in every financial year that is fully allocated special groups” the findings in table 4.6 revealed that 121(39.9%) of the respondents strongly disagreed with the statement, 57(18.8%) disagreed, 57(18.8%) were neutral, 16(5.2%) agreed while 53(17.4%) strongly agreed with the statement. Majority of the respondents 178(58.7%) disagreed with the statement while a few 69(22.6%) agreed with the statement. The findings had the mean and standard deviation of 3.31 and 1.23 respectively which was an indication that the respondents disagreed that their organization has set 30% aside of all procurement value in every financial year that is fully allocated special groups stipulating that state corporations are yet to fully implement requirements of preferences and reservation in procurement.

On the statement “Our organization has measures in place taken to ensure that money paid out to procurement special groups enterprises is paid to the appropriate accounts” as indicated in table 4., 114(37.6%) of the respondent had strongly disagreed, 67(22.2%) disagreed, and 47(15.5%) were neutral, 40(13.1%) agreed while 36(11.7%) strongly agreed with the statement. Cumulatively, majority 181(59.8%) disagreed while 76(24.8%) agreed with the statement. The findings indicated that the respondents disagreed that their organization has measures in place taken to ensure that money paid out to procurement special groups enterprises is paid to the appropriate accounts as shown by the mean and the standard deviation of 3.19 and 1.17 respectively. The findings indicated that states corporations are yet to fully implement preferences and reservation in procurement as required by the public procurement Act and the Regulation.

The respondents were asked to indicate their level of agreement on the statement “Our organization ensures that compliance reports with preferences and reservation in procurement are always submitted to PPRA as required”. Result in table 4.6 indicated that 79(25.9%) of the respondent strongly disagreed with the statement, 121(39.9%) of the respondent disagreed, 47(15.5%) were neutral, 52(17%) agreed while 20(6.7%) of the respondent strongly agreed with the statement. Therefore, majority of the respondents at 200(65.8%) disagreed with the statement while 72(23.7%) agreed with the statement. The findings had the mean and the standard deviation of 3.54 and 1.19 respectively an indication that the respondents disagreed that their organization ensures that compliance reports with preferences and reservation in procurement are always submitted to PPRA as required. This shows that state corporations are yet to fully implement preferences and reservation in procurement reporting as required by PPRA and National treasury. These findings agree with the findings of Gitari and Kabare (2019), who indicated that a number of state organizations had failed to reserve at least the 30% required minimum of their procurement expenditures to the disadvantaged groups and also, they fail to submit preferences and reservations annual reports.

The study sought to know the extent to which the respondents agreed on the given statement relating to procurement preference and reservation capacity building, a measure of preferences and reservation in procurement on sustainable performance of state corporations. The findings in table 4.6 revealed that 67(21.9%) of the respondents strongly disagreed with the statement “Our organization has regular capacity building programs on preferential procurement opportunities to empower special groups” 117(38.6%) disagreed, 45(14.8%) were neutral, 49(16.1%) agreed while 26(8.7%) strongly agreed with the statement. The findings indicated that majority of the respondents 184(60.5%) disagreed with the statement while a few 75(24.8%) agreed. The findings indicated that the respondents disagreed that their organization has regular capacity building programs on preferential procurement opportunities to empower special groups as shown by the mean and standard deviation of 3.13 and 1.17 respectively. The findings show that the state corporations are yet to fully ensure that preferential groups are well sanitized on preferential procurement opportunities.

On the statement “There are regular trainings for staff in our organization on preferences and reservation in procurement” as indicated in table 4.6, 128(42%) of the respondent strongly disagreed, 102(33.6%) disagreed, and 23(7.6%) were neutral, 16(5.1%) agreed while 36(11.7%) strongly agreed with the statement. Cumulatively, majority of the respondents 230(75.5%) disagreed while 52(16.8%) agreed with the statement. The findings had the mean and the standard deviation of 3.21 and 1.19 respectively an indication that the respondent disagreed that there are regular trainings for staff in their organization on preferences and reservation in procurement. This shows that there is need for state corporations to ensure that procurement staff are well trained on the implementation of preferences and reservation in procurement to achieve sustainable performance.

The respondents were also asked to indicate their level of agreement to the statement that “Our organization organize regular trainings to special groups on the documentation required for preferential public tendering process”, result in table 4.6 indicated that 131(43.1%) of the respondent strongly disagreed with the statement, 154(50.7%) of the respondent disagreed, 13(4.3%) were neutral, 3(1%) agreed while 3(1%) of the respondent strongly agreed. Therefore, majority of the respondents at 285(93.8%) disagreed with the statement while 6(2%) agreed with the statement. The findings indicated that the respondents disagreed that their organization organize regular trainings to special groups on the documentation required for preferential public tendering process as indicated by the mean and the standard deviation of 3.33 and 1.16 respectively. The findings show that state corporations are yet to ensure that preferential groups are well sensitized of the documentations required to participate in preferential procurement opportunities. These findings are in tandem with the findings of Marendi & Awino (2016), that public procuring entities are not adhering to the obligation to provide equal procurement opportunities to special groups in the society alleged to be deprived of, equal access to resources, services and tools which are suitable for their survival.

**Table 4.6: Descriptive Statistics on Preferences and reservation in procurement**

Statement	N	SD	D	U	A	SA	Mean	Std. Dev.
To qualify for a specific preference or reservation in our organization, all special groups always provide evidence of eligibility	304	8.9%	10.2%	13.5%	40.5%	27%	3.87	1.22
Our organization ensures that all procurement opportunities available for special groups are advertised in the state's portal and website	304	9.9%	17.4%	18.4%	36.2%	18.1%	4.05	1.23
Our organization ensures that all submissions from special groups are evaluated as required by tender evaluation criteria	304	3.9%	7.9%	12.5%	49.3%	26.3%	3.86	1.02
Our organization has set 30% aside of all procurement value in every financial year that is fully allocated special groups	304	39.9%	18.8%	18.8%	5.2%	17.4%	3.31	1.23
Our organization has measures in place taken to ensure that money paid out to procurement special groups enterprises is paid to the appropriate accounts	304	37.6%	22.2%	15.5%	13.1%	11.7%	3.19	1.17
Our organization ensures that compliance reports with preferences and reservation in procurement are always submitted to PPRA as required	304	25.9%	39.9%	15.5%	17%	6.7%	3.18	1.09
Our organization has regular capacity building programs on preferential procurement opportunities to empower special groups	304	21.9%	38.6%	14.8%	16.1%	8.7%	3.13	1.17
There are regular trainings for staff in our organization on preferences and reservation in procurement	304	42%	33.6%	7.6%	5.1%	11.7%	3.21	1.19
Our organization organize regular trainings to special groups on the documentation required for preferential public tendering process	304	43.1%	50.7%	4.3%	1%	1%	3.33	1.16

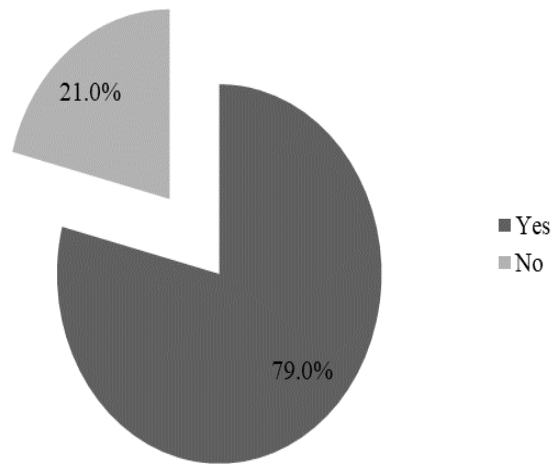
**Key:** SD= Strongly Disagree, D= Disagree, U= Uncertain, A= Agree, SA= Strongly Agree

#### 4.5.3.2 Content Analysis of Preferences and reservation in procurement

The respondents were asked to indicate whether preferences and reservation in procurement affected the sustainable performance of their respective state corporations. The findings as shown in figure 4.7 revealed that most of the respondents 240 (79%) agreed while 64 (21%) disagreed that preferences and reservation in procurement were key to the sustainable performance of their respective organizations. The findings are in line with the findings Mwangi *et al.*

(2017), who indicated that public need to ensure equal sharing of public procurement opportunities to improve social economic performance. The study further sought to establish the views of the respondents on the effect of preferences and reservation in procurement on sustainable performance are concerned. The respondents were asked to explain the effectiveness to which preferences and reservation in procurement contributed to the sustainable performance of their respective corporations, based on their individual opinions. The results were qualitatively analyzed and revealed that majority of the respondents 240(79%) indicated that preferences and reservation in procurement had effect on the sustainable performance of the state corporations in relation to social performance. The respondents commented that proper implementation of preferences and reservation in procurement enhances achievement of sustainable performance of an organization through creation employment opportunities, promotion of special groups, achievement of fairness in procurement process and improvement of standard of living among special groups.

They further indicated that the preferential groups were not aware of their reserved tenders and this gave a room for the procurement officials to overturn and give such opportunities to other unqualified groups as far as procurement preferences and reservation were concerned affecting sustainable performance. Majority indicated that there is need to consider the preferences and reservation in procurement to achieve fairness in the procurement process. However, most of these groups particularly the youth, women and persons with disabilities are not aware of the existence of these opportunities. This leads to delays in some of the supplies, hence making procuring entities resort to use of alternative sources of products, services and works. The respondents felt that there was need for continued awareness creation and empowerment of the preferences and reservation in procurement so that they are capable of delivering. It was noted that some of the groups would be awarded the tenders but due to lack of capital and stable supply chain frameworks, they are unable to deliver and therefore state corporations need to have strategies in place to empower special groups.



**Figure 4.7: Effect of preferences and reservation in procurement on sustainable performance of state corporations**

#### **4.5.4 Inventory Management**

The fourth objective of the study was to examine the effect of inventory management on sustainable performance of state corporations in Kenya.

##### **4.5.4.1 Descriptive Analysis of Inventory management**

The main aspects used to assess inventory management were: inventory control techniques, inventory records and demand forecasting. The respondents were asked to indicate their level of agreement or disagreement with specific statements based on these aspects. A five-points Likert's scale was used where 1 was strongly disagree, 2 was disagree, 3 was neutral, 4 was agree and 5 was strongly agree and the findings are as shown in Table 4.7.

The study sought to know the extent to which the respondents agreed on the given statement relating to inventory control techniques a measure of inventory management on sustainable performance of state corporations. The findings in table 4.7 revealed that 78(25.9%) of the respondents strongly disagreed with the statement "Our entity has an effective inventory management system to plan and control inventory" 90(29.5%) disagreed, 38(12.5%) were neutral, 85(28%) agreed while 12(4%) strongly agreed with the statement. Majority of the respondents 168(55.4%) disagreed with the statement while 97(32%) agreed. The findings had the mean and



standard deviation of 3.04 and 1.10 respectively an indication that the respondents disagreed that their entity has an effective inventory management system that helps achieve accurate stock levels thus helping their organization prevent overstocking and understocking.

On the statement “Our entity has effective inventory control techniques in place to enhance supply, storage and distribution of stock” as indicated in table 4.6, 20(6.6%) of the respondent had strongly disagreed, 51(16.8%) disagreed, and 54(17.8%) were neutral, 120(39.5%) agreed while 59(19.4%) strongly agreed with the statement. Cumulatively, majority 179(58.9%) agreed with the statement while a few 71(23.4%) disagreed. The findings indicated that the respondents agreed that their organization has an effective inventory control techniques and mechanisms in place that facilitate proper planning of inventory kept in the organization which was shown by the mean and the standard deviation of 3.48 and 1.17 respectively.

The respondents were asked to indicate their level of agreement with the statement “Our entity has automated inventory control procedures to monitor stock levels”. The findings in table 4.6 indicated that 93(30.5%) of the respondent strongly disagreed with the statement, 89(29.4%) of the respondent disagreed, 36(11.7%) were neutral, 51(16.8%) agreed while 35(11.5%) of the respondent strongly agreed. Therefore, majority of the respondents at 182(59.9%) disagreed with the statement while a few 86(28.3%) agreed with the statement. The findings had the mean and the standard deviation of 2.79 and 1.48 respectively an indication that the respondents disagreed that their organization has automated inventory control procedures to monitor stock levels which shows that state corporations in Kenya have not effectively implemented automation of inventory control to ensure that appropriate stock levels are kept. The findings are in line with the findings Karani and Osoro (2020), who indicated that while the modern world is turning to technology as far as inventory management is concerned, this has not been the case when it comes to the state corporations that leads to lack of efficiency and appropriateness in the management of inventory and the entire supply chain process.

The study sought to know the extent to which the respondents agreed on the given statement relating to inventory records a measure of inventory management on sustainable performance of state corporations. The respondents were asked to indicate their level of agreement to the statement “Our entity has a working inventory records management unit that ensures accurate inventory records”. The findings in table 4.7 revealed that 25(8.2%) of the respondents strongly disagreed with the statement, 41(13.5%) disagreed, 66(21.7%) were neutral, 138(45.4%) agreed while 34(11.2%) strongly agreed with the statement. Majority of the respondents 172(56.6%) agreed with the statement while a few 66(21.7%) disagreed. The findings had the mean and standard deviation of 3.94 and 1.10 respectively. The mean and standard deviation indicated that the respondents agreed that their organization has a working inventory records management unit that ensures accurate inventory records. Though this was not agreed to a very large extent, it was an indication that some state corporations are yet to fully ensure that their inventory management unit is effective.

On the statement “Our entity has an up-to-date asset register which ensures proper inventory records management” as indicated in table 4.6, 35(11.5%) of the respondent strongly disagreed, 59(19.4%) disagreed, and 72(23.7%) were neutral, 110(36.6%) agreed while 28(9.2%) strongly agreed with the statement. Cumulatively, majority 138(45.4%) agreed with the statement while 94(30.9%) disagreed. The findings indicated that the respondents agreed that their organization has an up-to-date asset register which ensures proper inventory records management as shown by the mean and the standard deviation of 4.12 and 1.17 respectively.

The respondents were asked to indicate their level of agreement to the statement “Our entity regularly carries out stock/asset inspection and audits to keep track of inventory” as indicated in table 4.6 129(42.3%) of the respondent strongly disagreed with the statement, 47(15.3%) of the respondent disagreed, 71(23.4%) were neutral, 16(5.4%) agreed while 42(13.7%) of the respondent strongly agreed. Therefore, majority of the respondents at 176(57.6%) disagreed with the statement while 58(19.1%) agreed with the statement. The findings had the mean and the standard deviation of 3.02 and 0.92 respectively an indication that the respondents disagreed

that their organization regularly carries out stock/asset inspection and audits to keep track of inventory. These results show that state corporations in Kenya are yet to fully ensure that stocks are well accounted for to prevent misappropriations. The findings are in line with those by Mulandi and Ismail (2019), who found out that inventory management in state corporations was not effective despite this being a crucial aspect that determined the sustainable performance of the corporations.

The study sought to know the extent to which the respondents agreed on the given statement relating to demand forecasting, a measure of inventory management on sustainable performance of state corporations. The findings in table 4.7 revealed that 48(15.8%) of the respondents strongly disagreed with the statement “Our organization has accurate demand forecasting methods in place to maintain appropriate stock levels” 22(7.3%) disagreed, 54(17.8%) were neutral, 93(30.6%) agreed while 87(28.6%) strongly agreed with the statement. Majority of the respondents 180(59.2%) agreed while 70(23.1%) disagreed with the statement. The findings had the mean and standard deviation of 3.88 and 1.04 respectively. The mean and standard deviation indicated that the respondents agreed that their organization has accurate demand forecasting methods in place to maintain appropriate stock levels but this was not to a large extent. The findings indicated that state corporations need to ensure that they have accurate demand forecasting methods in place to enhance proper demand planning.

On the statement “Our entity utilizes demand forecasting to maintain accurate and real-time inventory data” as indicated in table 4.6, 23(7.6%) of the respondent had strongly disagreed, 59(19.4%) disagreed, and 54(17.8%) were neutral, 130(42.8%) agreed while 38(12.5%) strongly agreed with the statement. Cumulatively, a few 82(27%) disagreed while majority 168(55.3%) agreed with the statement. The findings had the mean and the standard deviation of 3.93 and 1.14 respectively an indication that the respondents agreed that their entity utilizes demand forecasting to maintain accurate and real-time inventory data. The results show that some state corporations are yet to fully ensure that demand forecasting is utilized to improve inventory performance.

The respondents were asked to indicate their level of agreement to the statement “Our entity utilizes demand forecasting tools to improve on inventory planning”. The findings in table 4.7 indicated that 133(43.6%) of the respondent strongly disagreed with the statement, 66(21.8%) of the respondent disagreed, 46(15.1%) were neutral, 12(4.1%) agreed while 47(15.3%) of the respondent strongly agreed. Therefore, majority of the respondents at 199(65.4%) disagreed with the statement while a few 59(19.4%) agreed with the statement. The findings indicated that the respondents disagreed that their organization utilizes demand forecasting tools to improve on inventory planning as shown by the mean and the standard deviation of 2.75 and 1.37 respectively. The results show that majority of the state corporations are yet to fully implement demand forecasting tools to enhance proper planning of inventory. These findings are in tandem with the findings of Mukopi and Iravo (2015), who observed that through lack of effective inventory management systems and improper monitoring of stock levels had negative effects on the customer satisfaction and effectiveness of the supply chain process thus affecting firm’s sustainable performance.

**Table 4.7: Descriptive Statistics on Inventory Management**

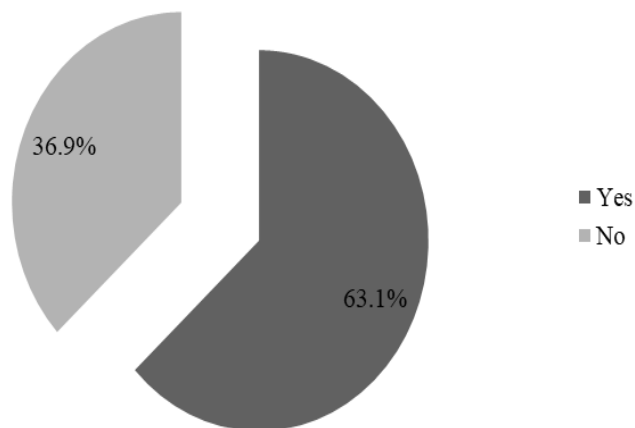
Statements	N	SD	D	U	A	SA	Mean	Std. Dev.
Our entity has an effective inventory management system to plan and control inventory	304	25.9%	29.5%	12.5%	28%	4%	3.04	1.10
Our entity has effective inventory control techniques in place to enhance supply, storage and distribution of stock	304	6.6%	16.8%	17.8%	39.5%	19.4%	3.48	1.17
Our entity has automated inventory control procedures to monitor stock levels	304	30.5%	29.4%	11.7%	16.8%	11.5%	2.79	1.48
Our entity has a working inventory records management unit that ensures accurate inventory records	304	8.2%	13.5%	21.7%	45.4%	11.2%	3.94	1.10
Our entity has an up-to-date asset register which ensures proper inventory records management	304	11.5%	19.4%	23.7%	36.2%	9.2%	4.12	1.17
Our entity regularly carries out stock/asset inspection and audits to keep track of inventory	304	42.3%	15.3%	23.4%	5.4%	13.7%	3.02	0.92
Our organization has accurate demand forecasting methods in place to maintain appropriate stock levels	304	15.8%	7.3%	17.8%	30.6%	28.6%	3.88	1.04
Our entity utilizes demand forecasting to maintain accurate and real-time inventory data	304	7.6%	19.4%	17.8%	42.8%	12.5%	3.93	1.14
Our entity utilizes demand forecasting tools to improve on inventory planning	304	43.6%	21.8%	15.1%	4.1%	15.3%	2.75	1.37

**Key:** SD= Strongly Disagree, D= Disagree, U= Uncertain, A= Agree, SA= Strongly Agree

#### 4.5.4.2 Content Analysis of Inventory Management

The respondents were asked to indicate whether inventory management affected the sustainable performance of their respective Organizations. The findings in figure 4.8 portrays, hat majority of the respondents 192 (63.1%) agreed while 112 (36.9%) disagreed that inventory management was instrumental in enhancing the sustainable performance of their respective state corporations. This shows that upholding inventory management would be essential in steering the sustainable performance of the state corporations. The respondents who agreed were also asked to indicate the extent to which they perceived inventory management to be effectively upheld in their respective state corporations towards enhancing firm’s sustainable performance. The findings were qualitatively analyzed and revealed that majority of the

respondents 192 (63.1%) were of the opinion that inventory management was ineffectively upheld in their respective entities. They however commented that through inventory management, their respective state corporations had improved their effectiveness in handling inventory as one of the procurement processes proper utilization of resources, waste reduction ability to meet customer needs, reduction of inventory costs and maintenance of appropriate stock levels. Majority stated in their opinion that although public procuring entities are committed towards enhancing the effectiveness of the inventory management, this is yet to be achieved to a satisfactory level. The entities are still yet to embrace modern ways of managing inventory, and this could demean the effectiveness of the procurement process in our corporation. The findings are evident that most of the state corporations are yet to uphold the need for effective use of inventory management as a way of enhancing the supply chain process and ensure better sustainable performance of the corporations. This finding agrees with that of Ongeru and Osoro (2021) who indicated that there is need for proper controlling and monitoring of inventory requirements in a consolidated warehouse, so as to achieve an ideal stock level.



**Figure 4.8: Effect of Inventory Management on Sustainable Performance of State Corporations**

#### **4.5.5 Public Procurement Regulatory Bodies**

The fifth objective of the study was to analyze the moderating effect of the public procurement regulatory bodies on the relationship between public procurement practices and the sustainable performance of state corporations in Kenya.

##### **4.5.5.1 Descriptive Analysis of Public Procurement Regulatory Bodies**

The main aspects used for public procurement regulatory bodies were: the public procurement regulatory authority, the public procurement administrative review board and the national treasury. The respondents were asked to indicate their level of agreement or disagreement with specific statements drawn based on these three aspects. A 5-points Likert's scale was adopted and Table 4.8 shows the findings.

The study sought to know the extent to which the respondents agreed on the given statement relating to the National Treasury a measure of the moderating effect of the public procurement regulatory bodies on the relationship between public procurement practices and the sustainable performance. The respondents were asked to indicate their level of agreement to the statement "The National Treasury always provide our entity with technical assistance on implementation and operation of public procurement" the findings in table 4.8 revealed that 164(53.9%) of the respondents strongly disagreed with the statement, 32(10.5%) disagreed, 46(15.1%) were neutral, 6(2%) agreed while 56(18.4%) strongly agreed with the statement. Majority of the respondents 196(64.4%) disagreed while 62(20.4%) agreed with the mean and standard deviation of 3.10 and 1.01 respectively. The mean and standard deviation indicated that the respondents disagreed that the National Treasury always provide their entity with technical assistance on implementation and operation of public procurement. These findings show that the national treasury is not fully carrying out its mandates as required by public procurement and asset disposal act and regulation which is affecting the implementation of public procurement practices by procuring entities.

On the statement “The national treasury regularly issues guidelines to our entity with respect to all procurement matters” as indicated in table 4.8, 93(30.5%) of the respondent had strongly disagreed, 102(33.4%) disagreed, and 48(15.7%) were neutral, 48(15.9%) agreed while 14(4.6%) strongly agreed with the statement. Cumulatively, Majority of the respondents 195 (63.9%) disagreed while 62(20.5%) agreed with the statement. The findings had the mean and the standard deviation of 3.00 and 1.07 respectively an indication that the respondents disagree that the national treasury regularly issues guidelines to their entity with respect to all procurement matters. These findings show that the National Treasury are not effectively adhering to their mandates in relation to ensuring that state corporations are well updated on guidelines they are required to follow when carrying out procurement activities.

The respondents were also asked to indicate their level of agreement with the statement “The national treasury always formulates and promote asset disposal policy and standards to improve compliance in our entity”, result in table 4.8 indicated that 67(22%) of the respondent strongly disagreed with the statement 169(55.6%) of the respondent disagreed, 44(14.5%) were neutral, 16(5.3%) agreed while 8(2.7%) of the respondent strongly agreed. Therefore, majority of the respondents at 236(77.6%) disagreed with the statement while a few 24(8%) agreed with the statement. The findings had the mean and the standard deviation of 3.11 and 1.87 respectively which shows that the respondents disagreed that the national treasury always formulates and promote asset disposal policy and standards to improve compliance in procuring entities. The results show that the national treasury does not always formulate and promote policies required by procuring entities to improve compliance levels. The findings are in line with the findings of Nyaboke and Muturi (2017), who uphold that national treasury need to regularly issue guidelines on the implementation of public procurement regulation to improve sustainable performance levels.

The study sought to know the extent to which the respondents agreed on the given statement relating to PPRA a measure of the moderating effect of the regulatory bodies on the relationship between public procurement practices and the sustainable



performance. When the respondents were asked to indicate their level of agreement to the statement “PPRA always monitor, assess and review public procurement and asset disposal activities in our entity”, the findings in table 4.8 revealed that 14(4.6%) of the respondents strongly disagreed with the statement, 43(4.1%) disagreed, 80(26.3%) were neutral, 119(39.1%) agreed while 48(15.8%) strongly agreed with the statement. As per the findings, majority of the respondents 167(54.9%) agreed with the statement while a few 57(18.7%) disagreed. The findings had the mean and standard deviation of 3.97 and 1.06 respectively. The mean and standard deviation indicates that the respondents agreed that PPRA always monitor, assess and review public procurement and asset disposal activities in state corporations. The level of agreement to the statement was not to a large extent indicating that PPRA in yet to fully ensure that they effectively monitor, assess and review all public procurement and assets disposal activities in state corporations to enhance effective implementation.

On the statement “PPRA regularly monitor the implementation of the preferences and reservation schemes in our entity’s procurement activities” as indicated in table 4.8, 4(1.3%) of the respondent strongly disagreed, 16(5.3%) disagreed, and 32(10.5%) were neutral, 154(50.7%) agreed while 98(32.2%) strongly agreed with the statement. Cumulatively, Majority of the respondents 252(82.9%) agreed with the statement while a few 20(6.6%) disagreed. The findings had the mean and the standard deviation of 4.07 and 0.86 respectively. The mean and standard deviation indicated that the respondents agreed that there is regular monitoring of the implementation of the preference and reservation schemes in procurement activities by PPRA in their institution. Regular monitoring of the implementation of the preferences and reservation schemes in procurement activities enhances fairness and creation of job opportunities to preferential groups.

The respondents were also asked to indicate their level of agreement with the statement “PPRA regularly carryout compliance audits of our entity’s procurement processes to enforce compliance”, the result in table 4.8 indicated that 111(36.6%) of the respondent strongly disagreed with the statement, 67(22%) of the respondent disagreed, 52(17.1%) were neutral, 25(8.2%) agreed while 49(16.1%) of the

respondent strongly agreed. Therefore, majority of the respondents at 178(58.6%) disagreed with the statement while 74(24.3%) agreed with the statement. The findings had the mean and the standard deviation of 3.35 and 1.17 respectively an indication that respondents disagreed that there is regular carrying out of compliance audits of procurement processes by PPRA to enforce compliance in the procuring entities. As per the findings, carrying out of compliance audits of procurement processes ensure that an entity improves compliance levels leading to improved sustainable performance. The findings are in line with those by Chogo *et al.* (2020), who indicated that PPRA does not regularly monitor and review effective implementation of practices which has led to low compliance levels with public procurement practices.

The study sought to know the extent to which the respondents agreed on the given statement relating to PPARB a measure of the moderating effect of the regulatory bodies on the relationship between public procurement practices and the sustainable performance. The respondents were also asked to indicate their level of agreement with the statement “PPARB always provide our entity with fair and reasonable access to its services”, the results in table 4.8 indicated that, 91(30%) of the respondent strongly disagreed with the statement, 125(41%) of the respondent disagreed, 29(9.6%) were neutral, 17(5.5%) agreed while 42(13.9%) of the respondent strongly agreed. Therefore, majority of the respondents at 216(71%) disagreed with the statement while 59(19.4%) agreed with the statement. The findings had the mean and the standard deviation of 3.00 and 1.79 respectively. The mean and standard deviation as per the findings indicated that the respondents disagreed that PPARB always provide state corporations with fair and reasonable access to its services. This indicates that for there to be effective implementation of public procurement practices PPARB need to ensure that state corporations and contractors are able to have reasonable access its services

The findings in table 4.8 revealed that 131(43%) of the respondents strongly disagreed with the statement “PPARB ensures that all tendering and assets disposal disputes in our entity are investigated” 53(17.4%) disagreed, 45(14.8%) were neutral, 19(6.1%) agreed while 57(18.3%) strongly agreed with the statement. The findings

indicated that majority of the respondents 184(60.4%) disagreed with the statement while 76(24.9%) of those that agreed. The findings had the mean and standard deviation of 3.10 and 1.06 respectively an indication that the respondents disagreed that all tendering and assets disposal disputes are investigated by PPARB. Timely investigation of procurement related disputes ensures that there is fairness and transparency in the procurement process. PPARB need to ensure that all tendering and assets disposal disputes are fully investigated in state corporations in Kenya.

On the statement “PPARB ensures that all procurement related cases in our entity are reviewed and determined on time” as indicated in table 4.8, 153(50.3%) of the respondent had strongly disagreed, 12(3.9%) disagreed and 19(6.2%) were neutral, 15(5%) agreed while 105(34.5%) strongly agreed with the statement. Cumulatively, majority of the respondents 165(54.2%) disagreed while 120(39.5%) agreed with the statement. The findings indicated that the respondents disagreed that PPARB ensures that all procurement related cases are reviewed and determined on time as indicated by the mean and the standard deviation of 3.15 and 1.78 respectively. The results indicated that PPARB is yet to full ensure that all procurement related cases are reviewed and determined on time to enhance accountability, fairness and transparency in procurement process. These findings are in tandem with the findings of Rono and Moronge (2019), who indicated that public procurement Administrative Board effective enforcement measures to ensure that all public procuring entities comply with all the guidelines stipulated in the public procurement regulation.

**Table 4.8: Descriptive Statistics on public procurement regulatory bodies**

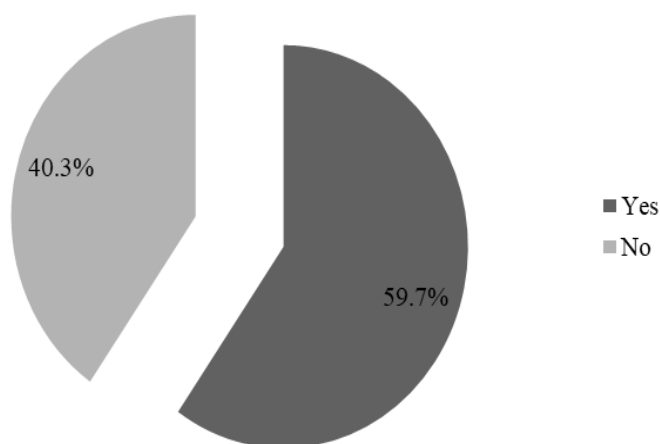
Statement	N	SD	D	U	A	SA	Mean	Std. Dev.
The National Treasury always provide our entity with technical assistance on implementation and operation of public procurement	304	53.9%	10.5%	15.1%	2%	18.4%	3.10	1.01
The national treasury regularly issues guidelines to our entity with respect to all procurement matters	304	30.5%	33.4%	15.7%	15.9%	4.6%	3.00	1.07
The national treasury always formulates and promote asset disposal policy and standards to improve compliance in our entity	304	22%	55.6%	14.5%	5.3%	2.7%	3.11	1.87
PPRA always monitor, assess and review our public procurement and asset disposal activities in our entity	304	4.6%	14.1%	26.3%	39.1%	15.8%	3.97	1.06
PPRA regularly monitor the implementation of the preference and reservation schemes in our entity's procurement activities	304	1.3%	5.3%	10.5%	50.7%	32.2%	4.07	0.86
PPRA regularly carryout compliance audits of our entity's procurement processes to enforce compliance	304	36.6%	22%	17.1%	8.2%	16.1%	3.35	1.17
PPARB always provide our entity with fair and reasonable access to its services	304	30%	41%	9.6%	5.5%	13.9%	3.00	1.79
PPARB ensures that all tendering and assets disposal disputes in our entity are investigated	304	43%	17.4%	14.8%	6.1%	18.8%	3.10	1.06
PPARB ensures that all procurement related cases in our entity are reviewed and determined on time	304	50.3%	3.9%	6.2%	5%	34.5%	3.15	1.78

**Key:** SD= Strongly Disagree, D= Disagree, U= Uncertain, A= Agree, SA= Strongly Agree

#### 4.5.5.2 Content Analysis of public procurement regulatory bodies

The respondents further indicated whether public procurement regulatory bodies affected or didn't affect the relationship between public procurement practices and sustainable performance of their respective state corporations. The findings in figure 4.9 revealed that majority of the respondents 181(59.7%) agreed while 123(40.3%) disagreed that the public procurement regulatory bodies affected the relationship between public procurement practices and sustainable performance of their respective state corporations. The respondents who agreed were also asked to explain their answer to which in their opinion, the public procurement regulatory bodies were instrumental to the implementation of public procurement practices and sustainable performance of their respective state corporations. The findings revealed that majority of the respondents 181 (59.7%) were of the opinion

that the promotion and the regulation of public procurement practices was effective in enhancing effective implementation by state corporations. The respondents stated that the public procurement regulatory bodies were not able to fully support, promote and regulate the implementation of public procurement practices equally in different state corporations. The respondents based this opinion due to the fact that different state corporations operate in different category and mandates, the size of the entity, location, privatized and those fully depending on government funding and public procurement regulatory bodies budgetary allocations. Majority of the respondents stated that public procurement regulatory bodies were not effectively doing their mandate and this led to reluctance among most of the state corporations to fully comply with public procurement practices. They stated that equal promotion and support of the implementation of public procurement practices by public procurement regulatory bodies is needed as a way of ensuring that every state corporation effectively implement these practices. The findings agree with the findings of Nyongesa and Osoro (2019), who indicated that regulating all public procurement practices enhances sustainable performance of an organization.



**Figure 4.9: Effect of public procurement regulatory bodies on the relationship between public procurement practices and sustainable performance of state corporations**

## **4.5.6 Sustainable Performance of State Corporations in Kenya**

### **4.5.6.1 Descriptive Analysis of Sustainable Performance**

The study sought to assess the sustainable performance of State Corporations in relation to the compliance with the public procurement practices. The sustainable performance in this case was assessed using environmental protection, financial growth and social responsibility performance indicators. The respondents were asked to indicate the percentage increase/decrease on specific aspects of sustainable performance for the period between 2016 and 2020, from 2020 the last 3-5 years using sustainable performance measurement aspects included; Below 5%, Between 5-10%, Between 11-15%, 4-Between 16-20% and Above 20%.

In table 4.9 the respondents were asked to indicate their organization's sustainable performance in relation to the environmental protection measurement aspects. On the first statement "the percentage increase on the efficient use of resources for the last 3-5years" 137(45.1%) of the respondent indicated an increase of below 5%, 81(26.6%) indicated an increase of between 5-10%, 63(20.7%) indicated an increase of between 11-15%, 16(5.3%) indicated an increase of between 16-20% while 7(2.3%) of the respondents indicated an increase of above 20% on the efficient use of resources. The findings portrayed that majority of the respondents 137(45.1%) indicated that their respective organizations had below 5% while only a few 7(2.3%) had achieved above 20% increase on the efficient use of resources for the last 3-5years. This is as shown by a mean of 1.93 and a standard deviation of 1.03 an indication that majority of state corporations in Kenya are reporting the efficient utilization of resources of below 5% thus affecting sustainable performance.

On the second statement "the percentage waste reduction rate for the last 3-5years", 155(51%) indicated reduction of below 5%, 92(30.3%) indicated reduction of between 5-10%, 31(10.2%) indicated a reduction of between 11-15, 16(5.3%) indicated a reduction of between 16-20% while 10(3.3%) indicated a reduction of over 20%. Therefore, the findings portray that majority of the respondents 155(51%) indicated that their entities had below 5% waste reduction rate for the last 3-5years while a few 10(3.3%) indicated a reduction of waste rate of above 20%. The

findings indicated that majority of state corporations are yet to achieve appropriate waste reduction level as shown by the mean of 1.79 and standard deviation of 1.03. State corporations in Kenya need to ensure that they have measures in place to reduce waste in when carrying out procurement activities.

Finally, on the statement “the percentage increase in the use of renewable resources for the last 3-5years”, majority of the respondents 99(32.6%) indicated an increase of below 5%, 28(9.2%) indicated an increase of between 5-10%, 52(17.1%) indicated an increase of between 11-15, 79(26%) indicate an increase of between 16-20% while 46(15.1%) indicated an increase of above 20% in the use of renewable resources with mean of 2.81 and standard deviation of 1.49. This is an indication that the environmental factors had seen minimal increment among the state corporations. The findings are in tandem with the findings of Mbatia and Osoro, (2020) who found out that procurement activities and procedures have a correlation to the improvement of business financial growth, social responsibility and environmental protection which is seen through sustainable performance.

The respondents were also asked to indicate the percentage increase or decrease on the financial health measurement aspects of their entities. On the statement “Please indicate the percentage decrease in organizational expenditure for the last 3-5years”, the majority of the respondents 139(45.7%) stated less than 5%, 136(44.7%) indicated between 5-10%, 22(7.2%) indicated between 11-15%, 4(1.3%) indicated between 16-20% while only 3(1%) indicated above 20% decrease in organizational expenditure. The findings had Mean of 1.67 and standard deviation of 0.75 which indicates that majority of the respondents indicated that their organizations had not achieved required expenditure reduction. State corporations need to ensure that they reduce costs associated with procurement practices to achieve sustainable performance.

When respondents were asked to indicate the percentage increase in annual revenue for the last 3-5years majority of the respondents 145(47.7%) indicated below 5%, 83(27.3%) indicated between 5-10%, 40(13.2%) indicated between 11-15%, 24(7.9%) indicated between 16-20% while on a few 12(3.9%) indicated above 20%

increase in annual revenue (Mean= 1.93; standard deviation = 1.13). The findings show that majority of the state corporations had annual revenue increase of below 5% an indication of poor financial performance. State corporations need to ensure that procurement practices are well carried out to reduce costs and increase revenue so as to effectively run operations of the organization.

The findings further revealed that majority of the respondents 147(48.4%) indicated below 5% increase in working capital for the last 3-5years, 58(19.1%) indicated between 5-10%, 42(13.8%) indicated below 11-16%, 43(14.1%) indicated between 16-20% while only a few14(4.6%) indicated that their organization had achieved above 20% increase in working capital with mean and standard deviation of 2.07 and 1.26 respectively. The findings indicate that state corporations have achieved low increase in working capital thus affecting their financial health. The results imply that the financial performance is not effectively achieved in most of the surveyed state corporations. The findings are in line with the findings of Kariuki and Aduda (2016), who indicated that achievement of an organizational goal is considered in form of achieving financial performance measures of cost reduction, customer satisfaction, quality improvement, revenue growth and improvement in working capital.

On the social responsibility measures, the respondents were asked to indicate their organization's social responsibility measurement aspects. The study established that, on the statement "The percentage increase in customer satisfaction index for the last 3-5years", 62(20.4%) indicated below 5%, majority 81(26.6%) indicated between 5-10%, 74(24.3%) indicated between 11-15, 62(20.4%) indicated between 16-20% while a few 25(8.2%) indicated above 20% increase in stakeholder satisfaction rate (Mean = 2.69; standard deviation= 1.23). The mean and standard deviation indicated that majority of state corporations have achieved low customer satisfaction index in the last 3-5 years. There is need to ensure that there is proper implementation of public procurement practices to improve customer satisfaction index.



When respondents were asked to indicate the percentage increase in social initiatives participations for the last 3-5years, 81(26.6%) indicated less than 5%, majority 92(30.3%) indicated between 5-10%, 60(19.7%) indicated between 11-15%, 44(14.5%) indicated between 16-20% while a few 27(8.9%) indicated above 20% increase in social initiatives participations (Mean = 2.48; standard deviation= 1.26). The mean and standard deviation indicated that majority of state corporations have not been fully engaging in social initiatives participations affecting their social performance. There is need to ensure that state corporations identify areas in their implementation of procurement practices where they can engage in social initiatives participation to achieve sustainable performance.

Lastly, on the percentage increase in the equal access to procurement opportunities for the period between 3 and 5 years, majority 155(51%) indicated below 5%, 40(13.2%) indicated between 5-10%, 53(17.4%) indicated between 11-15%, 38(12.5%) indicated between 16-20% while on a few 18(5.9%) indicated above 20% increase in equal access to procurement opportunities in their entities (Mean = 2.09; standard deviation = 1.30). The results as per the mean and standard deviation show that majority of state corporations are not fully ensuring that preferential groups have equal access to procurement opportunities as required by public procurement and assets disposal Act and Regulation. The findings imply that the state corporations still have a below average sustainable performance as far as social measures are concerned. The findings concur with the findings of Ongeru and Osoro (2021), who indicated that for a business to achieve social performance they need to focus on embracing sustainability initiatives on social responsibility as measure of performance.

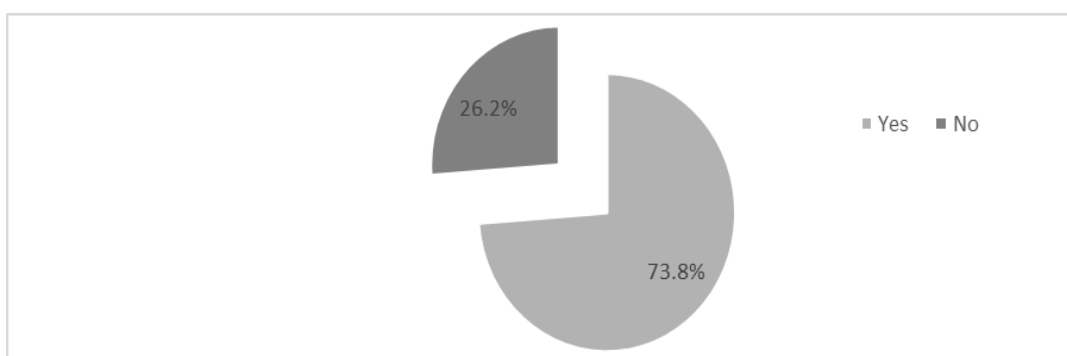
**Table 4.9: Descriptive Statistics on the Sustainable Performance of State Corporations**

Measurement Aspects	N	Below 5%	5 - 10%	11 - 15%	16 - 20%	Above 20%	Mean	Std. Dev.
The percentage increase the efficient use of resources for the last 3-5years	304	45.1%	26.6%	20.7%	5.3%	2.3%	1.93	1.03
The percentage waste reduction rate for the last 3-5years	304	51%	30.3%	10.2%	5.3%	3.3%	1.79	1.03
The percentage increase in the use of renewable resources for the last 3-5years	304	32.6%	9.2%	17.1%	26%	15.1%	2.81	1.49
Please indicate the percentage decrease in organizational expenditure for the last 3-5years	304	45.7%	44.7%	7.2%	1.3%	1%	1.67	0.75
Please indicate the percentage increase in annual revenue for the last 3-5years	304	47.7%	27.3%	13.2%	7.9%	3.9%	1.93	1.13
Please indicate the percentage increase in working capital for the last 3-5years	304	48.4%	19.1%	13.8%	14.1%	4.6%	2.07	1.26
The percentage increase in customer satisfaction index for the last 3-5years	304	20.4%	26.6%	24.3%	20.4%	8.2%	2.69	1.23
The percentage increase in social initiatives participations for the last 3-5years	304	26.6%	30.3%	19.7%	14.5%	8.9%	2.48	1.26
The percentage increase in equal access to procurement opportunities for the last 3-5years	304	51%	13.2%	17.4%	12.5%	5.9%	2.09	1.30

#### 4.5.6.2 Content Analysis of Sustainable Performance

The respondents were further asked to indicate whether the public procurement practices had any effect on the sustainable performance of their respective organizations. The findings as shown in Figure 4.10 revealed that majority of the respondents 224(73.8%) agreed that the implementation of public procurement practices enhanced the sustainable performance of their respective state corporations. When asked to expound on their responses, majority of the respondents indicated that their organizations had not fully implemented public procurement practices thus unable to realize improved sustainable performance in relation to reduction in expenditure, waste reduction, revenue growth, customer satisfaction, timely delivery, delivery of quality products and services and technological advancement. The findings further reveal that 80(26.2%) of the respondents indicated that the public procurement practices did not have any effect on the sustainable performance of the state corporations. When asked to comment, the respondents indicated that while procurement was essential in the state corporations, there were other aspects that

were responsible for organizations sustainable performance rather than just implementation of the public procurement practices. However, some respondents commented that even if they did not consider implementation of public procurement practices to have a direct impact on sustainable performance, it streamlined the procurement practices thus preventing loopholes that could lead to loss of public funds. These findings are in tandem with the findings of Moronge and Munyao (2017), that public procurement regulation sets clear guidelines that when implemented can lead to sustainable performance of state corporations.



**Figure 4.10: Effect of Public Procurement Practices on Sustainable Performance of State Corporations**

#### **4.6 Factor Analysis**

Factor analysis is essential in enabling the reduction of the dimension for the variables so as to retain the aspects (factors) that have a strong variance (effect) on the main variable (Hatcher, & O' Rourke, 2019; Cattell, 2012). Kline, (2014) on the other hand alludes that a factor with a loading of less than 0.60 as per KMO Measures of Sampling Adequacy explains minimal variance on the main variable hence such factor should not be used under the analysis of the main variable. The specific factors for the indicators of the study variables were compared and those factors that did not meet the minimum threshold were dropped and those that achieved expected factor loadings were retained.

#### 4.6.1 Procurement Methods

Factor analysis was carried out for the first objective of the study to assess the factor loading for the items under the objectives. According to Mair (2018), a factor loading of less than 0.60 is an implication of minimal contribution to the main variable. The findings as shown in Table 4.10 revealed that the factor loadings for the items under the procurement methods were ranging from 0.660 to 0.929 which implies that the factors met the 0.60 threshold hence, they were all retained in the subsequent analysis of the variable.

**Table 4.10: Factor Analysis for Procurement Methods**

<b>Factors</b>	<b>Factor Loadings</b>
Our entity ensures that all open tenders are advertised in the dedicated Government tenders' portals / our website	.685
All open tender procurements in our organization have clear technical specifications that follow objective qualifications criteria	.786
Our organization strictly follow all laid down procedures in Provision of open tender documents.	.867
Our entity uses restricted tendering strictly in cases where the works are specialized in nature	.875
Our organization has a database of pre-qualified providers who are invited to tender in restricted tendering process	.787
The evaluation committee in our organization always meet to consent to the use of restricted tendering	.792
Our entity uses direct procurement strictly where circumstances do not allow for competitive tendering.	.660
Our entity uses direct procurement strictly where the total cost is within the threshold set in the tender document.	.687
Our entity has a streamlined process in place to manage direct procurement requirements to ensure its effectiveness	.929

#### 4.6.2 Procurement Contract Management

On the second objective, the factor analysis was carried out to establish the factor loadings for the items under the variable; Procurement contract management. The results as shown in Table 4.11 revealed that the factor loadings ranged from 0.607 and

0.998. This implies that all the factors under the objective met the threshold hence they were all retained to carry out the inferential analysis (Mair, 2018).

**Table 4.11: Factor Analysis on Procurement Contract Management**

<b>Factors</b>	<b>Factor Loadings</b>
All formed contracts in our organization are in written signed contract form	.618
The contractors in our organization are always paid on time	.607
Any variation of a contract in our entity is considered after twelve months from the date of signing the contract	.788
Our entity ensures regular monitoring of the contracts to achieve all delivery or performance obligations	.644
Our organization upholds strategies to enhance positive relationship with the contractors	.976
Our entity regularly maintains an updated form of the contract and reporting	.998
Our organization keeps comprehensive contract records	.667
All contractors in our entity submit the required documentation as specified in the tender document	.892
All contract documents in our organization are made clear to all parties involved in the contract	.837

### **4.6.3 Preferences and reservation in procurement**

The factor analysis for the factors under preferences and reservation in procurement are as shown in Table 4.12. The results revealed that the factor loadings ranged from 0.622 to 0.850 which implies that the factors met the 0.60 threshold hence, they were all retained in the subsequent analysis of the variable in the inferential analysis (Hatcher & O Rourke, 2019).

**Table 4.12: Factor Analysis for Preferences and reservation in procurement**

<b>Factors</b>	<b>Factor Loadings</b>
To qualify for a specific preference or reservation in our organization, all special groups always provide evidence of eligibility	.812
Our organization ensures that all procurement opportunities available for special groups are advertised in the state's portal and website	.847
Our organization ensures that all submissions from special groups are evaluated as required by tender evaluation criteria	.602
Our organization has set 30% aside of all procurement value in every financial year that is fully allocated special groups	.850
Our organization has measures in place taken to ensure that money paid out to procurement special groups enterprises is paid to the appropriate accounts	.786
Our organization ensures that compliance reports with preferences and reservation in procurement are always submitted to PPRA as required	.751
Our organization has regular capacity building programs on preferential procurement opportunities to empower special groups	.844
There are regular trainings for staff in our organization on preferences and reservation in procurement	.622
Our organization organize regular trainings to special groups on the documentation required for preferential public tendering process	.632

#### **4.6.4 Inventory Management**

The factor loadings for the inventory management factors are as shown in Table 4.13. As the results portray, the factor loadings for the variable ranged from 0.612 to 0.768 which implies that the factors met the 0.60 threshold hence, they were all retained in the subsequent analysis of the variable in the study the inferential statistics.

**Table 4.13: Factor Analysis for Inventory Management**

<b>Factors</b>	<b>Factor Loadings</b>
Our entity has an effective inventory management system to plan and control inventory	.706
Our entity has effective inventory control techniques in place to enhance supply, storage and distribution of stock	.768
Our entity has automated inventory control procedures to monitor stock levels	.612
Our entity has a working inventory records management unit that ensures accurate inventory records	.638
Our entity has an up-to-date asset register which ensures proper inventory records management	.618
Our entity regularly carries out stock/asset inspection and audits to keep track of inventory	.693
Our organization has accurate demand forecasting methods in place to maintain appropriate stock levels	.651
Our entity utilizes demand forecasting to maintain accurate and real-time inventory data	.626
Our entity utilizes demand forecasting tools to improve on inventory planning	.641

#### **4.6.5 Public Procurement Regulatory Bodies**

The factor analysis results for the public procurement regulatory bodies which was the moderating variable are as shown in Table 4.14. As the results reveal, the factor loadings for the items under the objective ranged from 0.633 to 0.916 as required by Yong and Pearce, (2013). This implies that the factors met the 0.60 threshold hence, they were all retained in the subsequent analysis of the variable in the study the inferential statistics.

**Table 4.14: Factor Analysis for Public Procurement Regulatory Bodies**

<b>Factors</b>	<b>Factor Loadings</b>
The National Treasury always provide our entity with technical assistance on implementation and operation of public procurement	.636
The national treasury regularly issues guidelines to our entity with respect to all procurement matters	.709
The national treasury always formulates and promote asset disposal policy and standards to improve compliance in our entity	.676
PPRA always monitor, assess and review our public procurement and asset disposal activities in our entity	.916
PPRA regularly monitor the implementation of the preference and reservation schemes in our entity's procurement activities	.673
PPRA regularly carryout compliance audits of our entity's procurement processes to enforce compliance	.677
PPARB always provide our entity with fair and reasonable access to its services	.633
PPARB ensures that all tendering and assets disposal disputes in our entity are investigated	.776
PPARB ensures that all procurement related cases in our entity are reviewed and determined on time	.696

Extraction Method: Principal Component Analysis

#### **4.7 Diagnostic Tests**

To ascertain that the dataset met the assumptions of the regression model, diagnostic tests were carried out. The main tests carried out herein included: the multicollinearity test, linearity test, autocorrelation test, heteroscedasticity test and normality test. According to Cattell (2016), diagnostic tests are essential in determining the extent to which the data used in a study meets the regression model assumptions thus enabling the researcher to make more accurate inferences and not to have misleading conclusions and recommendations.

##### **4.7.1 Multicollinearity Test**

Multicollinearity exists when the standard errors of estimated coefficients of two or more independent variables are inflated (Oso & Onen, 2009). To test for multicollinearity the study adopted Variance Inflation Factor (VIF) approach to test



for multicollinearity. This study adopted the rule of thumb for VIF value of 10 as the threshold (Orodho, 2004). The VIF values of greater than 10 would indicate presence of multicollinearity. These results as indicted in Table 4.15 revealed that the VIF values of the independent variables were within the threshold of 10 (ten). The tolerance value was greater than 0.1 ruling out the possibility of multicollinearity (Cohen *et al.*, 2013).

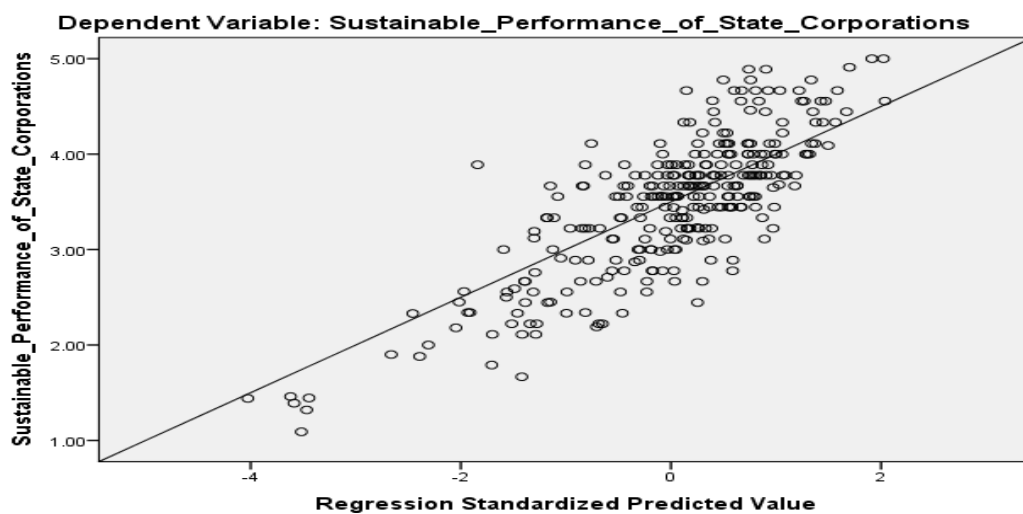
**Table 4.15: Multicollinearity Test**

Model	Collinearity Statistics	
	Tolerance	VIF
(Constant)		
1	.621	1.611
Procurement Methods	.462	2.165
Procurement Contract Management	in.468	2.138
Preferences and reservation in procurement		
Inventory Management	.644	1.552

a. Dependent Variable: Sustainable Performance of State Corporations

#### 4.7.2 Linearity Test

To test for linearity, the study used a scatter plot where the test was carried out to ascertain used whether independent and dependent variables had a significant linear relationship or not. This allowed in visualizing to see if there is a linear relationship between the two variables. The results in figure 4:11 indicated that the independent variables; inventory management, Procurement contract management, procurement methods, preferences and reservation in procurement had a significant linearity with the dependent variable since the points in the plot fell along a straight line with a positive gradient an indication this assumption of the regression model was met.



**Figure 4.11: Heteroscedasticity test**

#### 4.7.3 Autocorrelation Test

The test for autocorrelation was performed to establish whether residuals were correlated across time. Regression analysis assumptions require that residuals should not be correlated across time and thus the Wooldridge test for autocorrelation which is also Lagrange multiplier LM test was adopted in this study. The results of autocorrelation test are as indicted in Table 4.16. The null hypothesis is rejected if no first order serial/auto correlation exists. The results indicated that the null hypothesis was rejected because there was no serial autocorrelation of any order and that residuals were not auto correlated (Durbin-Watson (D) = 1.333).

**Table 4.16: Autocorrelation Test**

Model	Durbin-Watson
1	1.333

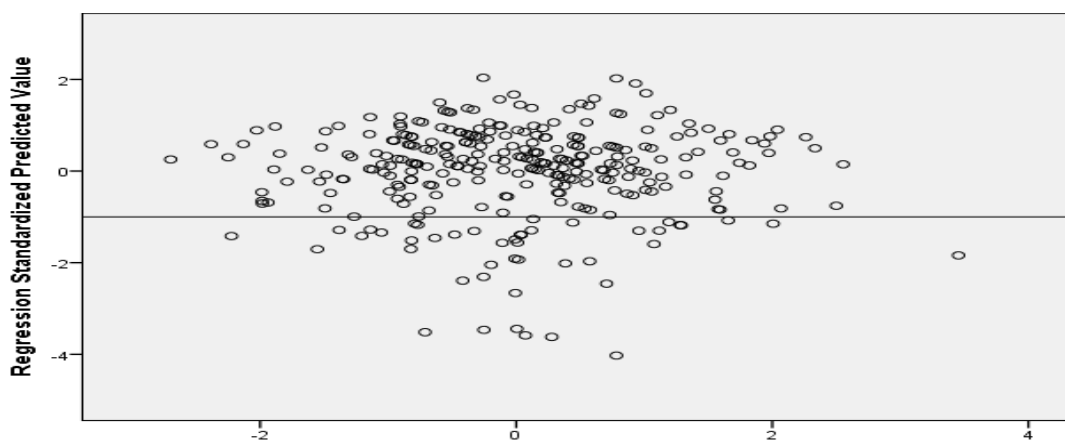
- a. Predictors: (Constant), Inventory Management, Procurement Contract Management, Procurement Methods, Preferences and Reservation in Procurement
- b. Dependent Variable: Sustainable Performance of State Corporations

#### 4.7.4 Heteroscedasticity Test

The test for heteroscedasticity was carried out in this study. Testing for heteroscedasticity in a linear regression model is essential in that the model assumes that the error terms are normally distributed (Ngechu, 2004). It tests whether the

variance of the errors from a regression is dependent on the values of the independent variables. In this study, Breusch Pagan Test by Trevor Breusch and Adrian Pagan (1979) was used to test for the heteroscedasticity. It is used to test for heteroscedasticity in a linear regression model and assumes that the error terms are normally distributed (Bougie & Sekaran, 2019). It tests whether the variance of the errors from a regression is dependent on the values of the independent variables. The Breusch Pagan Test indicates that if the error terms in all the observations are equal, then there is heteroscedasticity but if they are not and the error term does not increase with an increase in the value of the independent variable (Rajasekar & Verma, 2013). As the findings in the scatter plot below shows, the value of the error term is not constant and does not increase with the increase in the value of the dependent variable. This is therefore worth not that the data did not have the problem of heteroscedasticity.

#### **Dependent variable: Sustainable performance of state corporations**



**Figure 4.12: Heteroscedasticity test**

#### **4.7.5 Normality Test**

Normality is the shape of the data distribution for an individual metric variable and its correspondence to the normal distribution, the benchmark for statistical methods (Saunders, 2014). Normality is one of three assumptions for multivariate analysis. Regression assumes normality between the variables under analysis (Saunders,

2014). To test for normality, Kolmogorov-Smirnov, Shapiro-Wilk and Q-Q plot were used.

### **The Kolmogorov-Smirnov and Shapiro-Wilk Tests for Normality**

The main thresholds for the Kolmogorov-Smirnov and Shapiro-Wilk are that the significance levels should be above 0.05 for a normally distributed data. The findings as shown in Table 4.17 revealed that procurement methods, procurement contract management, preferences and reservation in procurement, inventory management, public procurement regulatory bodies and sustainable performance of the state corporations had P-values above 0.05. This implies that all the variables passed the Kolmogorov-Smirnov, and Shapiro-Wilk tests hence the data was ruled to be normally distributed.

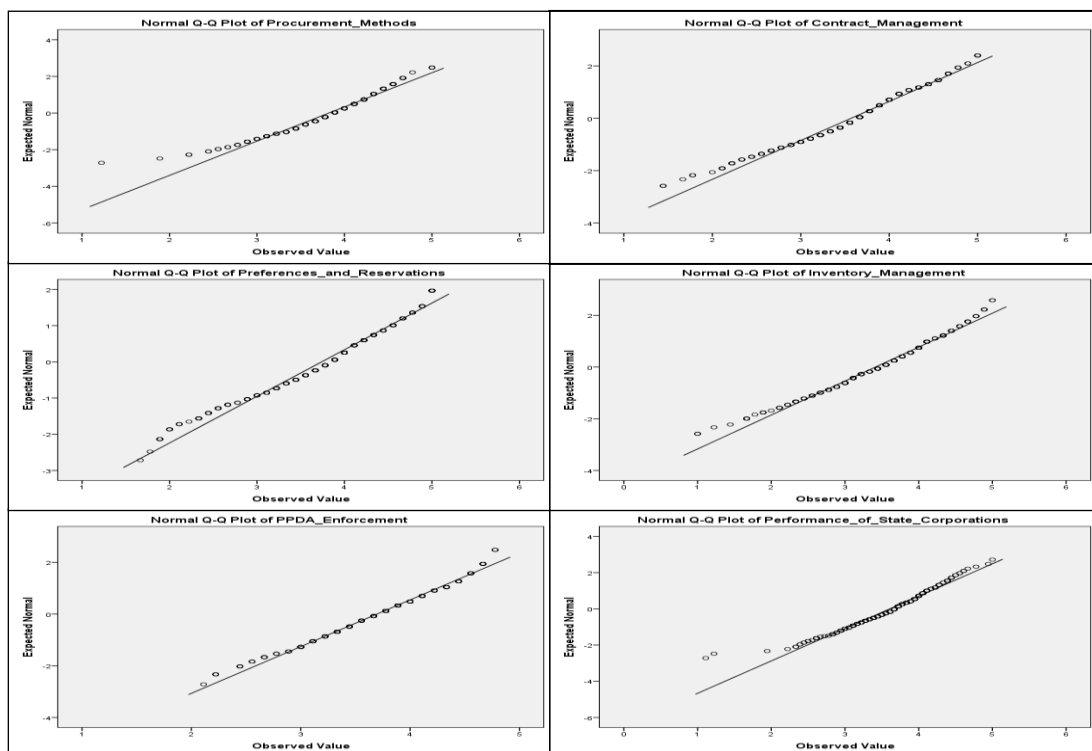
**Table 4.17: KS and SW Normality Tests**

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Procurement Methods	.116	304	.400	.955	304	.450
Procurement Contract Management	.101	304	.298	.977	304	.320
Preferences and reservation in procurement	.092	304	.076	.966	304	.120
Inventory Management	.072	304	.091	.983	304	.081
Public Procurement Regulatory Bodies	.064	304	.404	.983	304	.171
Sustainable Performance of State Corporations	.087	304	.103	.968	304	.080

a. Lilliefors Significance Correction

## A Q-Q plot for Normality Test

A Q-Q plot was used to further confirm the normality test. The findings are as shown in Figure 4.13. As the results portray, all the variables had their points on the plot form a linear pattern passing through the origin with a unit slope (Hatcher, & O'Rourke, 2019). It is visually clear that the residuals were normally distributed and therefore, the model could be applied in the analysis.



**Figure 4.13: Q-Q Plot for the Normality Test**

## 4.8 Correlation Analysis

Correlation was used to assess the relationship between the independent variables. The correlation coefficients between study variables are shown in Table 4.18. Preferences and reservation in procurement and sustainable performance of state corporations had the strongest correlation value in the study ( $r=0.687$ ,  $p<0.01$ ). Procurement contract management, procurement methods and inventory management all had positive and significant correlations with sustainable performance of state corporations ( $r=0.680$ ,  $0.660$ ,  $0.633$ ,  $p<0.01$ ). The Pearson

Correlation analysis for the variables revealed a positive correlation between each independent variable and the dependent variable.

The study established that there was a positive linear relationship between procurement methods and sustainable performance of state corporations in Kenya as shown by the correlation coefficient ( $r$ ) of 0.660 and  $P=0.000$ . This implied that there is a strong relationship between procurement methods and sustainable performance of state corporations in Kenya. The findings are also consistent with those of Githinji and Moronge (2018) who established a positive relationship between procurement methods and organizational performance. To determine the strength and direction of the linear relationship between the independent (procurement contract management) and dependent variable (sustainable performance of state corporations), the results are summarized in table 4.18. The study shown that preferences and reservation in procurement had a positive, significant, linear relationship with the sustainable performance of state corporations in Kenya, as illustrated by a Pearson correlation coefficient ( $r$ ) of 0.687 and  $P=0.000$ . This implied that there was a strong positive relationship between preferences and reservation in procurement and the sustainable performance of state corporations in Kenya. The findings are consistent with those of Mwangi *et al.* (2017), who established a positive relationship between compliance with Access to Government Procurement Opportunities (AGPO) Regulations for Special Groups and performance of an organization.

The Pearson Correlation analysis was also used to determine the strength and direction of the linear relationship between the independent (inventory management) and dependent variable (sustainable performance of state corporations in Kenya), and the results are summarized in table 4.18. The study established that inventory management had a positive, significant linear relationship with the sustainable performance of state corporations in Kenya, as shown by a Pearson correlation coefficient ( $r$ ) of 0.633 and  $P=0.000$ . This inferred that there was a strong positive relationship between inventory management and the sustainable performance of state corporations in Kenya. The findings are in tandem with Mulandi and Ismail (2019), who established that there is a positive correlation between inventory management practices on performance of commercial state corporations in Kenya. Further, the

Pearson Correlation analysis was used to determine the strength and direction of the linear relationship between the independent (procurement contract management) and dependent variable (the sustainable performance of state corporations), and the results are summarized in table 4.18. The study revealed that procurement contract management had a positive, significant, linear relationship with the sustainable performance of state corporations in Kenya, as illustrated by a Pearson correlation coefficient of 0.680 and  $P=0.000$ . This implied that there was a strong positive relationship between procurement contract management and the sustainable performance of state corporations in Kenya. The findings agree with those of Moffat and Mwangi (2019), who established a positive relationship between contract management practices and performance public sector in Kenya.

**Table 4.18: Correlation Analysis**

		Sustainable Performance of State Corporations	Public Procurement Regulatory Bodies	Procurement Methods	Preferences and reservation in procurement	Inventory Management	Procurement Contract Management
Sustainable Performance of State Corporations	Pearson	1	.431**	.660**	.687**	.633**	.680**
	Correlation Sig. (2- tailed)		.000	.000	.000	.000	.000
	N	304	304	304	304	304	304
Public Procurement Regulatory Bodies	Pearson	.431**	1	.481**	.449**	.561**	.326**
	Correlation Sig. (2- tailed)	.000		.000	.000	.000	.000
	N	304	304	304	304	304	304
Procurement Methods	Pearson	.660**	.481**	1	.582**	.575**	.588**
	Correlation Sig. (2- tailed)	.000	.000		.000	.000	.000
	N	304	304	304	304	304	304
Preferences and reservation in procurement	Pearson	.687**	.449**	.582**	1	.575**	.569**
	Correlation Sig. (2- tailed)	.000	.000	.000		.000	.000
	N	304	304	304	304	304	304
Inventory Management	Pearson	.633**	.561**	.575**	.575**	1	.595**
	Correlation Sig. (2- tailed)	.000	.000	.000	.000		.000
	N	304	304	304	304	304	304
Procurement Contract Management	Pearson	.680**	.326**	.588**	.569**	.595**	1
	Correlation Sig. (2- tailed)	.000	.000	.000	.000	.000	
	N	304	304	304	304	304	304

\*\* . Correlation is significant at the 0.01 level (2-tailed).

#### 4.9 Regression Analysis

The study sought to test for the hypotheses in order to ascertain the effect of each of the independent variables (procurement methods, procurement contract management, preferences and reservation in procurement and inventory management) on the dependent variable (sustainable performance of state corporations) using a regression analysis. The correlation coefficients (R) and the coefficient of determination ( $R^2$ ) were used. ANOVA test showing the F-calculated against the F-Critical of 1.96 and the p-value against the standard p-value of 0.05 was also used. Moreover, the regression coefficients for the variables as well as the p-values and the scatter plot diagram were utilized to reveal the relationship between the variables. The findings



were used to determine whether to reject or fail to reject the null hypotheses in the study.

#### 4.9.1 Procurement Methods and Sustainable performance of state corporations

*H<sub>0</sub>: Procurement methods do not significantly affect the sustainable performance of state corporations in Kenya.*

The study sought to test the hypothesis on whether there was a statistically significant effect of procurement methods on sustainable performance of state corporations. This was done using model summary, ANOVA, regression coefficients, the scatter plot diagram and a histogram. A regression model of the form;  $Y = \beta_0 + \beta_1 X_1$  was used to determine the relationship.

#### Model Summary on Procurement Methods

The model summary results on Table 4.19 reveal a correlation coefficient R value of 0.660 and a coefficient of determination R<sup>2</sup> value of 0.436 an indication that a unit change in procurement methods could explain up to 43.6% increase in sustainable performance of the state corporations in Kenya.

**Table 4.19: Model Summary on Procurement Methods**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.660 <sup>a</sup>	.436	.434	.54926

a. Predictors: (Constant), Procurement Methods

b. Dependent Variable: Sustainable Performance of State Corporations

### Analysis of Variance (ANOVA) Test on Procurement Methods

The ANOVA results on Table 4.20 revealed that the F calculated was 233.303 and the P-value was 0.000 an indication that procurement methods significantly predict the sustainable performance of state corporations in Kenya. This also implies that model is significant. These results support the findings of Mose, Ombui and Iravo (2018) that procurement methods selected when procuring goods and services helps an organization achieve sustainable performance.

**Table 4.20: Analysis of Variance (ANOVA) Test on Procurement Methods**

Model		Sum of Squares	df	Mean Square F	Sig.
1	Regression	70.383	1	70.383	233.056 .000 <sup>b</sup>
	Residual	91.108	302	.302	
	Total	161.492	303		

a. Dependent Variable: Sustainable Performance of State Corporations

b. Predictors: (Constant), Procurement Methods

### Regression Coefficients on Procurement Methods

The findings from the regression coefficients as shown in Table 4.21 revealed that at the coefficient of determination, 73.4% of the sustainable performance could be explained by a unit change in procurement methods as evidenced by the Beta coefficient of 0.734. With these results the null hypothesis that procurement methods have no effect on firm's sustainable performance was rejected. The model so derived was;  $Y = 0.732 + 0.734X_1$ . The findings also reveal that the P-value for procurement methods is 0.000 which is less than the standard p-value of 0.05 thus the null hypothesis that *procurement methods do not significantly affect the sustainable performance of state corporations in Kenya* was rejected and adopted alternative hypothesis that *procurement methods positively and significantly affect sustainable performance of state corporations in Kenya* at 0.000 significance level. These findings are in line with the findings of Munyao and Moronge (2017) that procurement practices affect sustainable performance of an organization.

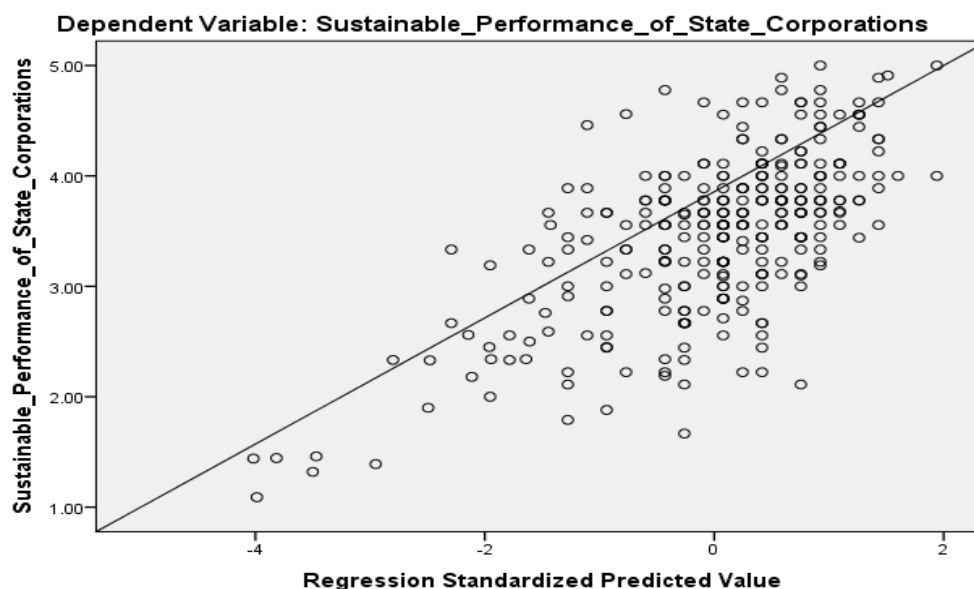
**Table 4.21: Regression Coefficients on Procurement methods**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.732	.182		4.025	.000
	Procurement Methods	.734	.048	.660	15.274	.000

a. Dependent Variable: Sustainable Performance of State Corporations

**Scatter Plot on Procurement Methods**

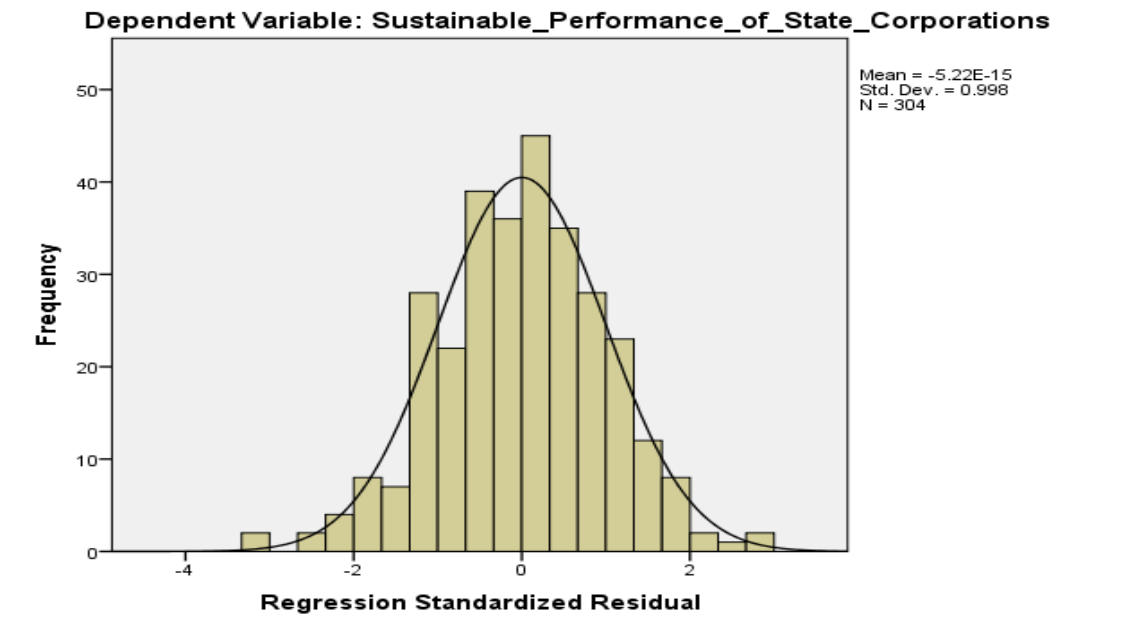
The study sought to prove the effect of procurement methods on sustainable performance of the state corporations in Kenya using the scatter plot diagram as herein shown on Figure 4.14. The findings revealed that the scatter plots had a positive gradient an indication that procurement methods positively affected the sustainable performance of state corporations in Kenya.



**Figure 4.14: Scatter Plot on Procurement Methods**

## A Histogram on Procurement Methods

A Histogram was used to show the distribution of the standardized residuals in the model. As the results in Figure 4.15 portray, the standardized residual is normally distributed as evidenced by the curve that is bell-shaped and the symmetric nature of the histogram. This is an implication that the regression model significantly predicts the effect of procurement methods on sustainable performance of state corporations in Kenya. These results tally with those of Giathi, Abayo and Muhoho, (2021) that procurement management methods and processes positively affect the performance of public entities in Kenya.



**Figure 4.15: A Histogram on Procurement Methods**

### 4.9.2 Procurement Contract Management

*H<sub>0</sub>: Procurement contract management does not significantly affect the sustainable performance of state corporations in Kenya.*

The study sought to test the hypothesis on whether there was a statistically significant affect of procurement contract management on sustainable performance of state corporations in Kenya. The study sought to establish the statistical effect of

procurement contract management on sustainable performance of state corporations in Kenya. This was done using model summary, ANOVA, regression coefficients, the scatter plot diagram and a histogram. The proposed model for the variable was;  $Y = \beta_0 + \beta_2 X_2$ .

### **Model Summary on Procurement Contract Management**

The model summary shown in Table 4.22 revealed that the R value for the model was 0.680 and the  $R^2$  was 0.462, an indication that a variability of 46.2% in firm's sustainable performance could be explained by a unit change in procurement contract management. The model thus was deemed appropriate to explain the effect of procurement contract management on sustainable performance of state corporations in Kenya. These findings are in line with the findings of Owago *et al.* (2021), who indicated that proper management of procurement contracts improves the sustainable performance of an organization.

**Table 4.22: Model Summary on Procurement Contract Management**

<b>Model</b>	<b>R</b>	<b>R Square</b>	<b>Adjusted R Square</b>	<b>Std. Error of the Estimate</b>
1	.680 <sup>a</sup>	.462	.460	.53628

a. Predictors: (Constant), Procurement Contract Management

b. Dependent Variable: Sustainable Performance of State Corporations

### **Analysis of Variance (ANOVA) Test on Procurement Contract Management**

The ANOVA results are as shown in Table 4.22 which revealed that at the F-calculated value of 259.511 and the mean of 74.636 indicates the model was significant at a p-value of 0.000 less than the standard p-value of 0.05. This implies that the variable procurement contracts management was significant and the model could statistically significantly predict the effect of procurement contract management on sustainable performance of state corporations in Kenya. These findings are in tandem with the findings of Okundi and Kitheka (2019), that monitoring of procurement contracts significantly affect the sustainable performance of public entities contracts.

**Table 4.23: Analysis of Variance (ANOVA) Test on Procurement Contract Management**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	74.636	1	74.636	259.153	.000 <sup>b</sup>
	Residual	86.856	302	.288		
	Total	161.492	303			

a. Dependent Variable: Sustainable Performance of State Corporations

b. Predictors: (Constant), Procurement Contract Management

### Regression Coefficients on Procurement Contract Management

The coefficient results shown in Table 4.24 revealed that the  $\beta$  for the procurement contract management was 0.718 thus the new model becoming  $Y = 0.918 + 0.718X_2$ . This implies that a unit change in procurement contract management could explain up to 71.8% change in the sustainable performance of state corporations in Kenya. The P-value for the variable was  $0.000 < 0.05$ , an indication that procurement contract management had a positive and significant effect on sustainable performance of state corporations in Kenya. The null hypothesis *procurement contract management does not significantly affect the sustainable performance of state corporations in Kenya* was rejected and adopted alternative hypothesis *that procurement contract management positively affect sustainable performance of state corporations in Kenya* at 0.000 significance level. The findings agree with the findings of Mutuku *et al.* (2021), who indicated that management of procurement contract practices improves sustainable performance of devolved governments in Kenya.

**Table 4.24: Regression Coefficients on Procurement Contract Management**

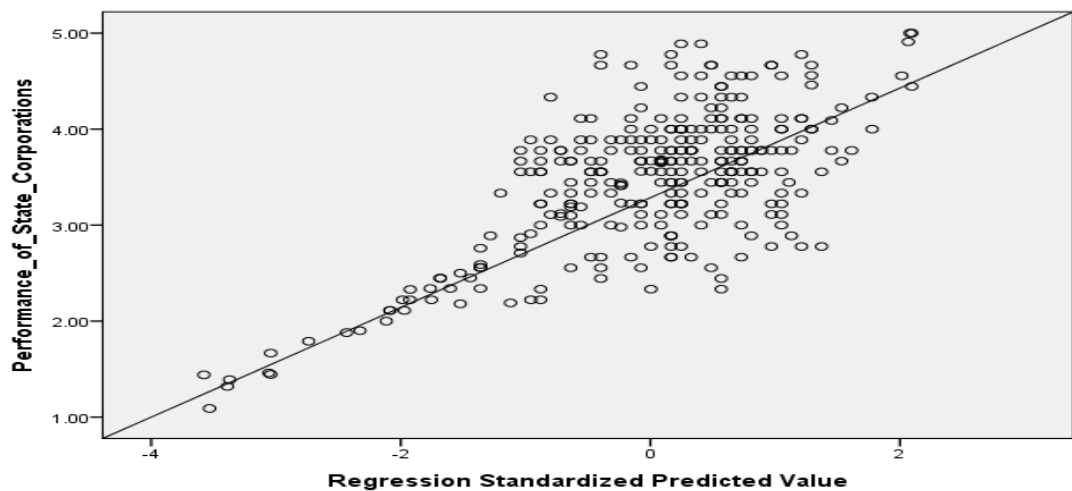
Model		Unstandardized Coefficients		Standardized Coefficients	Sig.
		B	Std. Error	Beta	
1	(Constant)	.918	.161		5.690 .000
	Procurement Contract Management	.718	.045	.680	16.109 .000

a. Dependent Variable: Sustainable Performance of State Corporations

### Scatter Plot on Procurement Contract Management

To further establish the effect of procurement contract management and sustainable performance of state corporations in Kenya, a scatter plot was used. The plot as shown in Figure 4.16 revealed that the variable had a positive gradient which implied that procurement contract management positively affected the sustainable performance of state corporations in Kenya. The findings tally with the findings of Kamoni (2018), that procurement contracts risk management positively affect sustainable performance of mega projects in Kenya.

**Dependent variable: Sustainable\_Performance\_of\_State\_Corporations**

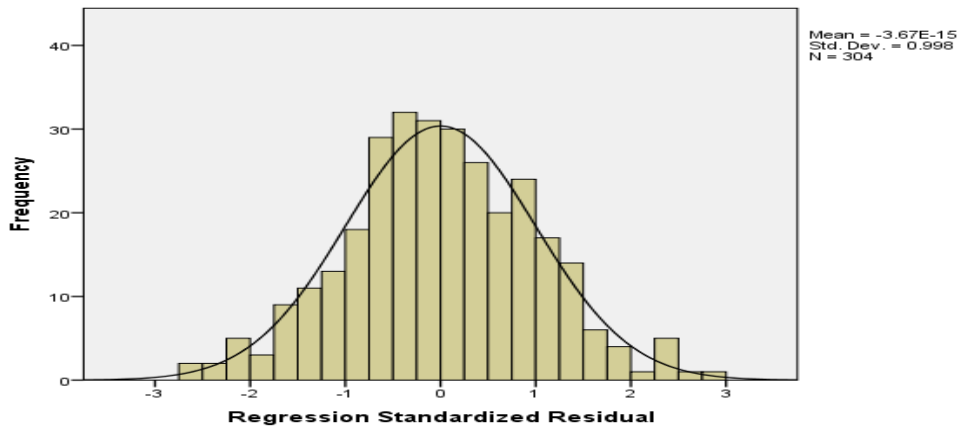


**Figure 4.16: Scatter Plot on Procurement Contract Management**

### A Histogram on Procurement Contract Management

To further explain the effect of procurement contract management on the sustainable performance of state corporations, a histogram was used. As the results show, the curve under the histogram was bell-shaped which shows a normally distributed standardized residual. The histogram also its symmetric which is an indication that the data on the standardized residual is normally distributed (Cattell, 2016).

**Dependent variable: Sustainable \_Performance\_of \_state \_corporations**



**Figure 4.17: A Histogram on Procurement Contract Management**

#### **4.9.3 Preferences and reservation in procurement**

*H<sub>0</sub>: Preferences and reservation in procurement does not significantly affect the sustainable performance of state corporations in Kenya.*

The study sought to test the hypothesis on whether there was a statistically significant effect of preferences and reservation in procurement on sustainable performance of state corporations in Kenya. The statistical effect of preferences and reservation in procurement (independent) on the sustainable performance of state corporations in Kenya (dependent) was sought in the study. This was done using model summary, ANOVA, regression coefficients, the scatter plot diagram and a histogram. This was an attempt to establish whether to reject the null hypothesis or not. The model for the variable was  $Y = \beta_0 + \beta_3 X_3$  where Y was the dependent variable and X the independent variable while  $\beta$  was the coefficient/constant.

#### **Model Summary on Preferences and reservation in procurement**

The model summary shown on Table 4.25 revealed that the R value was 0.687 while the R<sup>2</sup> value was 0.471. This indicated that the variability of the preferences and reservation in procurement on the sustainable performance of state corporations in Kenya could be explained by up to 47.1% of the model. This implies that the model was fit to establish the relationship between the two variables and make conclusions



on the same. This finding is in line with Gitari and Kabare (2019), who established that access to preferential procurement opportunities lead to sustainable performance of an organization.

**Table 4.25: Model Summary on Preferences and reservation in procurement**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.687 <sup>a</sup>	.471	.470	.53168

a. Predictors: (Constant), Preferences and reservation in procurement

b. Dependent Variable: Sustainable Performance of State Corporations

### **Analysis of Variance (ANOVA) Test on Preferences and reservation in procurement**

ANOVA test was also done and the results were as indicated on Table 4.26. The findings revealed that the F-calculated was 269.287 and the mean for the regression model was 76.122 at a significant level of 0.000. This indicates that the P-value for the variable was  $0.000 < 0.05$ , an implication that the model was predictive. This also shows the ability of preferences and reservation in procurement to significantly affected the sustainable performance of state corporations in Kenya. The finding tally with the finding of Muraguri (2013), who indicated that proper implementation of procurement preferences and reservation policy leads to social and economic performance of an organization.

**Table 4.26: Analysis of Variance (ANOVA) Test on Preferences and reservation in procurement**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	76.122	1	76.122	268.982	.000 <sup>b</sup>
	Residual	85.369	302	.283		
	Total	161.492	303			

a. Dependent Variable: Sustainable Performance of State Corporations

b. Predictors: (Constant), Preferences and reservation in procurement

### **Regression Coefficients on Preferences and reservation in procurement**

The coefficient of the variable was as shown in Table 4.27. The results revealed that the  $\beta$  value for variable preferences and reservation in procurement was 0.626 and

the model equation now becomes  $Y = 1.151 + 0.626X_3$ . This implies that a unit change in the preferences and reservation in procurement, could lead to up to 62.6% increase in the sustainable performance of the state corporations in Kenya. The P-value for the variable was  $0.000 < 0.05$  again implying that the preferences and reservation in procurement significantly affected the sustainable performance of the state corporations in Kenya. The null hypothesis that *preferences and reservation in procurement does not significantly affect the sustainable performance of state corporations in Kenya* was rejected and the study adopted alternative hypothesis that *preferences and reservation in procurement positively affect sustainable performance of state corporations in Kenya* at 0.000 significance level. This finding is in tandem with the finding of Ngeno *et al.* (2014), who established that there is need to avoid discriminatory procurement practices so as to ensure sustainable performance of an organization.

**Table 4.27: Regression Coefficients on Preferences and reservation in procurement**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.151	.145		7.963	.000
1 Preferences and reservation in procurement	.626	.038	.687	16.410	.000

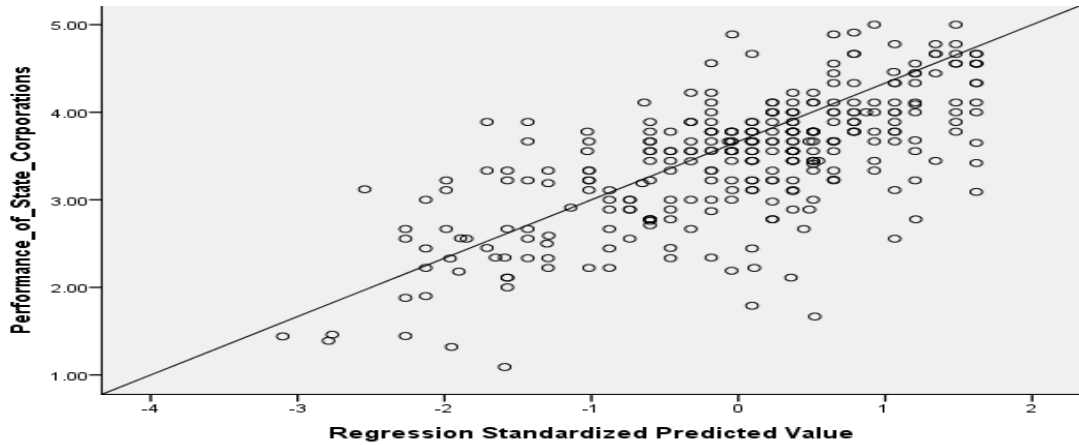
a. Dependent Variable: Sustainable Performance of State Corporations

#### Scatter Plot on Preferences and reservation in procurement

The scatter plot was used to further bring out the effect of preferences and reservation in procurement on the sustainable performance of state corporations in Kenya. The findings as shown in Figure 4.18 revealed that the plots had a positive gradient. This implied that *preferences and reservation in procurement had a positive effect on the sustainable performance of state corporations in Kenya*. This justified the decision to reject the null hypothesis that *preferences and reservation in procurement have no significant effect on sustainable performance of state corporations in Kenya*. The finding agrees with the finding of Rajab (2018) who

established that proper implementation of preferential procurement practices positively affects sustainable performance of an organization.

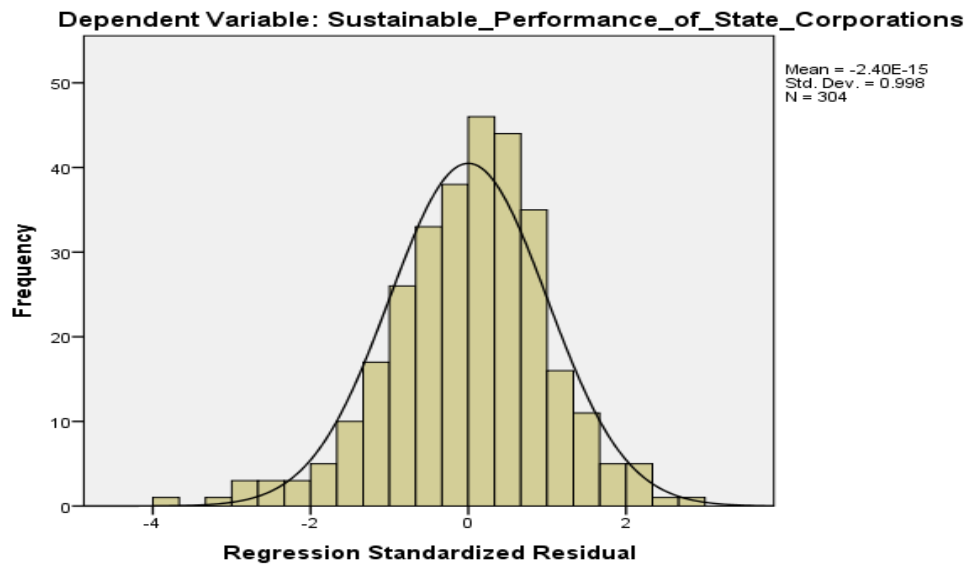
**Dependent variable: Sustainable \_Performance\_ of \_state \_corporations**



**Figure 4.18: Scatter Plot on Preferences and reservation in procurement**

#### **Histogram on preferences and reservation in procurement**

A histogram was used to further explain the viability of preferences and reservation in procurement on sustainable performance of state corporations in Kenya. The results as shown in Figure 4.19 revealed that the bell-shape curve was attained which is an indication of normal distribution of the standardized residuals (Saunders, 2014). The bars on the histogram were also symmetric an indication that the data is normally distributed.



**Figure 4.19: Histogram on Preferences and Reservation in Procurement**

#### **4.9.4 Inventory Management**

*H<sub>0</sub>: Inventory management does not significantly affect the sustainable performance of state corporations in Kenya.*

The study sought to test the hypothesis on whether there was a statistically significant effect of inventory management on sustainable performance of state corporations in Kenya. The study sought to statistically establish the effect of inventory management (independent variable) on the sustainable performance of state corporations in Kenya (dependent variable). This was done using the model summary, ANOVA test, the regression coefficients, scatter plot diagram and a histogram. This enabled the researcher to identify whether to accept the null hypothesis for the variable or not. The model equation used for the variable was of the form;  $Y = \beta_0 + \beta_4 X_4$ .

#### **Model Summary on Inventory Management**

The model summary results shown in Table 4.28 revealed that the R value was 0.633 while the R<sup>2</sup> was 0.401 which indicated that the variability of the inventory management on the sustainable performance of the state corporations in Kenya could be explained by up to 40.1% of the model. This implies that the model was fit to

determine the relationship between the two variables and therein make conclusions and recommendations. The finding supports the finding of Mulandi and Ismail (2019), who established that implementation of proper inventory management practices facilitates sustainable performance of states corporations.

**Table 4.28: Model Summary on Inventory Management**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.633 <sup>a</sup>	.401	.399	.56607

a. Predictors: (Constant), Inventory Management

b. Dependent Variable: Sustainable Performance of State Corporations

### Analysis of Variance (ANOVA) Test on Inventory Management

The ANOVA results are as shown on Table 4.29. The results revealed that the F-calculated for the variable was 201.974 which is greater than the F-critical while the mean was 64.720 all implying that the model was significant. The P-value was  $0.000 < 0.05$ , an additional proof that the model was significant.

**Table 4.29: Analysis of Variance (ANOVA) Test on Inventory Management**

Model		Sum of Squares	df	Mean Square F	Sig.	
1	Regression	64.720	1	64.720	202.25	.000 <sup>b</sup>
	Residual	96.772	302	.320		
	Total	161.492	303			

a. Dependent Variable: Sustainable Performance of State Corporations

b. Predictors: (Constant), Inventory Management

### Regression Coefficients on Inventory Management

The regression coefficient results were also sought as shown in Table 4.30. The results revealed that the coefficient  $\beta$  for the model was 1.499 (constant) and 0.580 (variable) thus making the model equation to be;  $Y = 1.499 + 0.580X_4$ . This implies that a unit change in inventory management could lead by up to 58% change in the sustainable performance of the state corporations in Kenya. The results further showed that the P-value for the variable was  $0.000 < 0.05$  implying that inventory management significantly affected the sustainable performance of the state corporations in Kenya. The null hypothesis that *inventory management does not*

*significantly affect the sustainable performance of state corporations in Kenya* was rejected and the study adopted the alternative hypothesis that *inventory management positively affect sustainable performance of state corporations in Kenya* at 0.000 significance level. These results are in line with Hussein and Makori (2018), who indicated that effective inventory management practices positively affect sustainable performance of states corporations in Kenya.

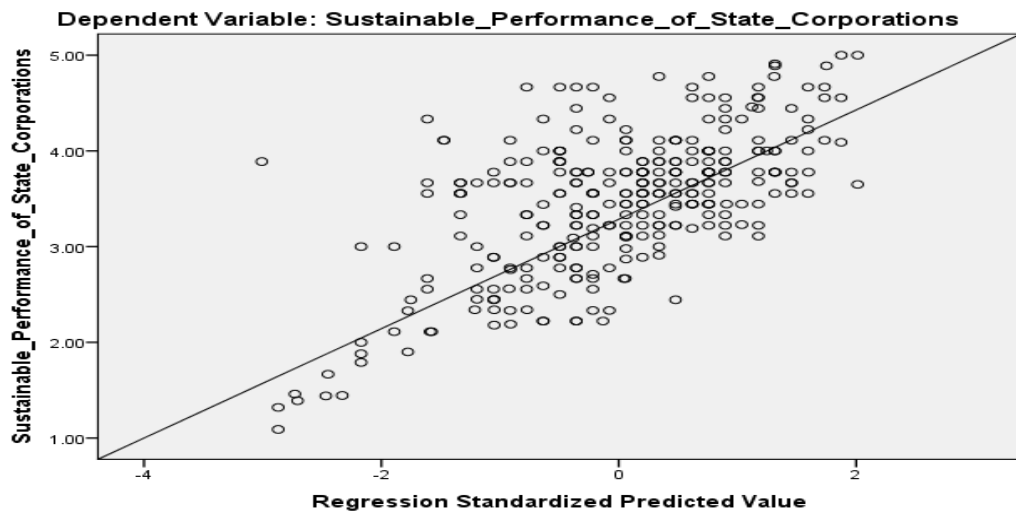
**Table 4.30: Regression Coefficients on Inventory Management**

Model		Unstandardized Coefficients		Standardized Coefficients	Sig.
		B	Std. Error	Beta	
1	(Constant)	1.499	.142		10.530 .000
	Inventory Management	.580	.041	.633	14.212 .000

a. Dependent Variable: Sustainable Performance of State Corporations

### **Scatter Plot on Inventory Management**

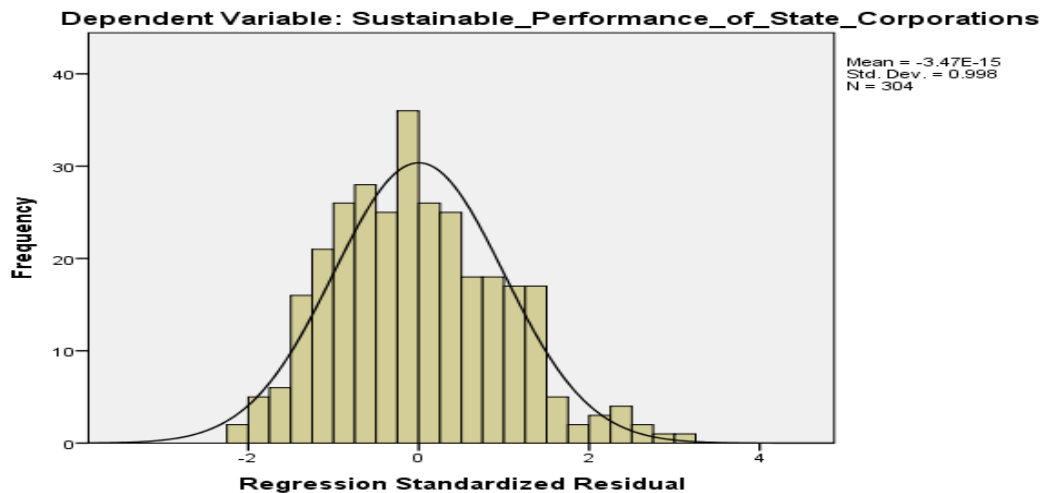
The relationship was further proved by use of a scatter plot diagram. The results are as shown in Figure 4.20 where the plots show a positive gradient. This implies that inventory management positively affected the sustainable performance of state corporations in Kenya. The finding is in tandem with the finding of Jepchirchir and Noor (2019), who established that inventory optimization significantly affects sustainable performance of government entities in Kenya.



**Figure 4.20: Scatter Plot on Inventory Management**

### Histogram on Inventory Management

The study further used a histogram to assess the distribution of the standardized residuals. The results revealed that the standardized residuals for the model are normally distributed as shown by the bell-shaped curve and the symmetric bars in the histogram (Mair, 2018).



**Figure 4.21: A Histogram on Inventory Management**

#### 4.9.5 Overall Model Summary without Moderating Variable

The study conducted an analysis of the overall regression model in a bid to establish the combined effect of the independent variables; procurement contract management, preferences and reservation in procurement, procurement methods, inventory management on the dependent variable; sustainable performance of state corporations in Kenya. The model equation was of the form:

$$Y = \beta_0 + B_1X_1 + B_2X_2 + B_3X_3 + B_4X_4 + \varepsilon$$

Where:

Y = Sustainable Performance of state corporations in Kenya

$\beta_0$ =constant

$\beta_i$  is the coefficient for  $X_i$  (i=1, 2,3,4)

$X_1$  = Procurement Methods

$X_2$  = Procurement Contract management

$X_3$  = Preferences and Reservation in Procurement

$X_4$  = Inventory Management

$\varepsilon$ =Error term.

The results of the linear regression indicate that  $R^2 = 0.78$  and  $R = 0.806$  (Table 4.31) which is an indication that there is a strong relationship between independent variables; procurement contract management, preferences and reservation in procurement, procurement methods, inventory management on the dependent variable; sustainable performance of state corporations in Kenya.

The  $R^2$  value indicates the degree of variability explained by the adopted model. The results in table 4:31 herein therefore shows that with an R-squared of 0.78, the overall contribution of the four independent variables; procurement methods, procurement contract management, preferences and reservation in procurement and inventory management explains 78% of the contribution on sustainable performance of state corporations in Kenya while 22% variance is explained by other factors which are not inclusive in this study which can also contribute to this study. These findings of Mueni and Moronge (2018), who established that proper implementation



of public procurement practices improves sustainable performance of state corporations.

**Table 4.31: Overall Model Summary without Moderating Variable**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.806 <sup>a</sup>	.780	.745	.43501

a. Predictors: (Constant), Procurement Contract Management, Preferences and reservation in procurement, Procurement Methods, Inventory Management

b. Dependent Variable: Sustainable Performance of State Corporations

### Analysis of Variance (ANOVA) of the Overall Regression Model

ANOVA was also carried out in the overall model. From the ANOVA results indicated in Table 4.32, it is evident that the regression model has less than 0.000 likelihood of giving erroneous predictions. This therefore goes to demonstrate that the model has a confidence level of over 95% and it's therefore appropriate for making concrete conclusions on the population parameters as the value of significance (p-value,) was less than 5%. The calculated F-value was greater than the critical F-value ( $138.598 > 26.228$ ) indicating that procurement methods, procurement contract management, preferences and reservation in procurement and inventory management significantly affect the sustainable performance of state corporations in Kenya. This finding is in line with Kanyari and Moronge (2019), who established that regulating public procurement practices significantly affect sustainable performance of state organizations.

**Table 4.32: Analysis of Variance (ANOVA) for the Overall Regression Model**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	104.910	4	26.228	138.772	.000 <sup>b</sup>
	Residual	56.581	299	.189		
	<b>Total</b>	<b>161.492</b>	<b>303</b>			

a. Dependent Variable: Sustainable Performance of State Corporations

b. Predictors: (Constant), Procurement Contract Management, Preferences and Reservation in procurement, Procurement Methods, Inventory Management

### Regression Coefficients of the Overall Regression Model

The regression coefficients from the overall model are as shown in Table 4.33. The results indicate that all the variables had P-values less than the standard p-value of 0.05. The results revealed that the coefficient  $\beta$  for the model was 0.043 (constant) and 0.253, 0.276, 0.150, and 0.292 (variables) for procurement methods, procurement contract management, preferences and reservation in procurement and inventory management respectively, thus making the overall model equation to be;

$$Y = 0.043 + 0.253X_1 + 0.276X_2 + 0.150X_3 + 0.292X_4.$$

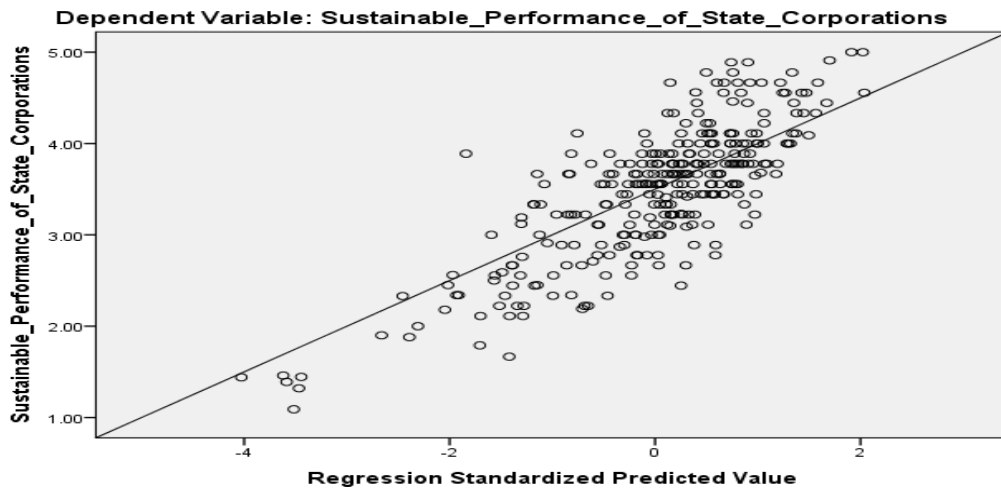
**Table 4.33: Regression Coefficients of the Overall Regression Model**

Model	Unstandardized Coefficients		Standardized Coefficients		Sig.
	B	Std. Error	Beta		
(Constant)	.043	.156	.276	.000	.000
Procurement Methods	.253	.052	.227	4.837	.000
Preferences and Reservation in 1 Procurement	.276	.042	.303	6.515	.000
Inventory Management	.150	.043	.164	3.483	.001
Procurement Contract Management	.292	.050	.276	5.845	.000

a. Dependent Variable: Sustainable Performance of State Corporations

### Scatter Plot on the Overall Regression Model

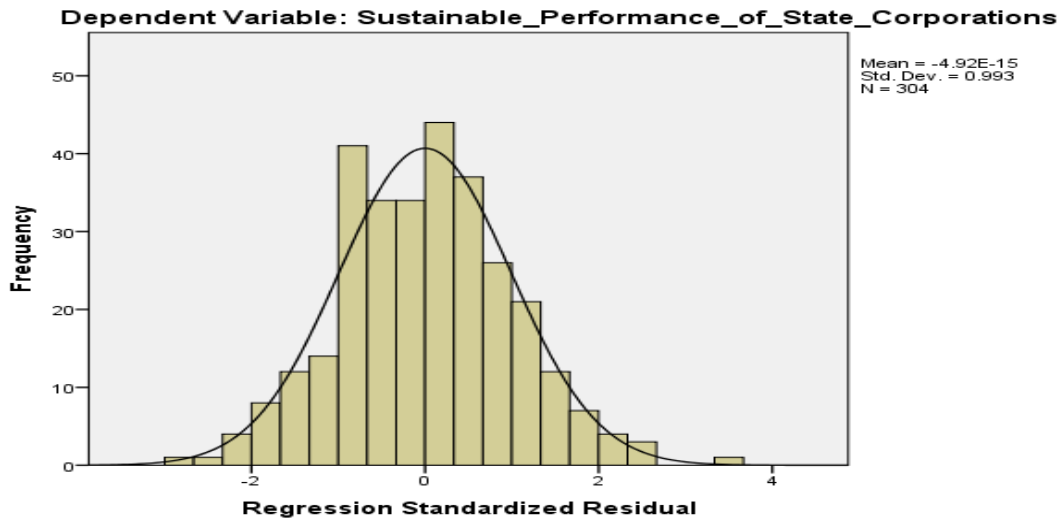
The scatter plot diagram on Figure 4.22 shows that the plots had a positive gradient an indication that the variables; procurement methods, procurement contract management, preferences and reservation in procurement and inventory management have a positive effect on the sustainable performance of state corporations in Kenya. These results are agreeing with King'oo and Muli (2019), that proper implementation of public procurement practices affects sustainable performance of public sectors in Kenya.



**Figure 4.22: Scatter Plot on the Overall Regression Model**

**A Histogram for the Overall Regression Model**

The study also used the histogram to show the distribution of the standardized residuals. As the findings in Figure 4.23 shows, there is a normal distribution of the standardized residuals with a standard deviation closer to 1. The histogram also looks symmetric with a bell-like curve which implies that the residuals are normally distributed hence there is the likelihood of the model significantly predicting the relationship between the aspects of compliance with the procurement practices and the sustainable performance of state corporations. The findings are consistent with the findings of Iregi and Kipkorir (2017), who established that proper implementation of procurement practices significantly affect the sustainable performance of an organization.



**Figure 4.23: A Histogram for the Overall Regression Model**

#### **4.9.6 The Moderating Effect of Public Procurement Regulatory Bodies**

*H<sub>0</sub>: Public procurement regulatory bodies do not significantly moderate the relationship between procurement methods, procurement contract management, preferences and reservation in procurement, inventory management and sustainable performance of state corporations in Kenya*

The study sought to test the hypotheses on the moderating effect of public procurement regulatory bodies on the relationship between public procurement practices and sustainable performance of the state corporations in Kenya. An interaction effect analysis was carried out by multiplying all the independent variables with the moderating variable. The model for the moderating effect was as follows:

$$Y = \beta_0 + \beta_1 X_1 * Z + \beta_2 X_2 * Z + \beta_3 X_3 * Z + \beta_4 X_4 * Z + \epsilon$$

#### **Model Summary of the Moderated Overall Regression Model**

The model summary is as shown in Table 4.34. As the findings portray, the R-square (R<sup>2</sup>) for the model is 0.618. This is a decline from the 0.780 for the unmoderated overall model. However, having a R<sup>2</sup> value more than 0.50, it is worth noting that with the introduction of the moderator (Public procurement regulatory Bodies),

procurement methods, procurement contract management, preferences and reservation in procurement, inventory management still have a strong effect in the variation of sustainable performance of the state corporations in Kenya. These findings of Muange and Chirchir (2018), who established that regulating public procurement practices improves sustainable performance of state corporations.

**Table 4.34: Model Summary of the Moderated Overall Regression Model**

<b>Model</b>	<b>R</b>	<b>R Square</b>	<b>Adjusted R Square</b>	<b>Std. Error of the Estimate</b>
1	.820 <sup>a</sup>	.618	.611	.51037

a. Predictors: (Constant), Procurement Contract Management\* Public Procurement Regulatory Bodies, Preferences and Reservations in Procurement \* Public Procurement Regulatory Bodies, Inventory Management\* Public Procurement Regulatory Bodies, Procurement Methods\* Public Procurement Regulatory Bodies

b. Dependent Variable: Sustainable Performance of State Corporations

### **Analysis of Variance (ANOVA) Test for the Moderated Overall Regression Model**

The ANOVA results for the moderated model are as shown. The F-statistic value after the moderator is 80.244 at a significance level of 0.000. This implies that the model is significant and can significantly predict the relation between procurement contract management, preferences and reservation in procurement, procurement methods, inventory management and sustainable performance of state corporations in Kenya with the interaction effect of Public Procurement regulatory bodies. This finding is in line with Panya and Were (2018), who established that regulating public procurement practices improves compliance levels in an organization.

**Table 4.35: Analysis of Variance (ANOVA) Test of the Moderated Overall Regression Model**

<b>Model</b>	<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
Regression	83.608	4	20.902	80.392	.000 <sup>b</sup>
1 Residual	77.884	299	.260		
Total	161.492	303			

a. Dependent Variable: Sustainable Performance of State Corporations

b. Predictors: (Constant), Procurement Contract Management\* Public Procurement Regulatory Bodies, Preferences and Reservation in Procurement\* Public Procurement Regulatory Bodies, Inventory Management\* Public Procurement Regulatory Bodies, Procurement Methods\* Public Procurement Regulatory Bodies

### **Regression Coefficients of the Moderated Overall Regression Model**

The regression coefficients for the moderated model are as shown in Table 4.36. As the results portray, the interaction between preferences and reservation in procurement and public procurement regulatory bodies and the interaction between procurement contract management and public procurement regulatory bodies were significant had significant effect on the sustainable performance of state corporations in Kenya ( $P < 0.05$ ;  $\beta = 0.058$  and  $0.076$  respectively). The interaction effect between procurement methods and public procurement regulatory bodies was positive ( $\beta = 0.101$ ) and significant ( $P = 0.000 < 0.05$ ). On the other hand, the interaction effect between inventory management and public procurement regulatory bodies had a positive and significant effect on the sustainable performance of state corporations in Kenya ( $\beta = 0.071$ ;  $P = 0.001 < 0.05$ ). These findings are in tandem with the findings of Gitari and Kabare (2019) that regulating the implementation of access to government procurement opportunities and procurement procedures improves sustainable performance of an organization.

**Table 4.36: Regression Coefficients of the Moderated Overall Regression Model**

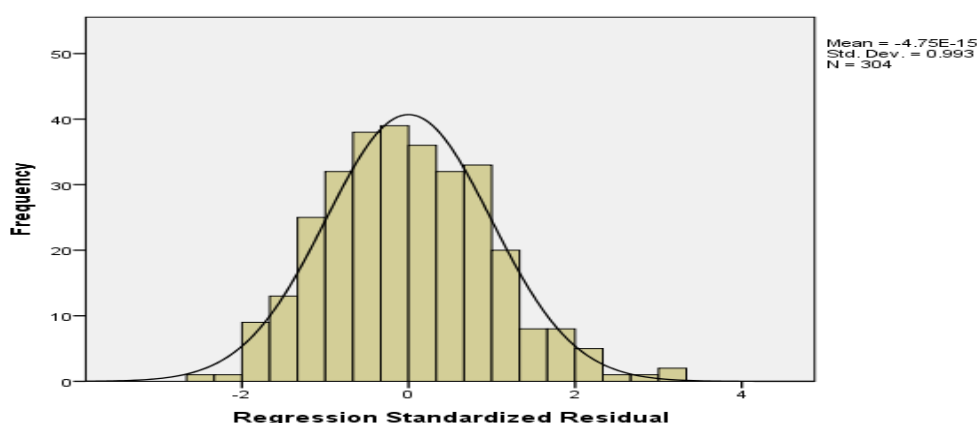
<b>Model</b>	<b>Unstandardized Coefficients B</b>	<b>Std. Error</b>	<b>Standardizedt Coefficients Beta</b>	<b>Sig.</b>
(Constant)	1.509	.118		12.783 .000
Procurement Methods* Public Procurement Regulatory Bodies	.101	.016	.109	6.312 .000
1 Procurement Regulatory Bodies Inventory Management* Public Procurement Regulatory Bodies	.058	.014	.338	4.239 .001
Procurement Contract Management* Public Procurement Regulatory Bodies	.071	.014	.085	5.0714 .001
	.076	.017	.376	4.568 .000

a. Dependent Variable: Sustainable Performance of State Corporations

### **A histogram of the Moderated Overall Regression Model**

The study also used the histogram to show the distribution of the standardized residuals. As the findings in Figure 4.24 shows, there is a normal distribution of the standardized residuals with a standard deviation closer to 1. The histogram also looks symmetric with a bell-like curve which implies that the residuals are normally distributed hence there is the likelihood of the model significantly predicting the relationship between the aspects of adherence with the public procurement practices and the sustainable performance of state corporations. The findings are consistent with the findings of Iregi and Kipkorir (2017), who established that proper implementation of procurement practices significantly affect the sustainable performance of an organization.

**Dependent variable: Sustainable\_Performance\_of\_state\_corporations**



**Figure 4.24: Histogram of the Moderated Overall Regression Model**

**Table 4.37: Summary of Hypotheses Testing**

H <sub>0</sub>	Hypothesis	Regression Model Equation	Decision
H <sub>01</sub>	There is no significant effect of Procurement methods on sustainable performance of state corporations in Kenya.	$Y = 0.732 + 0.734X_1$ .	Rejected the null hypothesis at $0.000 < 0.05$ p value
H <sub>02</sub>	There is no significant effect of Procurement contract management on sustainable performance of state corporations in Kenya.	$Y = 0.918 + 0.718X_2$ .	Rejected the null hypothesis at $0.000 < 0.05$ p value
H <sub>03</sub>	There is no significant effect of preferences and reservation in procurement and sustainable performance of state corporations in Kenya.	$Y = 1.151 + 0.626X_3$	Rejected the null hypothesis at $0.000 < 0.05$ p value
H <sub>04</sub>	There is no significant effect of inventory management on sustainable performance of state corporations in Kenya.	$Y = 1.499 + 0.580X_4$ .	Rejected the null hypothesis at $0.000 < 0.05$ p value
H <sub>05</sub>	Public procurement regulatory bodies do not significantly moderate the relationship between procurement methods, procurement contract management, preferences and reservation in procurement, inventory management and sustainable performance of state corporations in Kenya	Unmoderated: $Y = 0.043 + 0.253X_1 + 0.292X_2 + 0.276X_3 + 0.150X_4$ .  Moderated : $Y = 1.509 + 0.101X_1*Z + 0.076X_2*Z + 0.058X_3*Z + 0.071X_4*Z +$	Rejected the null hypothesis at $0.000 < 0.05$ p value



#### 4.10 Optimal Model

An optimal model has been drawn from the overall model. This shows the flow of variables based on their strength as shown by the regression model. For the flow of the independent variables, the overall unmoderated variables have been used where procurement contract management has the strongest effect followed by preferences and reservation in procurement, procurement methods and lastly inventory management.

The model becomes:

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

Where;

Y = Sustainable Performance of State Corporations

$\beta_0$  = constant

$\beta_i$  is the coefficient for  $X_i$  ( $i=1, 2, 3, 4$ )

$X_1$  – Procurement Contract management

$X_2$  – Preferences and reservation in procurement

$X_3$  – Procurement methods

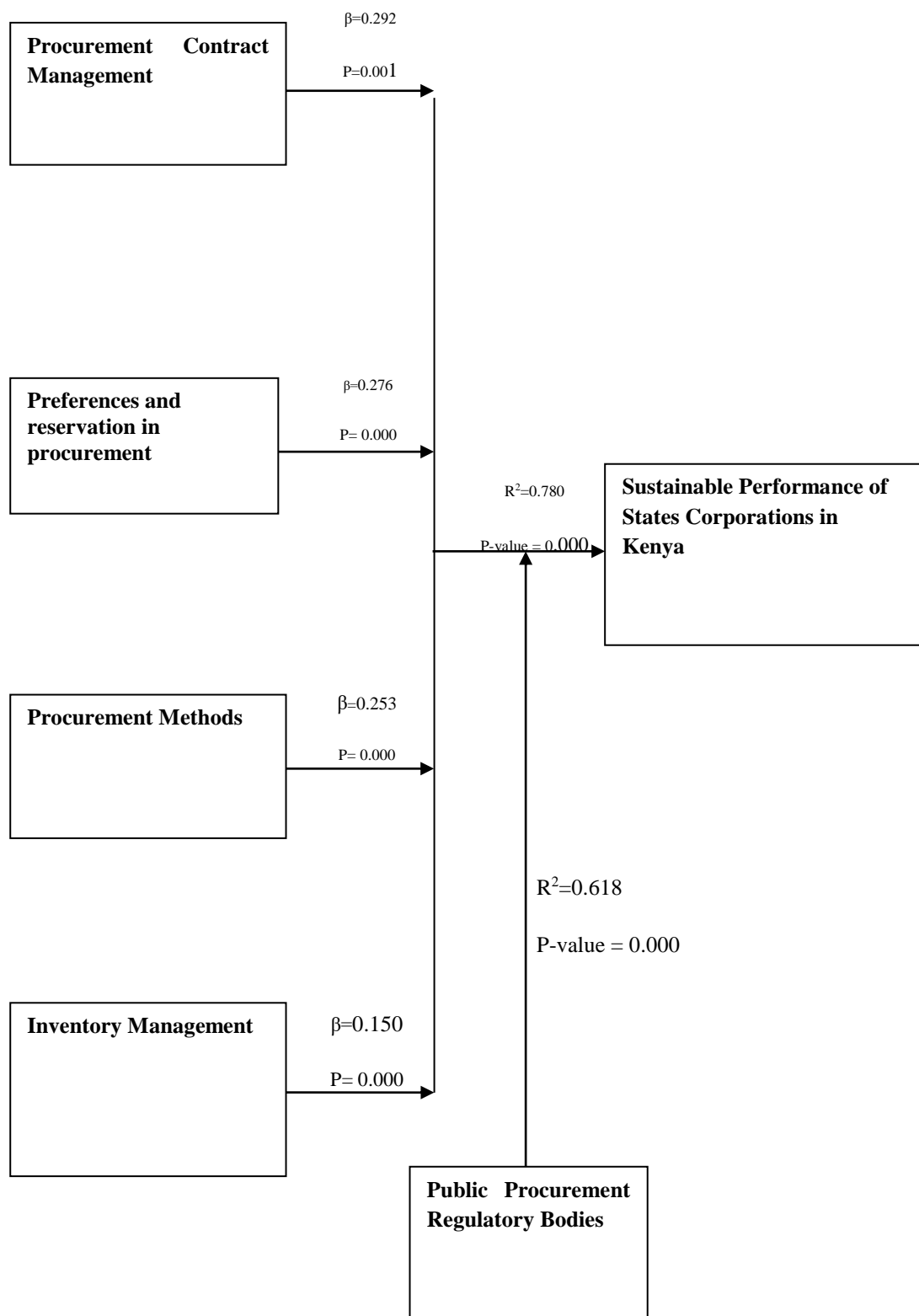
$X_4$  – Inventory management

$\varepsilon$  = Error term.

The model with the output is as shown:

$$Y = 0.043 + 0.292X_1 + 0.276X_2 + 0.253X_3 + 0.150X_4.$$

The moderating variable (Public procurement regulatory bodies) is also retained because it had a significant moderating effect on the relationship between public procurement practices and sustainable performance. The moderating variable has a strong  $R^2$  and implication that it has an overall moderating effect.



**Independent Variable                      Moderating Variable                      Dependent Variable**

**Figure 4.25: Revised Conceptual Framework for the Optimal Model**

## CHAPTER FIVE

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### 5.1 Introduction

The chapter highlights the summary of findings on the effect of public procurement practices on sustainable performance of state corporations in Kenya. The section mainly covers the conclusion of the study and the recommendations based on the conclusions. These are systematically captured based on the main variables of the study which are procurement methods, procurement contract management, preferences and reservation in procurement and inventory management. The chapter also captures the suggestions of areas for further research as well as the contributions of the study to the existing theory and literature.

#### 5.2 Summary of Findings

The main aim of this study was to assess the effect of public procurement practices on sustainable performance of state corporations in Kenya. The specific objective was to assess the effect of procurement methods on sustainable performance of state corporations in Kenya, to establish the effect of procurement contract management on sustainable performance of state corporations in Kenya, to evaluate the effect of preferences and reservation in procurement on sustainable performance of state corporations in Kenya, to examine the effect of inventory management on sustainable performance of state corporations in Kenya, to analyze the moderating effect of public procurement regulatory bodies on the relationship between procurement methods, procurement contract management, preferences and reservation in procurement, inventory management and sustainable performance of state corporations in Kenya. The study findings indicated that procurement methods, procurement contract management, preferences and reservation in procurement and inventory management jointly are positively affected sustainable performance of state corporations in Kenya.

### **5.2.1 Effect of Procurement Methods on Sustainable Performance of State Corporations in Kenya**

The first objective of the study was to assess the effect of procurement methods on sustainable performance of state corporations in Kenya. This objective was measured using open tender, restricted tendering and direct procurement. The findings revealed that majority of the state corporations upheld the advertisement of the open tenders in dedicated government portals and websites for the members of the public and any other interested parties to have access. The corporations also provided clear technical specifications on the open tenders to enhance the ability of the applicants to follow the objective qualification criteria. It was also established that the restricted tendering was frequently used in cases where the works were specialized in nature and most of the state corporations had no effective databases of pre-qualified providers who had been invited to tender in restricted tendering process. The respondents agreed that direct procurement was used in their respective organizations strictly where circumstances did not allow for competitive tendering. The inferential analysis of the model on the other hand revealed that procurement methods had a significant and positive effect on the sustainable performance of state corporations in Kenya. The public procurement regulatory bodies were found to significantly moderate the relationship between procurement methods and the sustainable performance of state corporations in Kenya.

### **5.2.2 Effect of Procurement Contract Management on Sustainable Performance of State Corporations in Kenya.**

The second objective of the study was to establish the effect of procurement contract management on the sustainable performance of state corporations in Kenya. This objective was measured using contract administration, contract monitoring and contract records. The findings established the most of the state corporations surveyed had their formed contracts signed in the contract form and that the contractors were not always paid on time. This implies that early payment of supplies is not upheld and that the concern on pending bills is still a menace in most of the state corporations. The respondents indicated that there was regular monitoring of the

contract to ensure that all the delivery and sustainable performance obligations were met by the contractors while disagreed that their respect state corporations upheld the strategies that enhance positive relationship with the contractors. This is an indication of poor supplier relationship which is detrimental to the sustainable performance of state corporations.

The findings also indicated that comprehensive contract records were kept, required tendering documents were submitted by contractors and that all contract documents were made clear to all parties involved in the contract. The respondents further stated that procurement contract management in their respective organizations was effectively connected to the sustainable performance of the organizations an indication that it is an essential factor towards determining the sustainable performance of the state corporations. This was confirmed in the inferential analysis results which revealed that procurement contract management had a significant and positive effect on the sustainable performance of state corporations in Kenya. The model revealed that the public procurement regulatory bodies had a significant moderating effect on the relationship between procurement contract management and the sustainable performance of state corporations in Kenya.

### **5.2.3 Effect of Preferences and Reservation in Procurement on Sustainable Performance of State Corporations in Kenya**

The third objective of the study was to assess the effect of preferences and reservation in procurement on sustainable performance of state corporations in Kenya. This objective was measured using pre-qualification of preferences and reservation, contracts awarding and reporting and capacity building. The descriptive analysis of the findings revealed that most of the respondents were of the opinion that their respective organizations upheld the need for the applicants to present prove to belong to specific groups so as to qualify for the preference and reservation tenders. The findings further revealed that the respondents agreed that the procurement opportunities available in their respective organizations for the special groups such as youth and the persons living with disabilities were advertised in the appropriate government websites and other platforms. Moreover, it was established

that there were no appropriate measures taken by the relevant authorities to ensure that the money for the services provided under the preferences and reservation in procurement were remitted on time to the appropriate accounts. This explains the lack of effective adherence with the preferences and reservation in procurement which could affect the credibility of the state corporations towards meeting their mandates as far as procurement processes are concerned. The findings further revealed that there were no regular capacity building programs on preferential procurement opportunities to empower the special groups in most of the state corporation surveyed. The inferential analysis of the regression model revealed that preferences and reservation in procurement had a significant effect on the sustainable performance of state corporations in Kenya. The results further revealed that the public procurement regulatory bodies had a significant moderating effect on the relationship between preferences and reservation in procurement and the sustainable performance of state corporations in Kenya.

#### **5.2.4 Effect of Inventory Management on Sustainable Performance of State Corporations in Kenya.**

The fourth objective of the study was to assess the effect of inventory management on the sustainable performance of state corporations in Kenya. This objective was measured using inventory control techniques, inventory records and demand forecasting. The findings indicated that majority of the respondents agreed that inventory management was instrumental in enhancing the sustainable performance of their respective state corporations. This shows that upholding inventory management would be essential in steering the sustainable performance of the state corporations. The descriptive results of the study revealed that most of the surveyed state corporations lacked effective inventory systems to help them achieve accurate demand forecasting. There were however appropriate inventory control techniques put in place to ensure effective flow of inventory. The automation of inventory was however not upheld in majority of the state corporations which could affect the effectiveness of the entire system of inventory management. The findings revealed that majority of the corporations had effective inventory management records unit to enhance accurate management of inventory. The respondents indicated that the

corporations did not regularly carry out stock and assets inspection and audits to keep track of the inventory and this could affect the ability of the firms to manage their inventory.

The results showed that the respondents felt that their respective entities did not adhere to maintaining stock levels as prescribed in the regulation when keeping inventory which again portrays the ineffective adherence to the PPAD Practices as far as inventory management is concerned. The findings also showed that most of the respondents were of the opinion that the inventory management had an effect on the sustainable performance of the state corporations. The inferential analysis of the model revealed that inventory management had a significant effect on the sustainable performance of state corporations in Kenya. The model further revealed that public procurement regulatory bodies had a significant moderating effect on the relationship between inventory management and the sustainable performance of state corporations in Kenya.

#### **5.2.5 The Moderating effect of Public Procurement Regulatory Bodies on the Relationship between Public Procurement Practices and Sustainable Performance of State Corporations in Kenya.**

The fifth objective sought to determine the moderating effect of public procurement regulatory bodies on the relationship between procurement methods, procurement contract management, preferences and reservation in procurement, inventory management and sustainable performance of state corporations in Kenya. This objective was measured using the National Treasury, Public Procurement Regulatory Authority and Public Procurement Administrative Review Board. Based on the study findings, it was established that procurement methods, procurement contract management, preferences and reservation in procurement, inventory management jointly explain a statistically significant variation in and sustainable performance of state corporations in Kenya. The descriptive analysis results from the study revealed that the public procurement regulatory bodies are not fully carrying out their mandates as required by public procurement and asset disposal act and regulation which is affecting the implementation of public procurement practices by procuring

entities. The findings indicated that the National Treasury are not effectively adhering to their mandates in relation to ensuring that state corporations are well updated on guidelines they are required to follow when carrying out procurement activities. Also, as per the findings, the PPRA is yet to fully ensure that they effectively monitor, assess and review all public procurement and assets disposal activities in state corporations to enhance effective implementation. Regular monitoring of the implementation of the preferences and reservation schemes in procurement activities enhances fairness and creation of job opportunities to preferential groups. The results further established that PPARB is yet to fully ensure that all procurement related cases are reviewed and determined on time to enhance accountability, fairness and transparency in procurement process.

This multiple linear regression model was a good fit and indicated to be significant in the study. The introduction of the moderating variable (Public Procurement Regulatory Bodies) the model was still significant concluding that Public Procurement Regulatory Bodies significantly moderates the relationship between procurement methods, procurement contract management, preferences and reservation in procurement, inventory management and sustainable performance of state corporations in Kenya. Further analysis indicated that the introduction of the moderating variable (Public Procurement Regulatory Bodies) resulted into an  $R^2$  indicated that there is significant moderating effect. This implied that there was positive moderating effect of public procurement regulatory bodies on the relationship between Public Procurement Practices and sustainable performance of state corporations in Kenya.

### **5.3 Conclusion of the Study**

The study was set out to establish the effect of public procurement practices on sustainable performance of state corporations in Kenya. The study established that there is positive relationship between public procurement practices and sustainable performance of state corporations in Kenya. The study concluded that for sustainable performance of State Corporation in Kenya, there is need to ensure compliance with various public procurement practices that includes use of appropriate procurement



methods, proper monitoring, administration and documentation of procurement contracts, adhering to preferences and reservation in procurement and proper inventory management systems.

### **5.3.1 Effect of Procurement Methods on Sustainable Performance of State Corporations in Kenya**

The study concluded that the procurement methods had a significant effect on the sustainable performance of state corporations in Kenya. Through a well-defined tendering process under the open and restricted tenders, the credibility and effectiveness of the entire process is enhanced thus enabling efficiency in the tendering process. The study concluded that while open tendering was efficient in most of the state corporations, this was not the case when it comes to direct procurement and restricted tendering. The study concluded that some of the measures that were taken to streamline the restricted tendering and direct procurement were not effective towards promoting the sustainable performance of the corporations. The study concluded that when restricted tendering procurement method is used an organization is not able to achieve value for money since the selected supplier firm may take advantage of this method to inflate prices of goods, services or works.

From the findings of the study, it was concluded that the use open tender method of procurement allows for competitiveness, fairness and transparency in the procurement process. This is where the procuring entity is able to award equal opportunities to all potential bidders to participate in the procurement process. Open tender helps an organization in ensuring the accountability, openness and transparency of all procurement procedures thus achievement of value for money. The study also concluded that use of direct procurement may expose the procuring entity to a greater risk of supply interruption and shortages in case of unreliability of the supplier. The use of direct procurement also need to go through strict approval process to ensure that it is applied only in circumstances stipulated in public procurement regulation to avoid non-competitiveness and conflict of interest.

### **5.3.2 Effect of Procurement Contract Management on Sustainable Performance of State Corporations in Kenya.**

The study concluded that while procurement contract management was recognized as a key enabler to the sustainable performance of the state corporations, it was not effectively upheld among the organizations. The study concluded that indeed, procurement contracts management had a significant effect on the sustainable performance of state corporations. It was however noted that the administration of contracts and monitoring the contractors for efficient delivery was not sufficiently undertaken and this could affect the anticipated results of the entire procurement contract management process. Implementation of the PPAD regulation requires that proper documentation is upheld as well as efficiency in management the relationship between the organization and the suppliers. This being not equitably upheld means poor sustainable performance of the state corporations as far as compliance with the PPAD practices are concerned.

The study further concluded that effective contract management is necessary in ensuring that all parties involved in the contract perform their duties and obligations effectively to ensure delivery of quality products, timely delivery and achievement of value for money. The study concludes that that contract preparation, contract administration, contract control and monitoring and contract conflicts resolution mechanisms are crucial drivers of sustainable performance of state corporations in Kenya. The study concluded that contract administration has an effect on sustainable performance and that procuring entities need to have mechanism for administration and approval of the procurement contract. Based on the findings the study concluded that contract monitoring positively and significantly affect sustainable performance of state corporations. The study also concludes that there was a positive and statistically significant relationship between contract record keeping and sustainable performance of states corporations in Kenya. Understanding of terms and conditions of the contract is important in ensuring effective contract implementation.

### **5.3.3 Effect of Preferences and Reservation in Procurement on Sustainable Performance of State Corporations in Kenya**

The study concluded that the preferences and reservation in procurement under the PPAD Act and regulation were significant in influencing the sustainable performance of the state corporations specifically on social performance. Through appropriate pre-qualification of firms during the tendering process in the Preference groups and making the required reports to the contracts awarded to the preference groups, the state corporations could be concluded to be on the right path towards steering sustainable performance. While the findings revealed that capacity building programs were not upheld in most of the state corporations to sensitize the special groups on the preferences and reservations in procurement, it can be concluded that the sensitization is crucial for the state corporations to meet the mandates of the special groups. Therefore, the study concludes that careful effort should be implemented through the public procuring entities involvements to make sure that youth, women and persons with disabilities are not discriminated in public procurement.

The study discovered that preference groups are not well equipped with skills and competencies on how to participate in public procurement on tender preparation, documentation and tender evaluation. To attain envisioned goal of ensuring disadvantaged groups have full access to 30% of all public procurement opportunities, there is need to ensure that capacity building programs are in place to empower youth, women and PWDs. They need to be trained on how to identify and participate in all preferential procurement opportunities. The study also concluded that the tender evaluation committee is not well equipped with knowledge on the implementation of preferences and reservations in procurement requirement thus affecting compliance. The study concludes that tender evaluation and management committee should comprise of members who are well trained and knowledgeable in all public procurement practices to ensure compliance. The study concludes that Public Procurement regulatory bodies need to ensure that all guidelines relating to preferential procurement opportunities need to be enforced to improve compliance levels.

#### **5.3.4 Effect of Inventory Management on Sustainable Performance of State Corporations in Kenya.**

The study finally concluded that inventory management had a positive and significant effect on the sustainable performance of the state corporations in Kenya. Inventory management through adoption of effective inventory control techniques and keeping the right inventory records were recognized to be essential in management the inventory but they were not effectively upheld in the state corporations. It is also concluded that low uptake of technology as a far as inventory management is concerned was low among the state corporations and this could affect their efficiency in managing the inventory. It can also be concluded that through proper regulation of the PPAD by the relevant authorities, the management of inventory towards enhancing the sustainable performance of the corporations is enhanced. Proper management of inventory involves maintaining optimum levels of stock because overstocking may lead to increase holding costs, leads to tying finances in capital and increase the risk of loss, damages and spoilage.

The study concluded that inventory management is critical in meeting operation requirements of any organization thus all inventories need to be well controlled and monitored to achieve sustainable performance. Procuring entities should use different inventory management systems to ensure that they are able to meet various users' needs and these systems should be well monitored to achieve the desired organizational sustainable performance. Effective inventory management is known as one of critical management areas that need to be well monitored through implementation of inventory control models and systems such as Economic order quantity, Enterprise Resource Planning, Vendor managed inventory, Material requirement planning, and maintaining appropriate stock levels to improve inventory performance of an entity. The study also concluded that the policy makers in public procuring entities need to put emphasis on adoption of best inventory management models and techniques as well as employing accurate demand forecasting techniques. This will facilitate proper inventory records, appropriate stock levels, accurate demand forecasting and reduction of inventory related costs in an organization.

### **5.3.5 Moderating effect of Public Procurement Regulatory Bodies on the Relationship between Public Procurement Practices and Sustainable Performance of State Corporations in Kenya**

The findings revealed that the introduction of the moderator (Public procurement regulatory Bodies) procurement methods, procurement contract management, preferences and reservation in procurement, inventory management still have a strong effect in the variation of sustainable performance of the state corporations in Kenya. The study concluded that public procurement regulatory Bodies is positively associated with sustainable performance of the state corporations in Kenya. Public procurement regulatory bodies are mandated to regulate public procurement activities to ensure effective implementation of public procurement practices by all procuring entities. Equal promotion and support of the implementation of public procurement practices is by public procurement regulatory bodies is needed as a way of ensuring that every state corporation effectively implement these practices. Concisely, most state corporations in Kenya have not fully implemented public procurement practices due to the public procurement regulatory bodies reluctance in regulating the effective implementation of those practices. This has resulted in poor sustainable performance of their operations.

### **5.4 Recommendations of the Study**

The study established that procurement methods, procurement contract management, preferences and reservation in procurement and inventory management positively affects the sustainable performance of state corporations in Kenya. Based on the conclusions of the study, recommendations related to public procurement practices and sustainable performance of state corporation are provided below;

#### **5.4.1 Managerial Recommendations**

The study established that states corporations in Kenya are not fully adhering effective use of procurement methods as per PPAD Act and regulation and therefore the study recommends that the management of the state corporations ought to embrace the appropriate procurement methods as a way of enhancing sustainable

performance of the corporations. Upholding effective ways of handling open tenders and restricted tenders would shape the openness and efficiency in the procurement process of the corporations which is essential to their sustainable performance. The study suggest that the management of state corporations should also ensure use of competitive procurement methods in order to achieve procurement efficiency and effectiveness. Competitiveness in the procurement process helps in the selection of the right supplier who is able to meet the organization's requirement at the right time, in the right quality and quantity and the right process thus conforming to sustainable products, service and works specification. Therefore, this will enable the organization to achieve sustainable performance in relation to financial growth, social responsibility and environmental protection.

The findings on procurement contract management found out that, despite it being acknowledged as a critical enabler for the sustainable performance of the state corporations, it was not consistently upheld by the state corporations. Therefore, the study recommends that the management of the corporations should be at the forefront of ensuring that there is proper management of procurement contracts by ensuring proper documentation and that the contracts are efficiently and keenly administered for adequate adherence to the procedures and guidelines. The study recommends that management of all state corporations need to ensure that all procurement contracts are effectively management through monitoring, administration and marinating appropriate records. All parties involved in the procurement contracts need to pay attention of all steps involved in contract management including preparation of contract documents, contract administration, contract implementation and termination. This should be done as well as ensuring they maintain positive relationship with suppliers for possible collaborations. All parties involved in the contract should have knowledge of all terms and conditions of the contract to improve contract performance. Maintaining a good relationship between the procuring entities and their suppliers is crucial in improving sustainable performance of an organization. After a contract is awarded, there is need for the procuring entity to ensure proper follow up and contract expediting as well as developing effective mechanisms for conflicts resolutions.

Regarding preferences and reservation in procurement it was found out that its consideration in public procurement is an essential way of ensuring equality and fairness in government opportunities especially as far as the tendering and procurement process is concerned. The study recommends that the management of the state corporations should be at the forefront of ensuring that the appropriate members of the target groups are awarded the reserved and preferential tenders as a way of not only implementing the PPAD Regulation but also putting on board every member of the society for equitable share of resources and opportunities. The management of state corporations needs to ensure that they create awareness of all procurement opportunities available for special groups and organize regular capacity building programs on preferential procurement opportunities to empower preference groups. There is also need to organize regular trainings for staff on the procurement preferences and reservations requirements so as to improve compliance. State corporations need to ensure that tender opening and evaluation procedures are carried out by skilled and knowledgeable procurement professionals who are familiar with practices relating to procurement preferences and reservations to ensure compliance.

On the inventory management, it can be deduced that it is the duty of the management of the state corporations to ensure that the inventory is properly managed to save on costs and ensure efficiency. Proper tracking of the inventory should be prioritized at the state corporations and this would be possible by ensuring that there are appropriate inventory records and having a well framed way of deposing assets. The management also need to ensure that effective inventory management systems, techniques and models are in place achieve accurate demand forecasting so as to keep appropriate stock levels. The study also recommends the need to have automated inventory procedures and an effective inventory record management unit to ensure that the procuring entity has up to date inventory records. There is need to ensure keeping track of inventory in stock through regular stock taking, asset inspection and inventory auditing.

## **5.4.2 Policy recommendations**

Public procurement practices play an essential role in sustainable performance of a public procuring entity. From the study findings it was established that public procurement practices: procurement methods, procurement contract management, preferences and reservation in procurement and inventory management positively affect sustainable performance of state corporations in Kenya. Thus study recommends that on procurement methods, the policy makers and enforcing agencies should be keen in ensuring that the procurement methods utilized by the state corporations match the ones provided for under the PPAD Act and Regulation. Then there is need to ensure that all relevant stakeholders are involved when planning for acquiring goods, services, works and consultancy services and ensure that when using a competitive procurement method an objective qualifications criterion is applied so as to award tender to the most competent bidder. The policy makers should also develop relevant policies in order to ensure accountability, competitiveness, transparency, integrity and value for money is achieved in a procurement process. State corporations should have a clearly stated guidelines on selecting the appropriate method of procurement in line with procurement practices. The study recommends that there is need of developing strategies on ensuring that open tendering guidelines are followed to achieve fairness, competitiveness and value for money in procurement process.

Regarding procurement contract management, the study recommends that the government through the appropriate regulatory agencies and other policy makers have the mandate to ensure that proper monitoring is done on the way contracts are managed in state corporations as a way of ensuring accountability and fairness in the entire process. The state regulatory agencies such as the PPRA and the PPARB should be at the forefront of ensuring procurement contract management at the state corporations is as provided under the regulation through ensuring that all formed contract are signed by contracting parties, all contractors are paid on time, regular maintenance of an updated form of the contract and submitting annual reports on all procurement activities and ensuring that there is maintenance of positive relationship with the contractors for mutual benefits.



On preferences and reservation in procurement objective, the study recommends that public procurement policy makers need to ensure that policies, practices, regulations and guidelines are developed with clear provisions that facilitate transparent evaluation and selection of special groups, regular training and mechanisms to create awareness of preferential procurement opportunities. The regulatory and enforcement agencies should also be at the forefront of ensuring that the preferences and reservations are upheld among the state corporations. The public procurement regulatory bodies and other public procurement policy makers should come up with intervention policies and guidelines to ensure that preference groups have access to fund for them to be able to participate in preferential procurement opportunities. There is need for development of trainings geared towards ensuring that special groups acquire relevant skills and competencies for them to effectively be able to identify and participate in preferential public procurement opportunities. Proper implementation of preferences and reservation in procurement need to be enforced in all public procuring entities to improve effective implementation and sustainable performance.

Lastly, the study recommends that policy makers in each state corporations need to ensure that there are policies in place to ensure that proper stock levels are kept as per the Act and the Regulation through proper verification and processing of all requirements, adhering to prescribed stock policies in the regulation and ensuring that they duly consider safety stock and lead time when replenishing to ensure appropriate stock levels are kept at all time. The study also recommends that state corporations need to ensure that inventory management policies are adhered to ensure that appropriate levels of stock are kept to avoid overstocking and understocking. The study recommends that state corporations policy makers need to establish a policy framework to expedite effective adoption of best inventory management systems such as VMI, MRPII, ERP, ABC Analysis and JIT to facilitate sustainable performance. There also need to come up with policies relating to how demand forecasting needs to be carried out to help in reducing risks and enable the organization make efficient financial decisions that affect cash flow and allocation of resource.

### **5.4.3 Contribution to New Knowledge**

Public procurement practices have been argued to be important aspects that determines the sustainable performance of state corporations in Kenya. Practices like application of appropriate procurement methods, proper procurement contract management, equal sharing of procurement opportunities through preferences and reservation in procurement and contract management are crucial to sustainable performance of an organization. It was clear that most state corporations are not fully implementing these practices leading to poor sustainable performance. This study has shown how these public procurement practices affect the sustainable performance of state corporations. The study has also contributed to the existing knowledge by highlighting how the public procurement practices in relation to procurement methods, procurement contract management, preferences and reservation in procurement and inventory management are the most important practices that state corporations in Kenya need to consider to enhance sustainable performance. Bringing the aspect of sustainable performance play a key role in ensuring that states corporations in Kenya achieve operating principles of PPADA and PPADA especially on promotion of local industry, sustainable development, protection of the environment and maximization of value for money.

The management of states corporations in Kenya has the responsibility to enhance the sustainable performance of their operations and need to ensure that public procurement practices are fully adhered to so as to enhance sustainable performance. This study will serve as a reference point for public procuring entities in enhancing effective implementation of public procurement practices. Additionally, it was observed that the research methods, models, and data analysis techniques used in the previous studies differed and led to contradictions in the research conclusions. Because this study used a survey research approach, it was possible to conduct more in-depth and advanced analyses while avoiding constraints and inconsistencies that plagued earlier studies. Finally, by adding to the literature of already-established theories, this research strengthens and refines them.

#### **5.4.4 Theoretical Implication**

For state corporations in Kenya to improve sustainable performance, there is need for proper implementation of public procurement practices. Practices such as: procurement methods, procurement contract management, preferences and reservation in procurement and inventory management are very important to an organization. It is evident that some state corporations in Kenya have not fully implemented these practices. The study recommends that public procurement practices should be implemented as per the requirement of public procurement regulatory framework to ensure realization of sustainable performance. The findings of the study indicated that public procurement practices positively and significantly affect sustainable performance of state corporations in Kenya. Based on these findings, the study recommends that the state corporations need to ensure that public procurement practices that includes: procurement methods, procurement contract management, preferences and reservation in procurement and inventory management are effectively implemented to achieve sustainable performance.

#### **5.5 Areas for Further Studies**

This study sought to analyze the effect of public procurement practices on sustainable performance of states corporations in Kenya. The study recommends that further studies can be carried out in the same area but in other public entities like county governments, ministries and other institutions governed by public procurement regulation. This study specifically examined the implementation of public procurement practices which included Procurement methods, Procurement Contract Management, Preferences and reservation in procurement and Inventory Management which formed the independent variables. Therefore, a study can be done using different variables derived from other public procurement practices such as procurement planning, store management, assets disposal and procurement budgets. Similar studies can be carried out in future to compare public procurement practices implementation level over time to determine improvements made in relation to achieving sustainable performance in the next decade. Comparing improvements made in the next decade can help policy makers in developing policies

and regulations to improve the implementation of public procurement practices to enhance sustainable performance. The study unit of observation was head of finances and head of procurement function; further studies can be carried out on the effect of public procurement practices on sustainable performance of states corporations in Kenya from the perspective the end users of public acquired goods, services and works and also public contractor and service providers.

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## APPENDICES

### Appendix I: Introduction Letter

Dear Respondents,

I am a student at Jomo Kenyatta University of Agriculture and Technology (JKUAT) undertaking a Doctor of Philosophy in Supply chain management and am conducting research on “*Public Procurement Practices and Sustainable Performance of State Corporations in Kenya*”. I am seeking your assistance in the completion of the attached questionnaire. This research is being conducted to comply with the requirements of my post-graduate program. Kindly respond sincerely to issues in the questionnaire. Please read and answer the questions given by ticking the correct answer. Where required write brief answers in the space provided. Any information that you provide was used purely for academic purpose and was treated with the utmost confidentiality.

Thank you in advance for participating in this study.

Feel free to get back to me with the contact below.

Yours Faithfully,

Catherine Gatari

Email: njokicathygatari@gmail.com

## Appendix II: Questionnaire

This questionnaire seeks to collect data in regard to the Public Procurement Practices and Sustainable Performance of State Corporations. This data is purely to be used for academic purpose and will be treated with utmost confidentiality. Your participation will go a long way in enabling the success of my thesis.

### SECTION A: GENERAL INFORMATION

*(Kindly tick or write where applicable)*

**1. Company name (Optional)** .....

#### **2. Functional category in which your state corporation fall**

- a) Purely Commercial State Corporations
- b) State Corporations with Strategic Functions
- c) Executive Agencies
- d) Independent Regulatory Agencies
- e) Research Institutions, Public Universities,  
Tertiary Education and Training Institutions

#### **3. Please indicate your highest level of education?**

Certificate  Diploma  Bachelor's degree  Master's Degree   
PhD

Others: .....

#### **4. For how long have you been working in this organization?**

Below 5 years  between 5 and 10 years  between 11 and 15 years

Above 15 Years

#### **5. In which of the following departments are you attached in the organization?**

Procurement department

Finance Department



## SECTION B: VARIABLES

### PART 1: PROCUREMENT METHODS

**This part seeks to establish your organization's implementation of the Procurement Methods**

6. Please indicate your level of agreement or disagreement with the following statements regarding your entity's implementation of the procurement methods. Please record your answer by ticking in the spaces provided, by the scale indicator (1=Strongly Disagree, 2=Disagree, 3=Neutral, 4= Agree, 5=Strongly Agree).

<b>Procurement methods</b>	1	2	3	4	5
<b>Open tender</b>					
a) Our entity ensures that all open tenders are advertised in the dedicated Government tenders' portals / our website					
b) All open tender procurements in our organization have clear technical specifications that follow objective qualifications criteria					
c) Our organization strictly follow all laid down procedures in Provision of open tender documents.					
<b>Restricted Tendering</b>					
a) Our entity uses restricted tendering strictly in cases where the works are specialized in nature					
b) Our organization has a database of pre-qualified providers who are invited to tender in restricted tendering process					
c) The evaluation committee in our organization always meet to consent to the use of restricted tendering					
<b>Direct procurement</b>					
a) Our entity uses direct procurement strictly where circumstances do not allow for competitive tendering.					
b) Our entity uses direct procurement strictly where the total cost is within the threshold set in the tender document.					
c) Our entity has a streamlined process in place to manage direct procurement requirements to ensure its effectiveness					

7. In your opinion, do you think procurement methods have an effect on sustainable performance of states corporations?

YES ( )      NO ( )

If yes kindly explain

.....  
 .....

**PART 2: PROCUREMENT CONTRACT MANAGEMENT**

8. Please indicate your level of agreement or disagreement with the following statements on your entity’s implementation of procurement contract management. Please record your answer by ticking in the spaces provided, by the scale indicator (1=Strongly Disagree, 2=Disagree, 3=Neutral, 4= Agree, 5=Strongly Agree).

<b>Procurement Contract management</b>	1	2	3		4	5
<b>Contract Administration</b>						
a) All formed contracts in our organization are in written signed contract form						
b) The contractors in our organization are always paid on time						
c) Any variation of a contract in our entity is considered after twelve months from the date of signing the contract						
<b>Contract Monitoring</b>						
a) Our entity ensures regular monitoring of the contracts to achieve all delivery or performance obligations						
b) Our organization upholds strategies to enhance positive relationship with the contractors						
c) Our entity regularly maintains an updated form of the contract and reporting						
<b>Contract Records</b>						
a) Our organization keeps comprehensive						

contract records						
b) All contractors in our entity submit the required documentation as specified in the tender document					.....	
c) All contract documents in our organization are made clear to all parties involved in the contract						

9. In your opinion, do you think contract management has an effect on sustainable performance of states corporations?

YES ( )      NO ( )

If yes kindly explain

.....  
.....

**PART 3: PREFERENCES AND RESERVATION IN PROCUREMENT**

10. What is your level of agreement or disagreement with the following statements on your entity’s implementation of the preferences and reservation in procurement? Please record your answer by ticking in the spaces provided, by the scale indicator (1=Strongly Disagree, 2=Disagree, 3=Neutral, 4= Agree, 5=Strongly Agree).

<b>Preferences and reservation in procurement</b>	1	2	3	4	5
<b>Pre-qualification of preferences and reservation</b>					
a) To qualify for a specific preference or reservation in our organization, all special groups always provide evidence of eligibility					
b) Our organization ensures that all procurement opportunities available for special groups are advertised in the state’s portal and website					
c) Our organization ensures that all submissions from special groups are evaluated as required by tender evaluation criteria					
<b>Contracts awarding and reporting</b>					
a) Our organization has set 30% aside of all procurement value					

in every financial year that is fully allocated special groups					
b) Our organization has measures in place taken to ensure that money paid out to procurement special groups enterprises is paid to the appropriate accounts					
c) Our organization ensures that compliance reports with preferences and reservation in procurement are always submitted to PPRA as required					
<b>Capacity Building</b>					
a) Our organization has regular capacity building programs on preferential procurement opportunities to empower special groups					
b) There are regular trainings for staff in our organization on preferences and reservation in procurement					
c) Our organization organize regular trainings to special groups on the documentation required for preferential public tendering process					

11. In your opinion, do you think preferences and reservation in procurement has an effect on sustainable performance of states corporations?

YES ( )      NO ( )

If yes kindly explain

.....  
.....

**PART 4: INVENTORY MANAGEMENT**

12. Please indicate your level of agreement/disagreement with the following statements regarding your entity’s implementation of inventory management. Please record your answer by ticking in the spaces provided, by the scale indicator (1=Strongly Disagree, 2=Disagree, 3=Neutral, 4= Agree, 5=Strongly Agree).

<b>Inventory management</b>	1	2	3	4	5
<b>Inventory Control techniques</b>					
a) Our entity has an effective inventory management system to					

plan and control inventory					
b) Our entity has effective inventory control techniques in place to enhance supply, storage and distribution of stock					
c) Our entity has automated inventory control procedures to monitor stock levels					
<b>Inventory records</b>					
a) Our entity has a working inventory records management unit that ensures accurate inventory records					
b) Our entity has an up-to-date asset register which ensures proper inventory records management					
c) Our entity regularly carries out stock/asset inspection and audits to keep track of inventory					
<b>Demand Forecasting</b>					
Our organization has accurate demand forecasting methods in place to maintain appropriate stock levels					
Our entity utilizes demand forecasting to maintain accurate and real-time inventory data					
Our entity utilizes demand forecasting tools to improve on inventory planning					

13. In your opinion, do you think inventory management has an effect on sustainable performance of states corporations?

YES ( )      NO ( )

If yes kindly explain.....

**PART 5: PUBLIC PROCUREMENT REGULATORY BODIES**

**The sections seek to assess the effect of public procurement regulatory bodies on the relationship between public procurement practices and sustainable performance of state corporations**

14. Please indicate your level of agreement/disagreement with the following statements on moderation of public procurement regulatory bodies on the relationship between public procurement practices and sustainable performance of

state corporations in your entity. Please record your answer by ticking in the spaces provided, by the scale indicator (1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree).

Public Procurement Regulatory Bodies	1	2	3	4	5
The National Treasury					
The National Treasury always provide our entity with technical assistance on implementation and operation of public procurement					
The national treasury regularly issues guidelines to our entity with respect to all procurement matters					
The national treasury always formulates and promote asset disposal policy and standards to improve compliance in our entity					
Public Procurement Regulatory Authority (PPRA)					
PPRA always monitor, assess and review our public procurement and asset disposal activities in our entity					
PPRA regularly monitor the implementation of the preference and reservation schemes in our entity's procurement activities					
PPRA regularly carryout compliance audits of our entity's procurement processes to enforce compliance					
Public procurement Administrative Review Board (PPARB)					
PPARB always provide our entity with fair and reasonable access to its services					
PPARB ensures that all tendering and assets disposal disputes in our entity are investigated					
PPARB ensures that all procurement related cases in our entity are reviewed and determined on time					

15. In your opinion, do you think public procurement regulatory bodies have a moderating effect on the relationship between public procurement practices and sustainable performance of states corporations in Kenya?

YES ( )      NO ( )

If yes kindly explain

.....  
 .....

**PART 6: SUSTAINABLE PERFORMANCE OF STATE CORPORATIONS**

**This section seeks to establish the sustainable performance of state corporations in regard to implementation of the public procurement practices**

16. Please rate in percentage (%) the sustainable performance of your organization based on the following aspects in the past 3-5 years

Sustainable Performance of State Corporations Indicators	Below 5%	5% to 10%	11% to 15%	16% to 20%	Above 20%
<b>Environmental Protection</b>					
The percentage increase in the efficient use of resources for the last 3-5years					
The percentage waste reduction rate for the last 3-5years					
The percentage increase in the use of renewable resources for the last 3-5years					
<b>Financial Growth</b>					
Please indicate the percentage decrease in organizational expenditure for the last 3-5years					
Please indicate the percentage increase in annual revenue for the last 3-5years					
Please indicate the percentage increase in working capital for the last 3-5years					
<b>Social Responsibility</b>					
The percentage increase in customer satisfaction index for the last 3-5years					
The percentage increase in social initiatives participations for the last 3-5years					
The percentage increase in equal access to procurement opportunities for the last 3-5years					

17. In your opinion, do you think Public procurement practices have an effect on sustainable performance of states corporations?

YES ( )      NO ( )

If yes kindly explain.....  
 .....

**Thank you**

### Appendix III: List of State Corporations in Kenya

Purely Commercial State Corporations			
SN	State corporations	Address	Sector
1.	Agro-Chemical and Food Company.	P.O. Box 41175-00100 MUHORONI-KENYA	Agriculture, Livestock & Fisheries
2.	Kenya Meat Commission.	P O Box 2 – 00204. Athi River.	Agriculture, Livestock & Fisheries
3.	Muhoroni Sugar Company Ltd.	P.O. Box 18-40107. MUHORONI-KENYA.	Agriculture, Livestock & Fisheries
4.	Nyayo Tea Zones Development Corporation.	P.O. Box 48552-00100, Nairobi.	Agriculture, Livestock & Fisheries
5.	South Nyanza Sugar Company Limited	P.O Box 107-40405 Sare-Awendo.	Agriculture, Livestock & Fisheries
6.	Chemilil Sugar Company Ltd.	P. O. Box 177 – 40107, Muhoroni.	Agriculture, Livestock & Fisheries
7.	Nzoia Sugar Company Ltd.	P.O. Box 285 Bungoma.	Agriculture, Livestock & Fisheries
8.	Simlaw Seeds Kenya.	P.O. Box 40042, NAIROBI.	Agriculture, Livestock & Fisheries
9.	Simlaw Seeds Tanzania	P.O. BOX 25, ARUSHA.	Agriculture, Livestock & Fisheries
10.	Simlaw Seeds Uganda.	P.O Box 23810, Kampala.	Agriculture, Livestock & Fisheries
11.	Kenya National Trading Corporation (KNTC).	P.O. Box 30587-00100. NAIROBI.	East African Affairs, Commerce & Tourism
12.	Kenya Safari Lodges and Hotels Ltd. (Mombasa Beach Hotel, Ngulia Lodge, Voi Lodge).	P.O. Box 42013 Nairobi	East African Affairs, Commerce & Tourism
13.	Golf Hotel Kakamega.	P.O. Box 118-50100 KAKAMEGA.	East African, Commerce & Tourism
14.	Kabarnet Hotel Limited.	P.O. Box: 256, 30400, Kabarnet.	East African, Commerce & Tourism
15.	Mt Elgon Lodge. .	P.O. Box 7, ENDEBESS	East African, Commerce & Tourism
16.	Sunset Hotel Kisumu.	P.O Box215-40100, Kisumu.	East African, Commerce & Tourism
17.	Jomo Kenyatta Foundation	P.O. Box30533 00100 Nairobi.	Education, Science & Technology
18.	Jomo Kenyatta University Enterprises Ltd.	P.O BOX 4744-30100. ELDORET,	Education, Science & Technology
19.	Kenya Literature Bureau (KLB).	P.O. Box 30022-00100 Nairobi	Education, Science & Technology
20.	Rivatex (East Africa) Ltd.	P.O BOX 4744-30100. ELDORET,	Education, Science & Technology



21.	School Equipment Production Unit.	P.O. Box 25140 - 00603 Nairobi	Education, Science & Technology
22.	University of Nairobi Enterprises Ltd.	P.O. Box 68241- 00200. Nairobi.	Education, Science & Technology
23.	University of Nairobi Press (UONP).	P.O. Box 30197, Nairobi	Education, Science & Technology
24.	Development Bank of Kenya Ltd.	P.O. Box 30483-00100; Nairobi.	Industrialization & Enterprise
25.	Kenya Wine Agencies Ltd (KWAL).	P.O. Box: 84001 - 80100 Mombasa.	Industrialization & Enterprise Development
26.	KWA Holdings.	P.O. Box 40550 - 00100. Nairobi.	Industrialization & Enterprise
27.	New Kenya Co-operative Creameries.	P.O. Box 30131 - 00100 G.P.O. Nairobi.	Industrialization & Enterprise
28.	Yatta Vineyards Ltd.	P.O. Box 30084 - 00100 Nairobi.	Industrialization & Enterprise Development
29.	National Housing Corporation.	P.O. Box 30257-00100. Nairobi	Lands, Housing & Urban Development
30.	Research Development Unit Company Ltd.	P.O. BOX 51834-00200 NAIROBI	Lands, Housing & Urban Development
31.	Consolidated Bank of Kenya	Kenya. P.O. Box 51133 - 00200 Nairobi.	National Treasury
32.	Kenya National Assurance Co. (2001) Ltd.	P.O. Box: 30271-00100 NAIROBI GPO.	National Treasury
33.	Kenya Reinsurance Corporation Ltd.	P.O. Box: 30271-00100 NAIROBI GPO	National Treasury
34.	Kenya National Shipping Line	P.O. Box 30271 - 00100, Nairobi.	Transport & Infrastructure

### State Corporations with Strategic Functions

SN.	State Corporation	Address	Sector
1.	Kenya Animal Genetics Resource Centre.	P.O. Box 23070-00604, Lower Kabete, Nairobi.	Agriculture, Livestock & Fisheries
2.	Kenya Seed Company (KSC)	P.O. BOX 959, NAKURU.	Agriculture, Livestock & Fisheries
3.	Kenya Veterinary Vaccine Production Institute.	P.O. Box 53260-00200. Nairobi.	Agriculture, Livestock & Fisheries
4.	National Cereals & Produce Board (NCPB).	P.O. Box 30586-00100, Nairobi	Agriculture, Livestock & Fisheries
5.	Kenyatta International Convention Centre.	P. O. Box 30746-00100 NAIROBI.	East African Affairs, Commerce & Tourism
6.	Geothermal Development Company (GDC).	P.O. BOX 100746-00101, NAIROBI.	Energy & Petroleum
7.	Kenya Electricity Generating Company (Kengen)	P. O. BOX 9, 70100 GARISSA.	Energy & Petroleum

8.	Kenya Electricity Transmission Company (KETRACO).	P. O. Box 34942 - 00100. NAIROBI.	Energy & Petroleum
9.	Kenya Pipeline Company (KPC).	P.O. Box 9722 – 20100 Nakuru.	Energy & Petroleum
10.	Kenya Power and Lighting Company (KPLC).	P.O. Box: 30099-00100 Nairobi.	Energy & Petroleum
11.	National Oil Corporation of Kenya.	P.O. Box 58567-00200. Nairobi.	Energy & Petroleum
12.	National Water Conservation and Pipeline Corporation.	P.O. BOX 30173-00100 GPO Nairobi.	Environment, Water
13.	Numerical Machining Complex.	P.O. Box 30418-00100, Nairobi	Industrialization & Enterprise Development
14.	Kenya Broadcasting Corporation.	P.O. Box 30456-00100, Nairobi.	Information, Communication & Technology
15.	Postal Corporation of Kenya.	P.O. Box 7055-00100, Nairobi	Information, Communication & Technology
16.	Kenya Development Bank (After merger of TFC, ICDC, KIE, IDB, AFC).	P.O. Box 7055-00100, Nairobi.	National Treasury
17.	Kenya EXIM Bank.	P.O. Box 30238. 00100 Nairobi	National Treasury
18.	Kenya Post Office Savings Bank.	P.O. Box 30311 00100. Nairobi.	National Treasury
19.	Kenya Airports Authority (KAA).	P.O Box 19001 (00501) Nairobi	Transport & Infrastructure
20.	Kenya Ports Authority (KPA)	P.O Box 19001 (00501) Nairobi	Transport & Infrastructure
21.	Kenya Railways Corporation (KRC).	P.O Box 30121 – 00100, Nairobi.	Transport & Infrastructure

### State Agencies - Executive Agencies

SN	State Corporations	Address	Sector
1.	Biashara Kenya  (After merging Small and Micro enterprises Authority, Women Fund, Uwezo Fund and Youth Enterprises Development Authority)	P.O. Box 11353-00100, Nairobi, Kenya.	Industrialization & Enterprise Development
2.	Internal Revenue Service (After transfer of Customs department from KRA).	P.O. Box 149342. . Austin	National Treasury

3.	Kenya Intellectual Property Service (After merging Kenya Copyright Board, Kenya Industrial Property Institute and Anti-Counterfeit Agency)	P.O. Box 34670 00100, Ragati .	Industrialization & Enterprise Development
4.	Kenya Investment Promotion Service (After merging KTB, EPC, Brand Kenya Board & KenInvest)	P.O. Box 55704-00200, NAIROBI, KENYA	Foreign Affairs & International Trade
5.	Konza Technopolis Authority.	P.O. Box 30519-00100. Nairobi.	Information, Communication & Technology
6.	Bomas of Kenya.	P.O. Box 30519-00100. Nairobi.	East African, Commerce & Tourism
7.	Water Services Trust Fund	P. O. Box 49699 - 00100, Nairobi.	Environment, Water & Natural Resources
8.	Leather Development Council.	P.O. Box 14480-00800 Nairobi.	Industrialization and Enterprise Development
9.	Agricultural Development Corporation.	P.O. Box 47101-00100. Nairobi.	Agriculture, Livestock & Fisheries
10.	Anti-Female Genital Mutilation Board	P.O. Box 54760- 00200. Nairobi.	Devolution & Planning
11.	Constituency Development Fund.	P.O. BOX: 22003 - 00523 NAIROBI	Devolution & Planning
12.	Crops Development and Promotion Service (new)	P.O. Box 471 01, Nairobi	Agriculture, Livestock & Fisheries
13.	Customs and Border Security Service (successor to the Kenya Citizens and Foreign Nationals Management Service)	P.O. Box 606. USCIS Nairobi	Interior and Coordination of National Government
14.	Drought Management Authority.	P.O. Box 53547, 00200, Nairobi.	Devolution & Planning
15.	Export Processing Zones Authority (EPZA).	P.O. Box 50563 - 00200. NAIROBI.	Industrialization & Enterprise Development
16.	Financial Reporting Centre.	P.O. Box 60000 - 00200 Nairobi.	National Treasury
17.	Fisheries Development and Promotion Service (new).	P.O. Box 30028-00100 Kenya.	Agriculture, Livestock & Fisheries
18.	Higher Education Loans Board.	P.O. Box 69489-00400, Nairobi.	Education, Science & Technology
19.	Information and Communications Technology Authority.	P.O. Box 27150 - 00100, Nairobi.	Information, Communication & Technology
20.	Investor. Compensation Fund Board.	P.O. Box 43963 – 00100 Nairobi	National Treasury
21.	Kenya Academy of Sports.	P. O. Box 49849-00100.	Sports, Culture & The

		Nairobi, Kenya.	Arts
22.	Kenya Accountants & Secretaries Examination Board (KASNEB).	P. O. Box 41362 Matumbato Cl, Nairobi.	National Treasury
23.	Kenya Deposit Protection Authority.	P.O. Box 45983-00100, Nairobi, Kenya	National Treasury
24.	Kenya Ferry Services Ltd (KFS)	Po Box 96242-80110. Mombasa	Transport & Infrastructure
25.	Kenya Film Development Service.	P.O. Box 69761-00400 Nairobi, Kenya.	Sports, Culture & The Arts Technology
26.	Kenya Institute of Curriculum Development	P.O. Box 30231 – 00100, Nairobi	Education, Science & Technology
27.	Kenya Law Reform Commission.	P.O. Box 34999-00100. NAIROBI	Office of the Attorney General & Department of Justice
28.	Kenya Medical Supplies Authority	P.O. Box 47715 – GPO 00100. Nairobi.	Health
29.	Kenya National Bureau of Statistics.	P.O. Box 30266–00100 GPO NAIROBI.	Devolution & Planning
30.	Kenya National Examination Council (KNEC)	P.O. Box: 73598 00200, Nairobi.	Education, Science & Technology
31.	Kenya National Highways Authority (KeNHA)	P.O. Box 49712 - 00100 Nairobi.	Transport & Infrastructure
32.	Kenya National Innovation Agency	P. O. Box 30623, 00100. Nairobi.	Education Science and Technology
33.	Kenya Ordnance Factories Corporation.	P. O. Box 30623, 00100. Nairobi	Defense
34.	Kenya Roads Board (KRB)	P.O. BOX 73718-00200, NAIROBI.	Transport & Infrastructure
35.	Kenya Trade Network Agency.	P.O. Box 36943-00200-NAIROBI.	National Treasury
36.	Kenya Wildlife and Forestry Conservation Service.	P.O.Box 30513-00100, Nairobi.	Environment, Water & Natural Resources
37.	Kenyatta National Hospital	P.O Box 20723 – 00202. Nairobi.	Health
38.	LAPSSET Corridor Development Authority.	P.O.Box 45008-00100. Nairobi.	Executive Office of the President
39.	Livestock Development and Promotion Service (new).	P.O Box: 469-40300, Homa Bay.	Agriculture, Livestock & Fisheries
40.	Local Authorities Provident Fund	P.O. Box 30084 - 0100. Nairobi.	National Treasury
41.	Moi Teaching and Referral Hospital.	P.O. Box 3-30100, Eldoret,	Health
42.	Nairobi Centre for International Arbitration.	P.O. Box 548-00200 Nairobi.	Office of the Attorney General & Department of Justice
43.	National Aids Control Council.	P.O. Box 61307 - 00200. Nairobi.	Health

44.	National Cancer Institute of Kenya.	P.O. BOX 30016 00100. Nairobi.	Health
45.	National Coordinating Agency for Population & Development	P.O. Box 48994- 00100, Nairobi.	Devolution & Planning
46.	National Council for Law Reporting	P.O Box 10443 - 00100, Nairobi.	Office of the Attorney General & Department Of Justice
47.	National Council for Persons with Disabilities	P.O. Box 66577-00800, Nairobi	Labour, & Social Security Services
48.	National Hospital Insurance Fund	P.O BOX: 30443 - 00100, Nairobi	Health
49.	National Industrial Training Authority	P.O. Box 74494 - 00100 Nairobi	Labour, & Social Security Services Move to Industrialization and Enterprise Development
50.	National Irrigation Board.	P.O Box 30372, 00100 NAIROBI, KENYA.	Agriculture, Livestock & Fisheries
51.	National Museums of Kenya	P.O Box 30372, 00100 NAIROBI	Sports, Culture & The Arts
52.	National Quality Control Laboratories.	P.O. Box 45219-00100. Nairobi,	Health
53.	National Social Security Fund Board of Trustees.	P.O. Box 30599 – 00100, Nairobi	Labour, & Social Security Services
54.	National Youth Council	P.O. BOX 37899-00100. NAIROBI	Sports, Culture & The Arts
55.	Nuclear Electricity Board.	P.O. Box 26374-00100. Nairobi	Energy and Petroleum
56.	Policy Holders Compensation Fund.	P.O. Box: 24203-00100, Nairobi, Kenya	National Treasury
57.	Sports Kenya.	P. O. Box 30084 - 00100, NAIROBI.	Sports, Culture & The Arts
58.	The Kenya Cultural Center	P.O. Box 43031, Harry Thuku Rd Nairobi	Sports, Culture & The Arts
59.	Tourism Fund	P.O Box 46987-00100, Nairobi	East African Affairs, Commerce & Tourism
60.	Unclaimed Financial Assets Authority	P.O Box 28235-00200, Nairobi	National Treasury
61.	Water Resources Management Authority	P.O.Box: 45250-00100 Nairobi GPO	Environment, Water & Natural Resources
62.	National Campaign Against Drug Abuse Authority	P.O.Box: 45250-00100 Nairobi GPO	Interior & Coordination of National Government

### State Agencies - Independent Regulatory Agencies

SN.	State corporations	Address	Sector
1.	Agricultural, Fisheries and Food Authority	P.O Box 37962 – 00100, Nairobi	Agriculture, Livestock & Fisheries
2.	Commission for University Education	P.O. Box 54999 – 00200, Nairobi	Education, Science & Technology
3.	Communications Commission of Kenya	P.O. Box 54999 – 00200, Nairobi	Information, Communication & Technology
4.	Competition Authority	P.O. Box 36265-00200. Nairobi	National Treasury
5.	Council for Legal Education	P.O Box 829 – 00502. Karen, Nairobi	Office of The Attorney General & Department of Justice
6.	Energy Regulatory Commission	P.O. Box 42681-00100, Nairobi.	Energy & Petroleum
7.	Health Services Regulatory Authority.	P.O. Box: 30016–00100, Nairobi, Kenya.	Health
8.	Kenya Bureau of Standard (KBS)	P.O. Box 30084, NAIROBI	Industrialization & Enterprise Development
9.	Kenya Civil Aviation Authority (KCAA)	P.O. Box 19001-00501, Nairobi	Transport & Infrastructure
10.	Kenya Film Regulatory Service	P.O. Box 69761-00400 Nairobi	Sports, Culture & The Arts
11.	Kenya Maritime Authority	P.O. Box 95076 - 80104 Mombasa, Kenya	Transport & Infrastructure
12.	Kenya National Accreditation Service	P. O. Box 47400 - 00100 Nairobi.	Industrialization & Enterprise Development
13.	Kenya Plant and Animal Health Inspectorate Service  (After taking over functions of National Biosafety Authority)	P.O. Box 00100-49592, Nairobi	Agriculture, Livestock & Fisheries
14.	Livestock Regulatory Authority.	P. O. Box 30028-00100 Kenya.	Agriculture, Livestock & Fisheries
15.	National Commission for Science, Technology and Innovations	P.O. Box 30623, 00100. Nairobi	Education, Science & Technology
16.	National Construction Authority	P. O. Box 80343-801000, Mombasa.	Lands Housing & Urban Development
17.	National Environmental Management Authority (NEMA)	P.O. BOX: 67839-00200, Nairobi.	Environment, Water & Natural Resources
18.	National Land Transport & Safety Authority.	P.O. BOX 52692-00200, Nairobi	Transport & Infrastructure
19.	Public Benefits Organizations Regulatory	P. O. Box 56445, Nairobi, Kenya	Devolution & Planning

	Authority		
20.	Public Procurement Oversight Authority.	P. O. Box 58535 – 00200, NAIROBI.	National Treasury
21.	Technical and Vocational Education and Training Authority.	P.O.Box 35625–00100, Nairobi	Education, Science & Technology
22.	Tourism Regulatory Authority	P.O. Box 25357-00100, Nairobi, KENYA.	East African Affairs, Commerce & Tourism
23.	Water Services Regulatory Board.	P.O. BOX 41621-00100, Nairobi.	Environment, Water & Natural Resources
24.	Financial Supervisory Council (After merger of Capital Markets Authority, Insurance Regulatory Authority, Retirement Benefits Authority, and SACCO Societies Regulatory Authority).	P.O BOX 43505 - 00100 NAIROBI	National Treasury
25.	Mining and Oil Exploration Regulatory Service	P.O. Box 10443-00100. NAIROBI.	Mining

**State Agencies - Research Institutions, Public Universities, Tertiary Education and Training Institutions**

SN.	State Corporation	Address	Sector
1.	Bukura Agricultural College	<b>P.O BOX 23 - 50105</b> Bukura	Agriculture, Livestock & Fisheries
2.	Chuka University	<b>P.O. Box, 109 - 60400,</b> Chuka	Education, Science & Technology
3.	Cooperative University College	<b>P.O. Box 24814-00502</b> Karen, Nairobi	Education, Science & Technology
4.	Dedan Kimathi University	<b>P.O. Box 657 10100 -</b> Nyeri	Education, Science & Technology
5.	Egerton University	<b>P.O. Box 536</b> Egerton	Education, Science & Technology
6.	Embu University College.	<b>P.O. BOX 6 - 60100.</b> <b>Embu</b>	Education, Science & Technology
7.	Garissa University College	<b>P.O. Box 1801, Garissa</b>	Education, Science & Technology
8.	Jaramogi Oginga Odinga University of Science and Technology	<b>P.O. Box 210 - 40601</b> Bondo	Education, Science & Technology
9.	Jomo Kenyatta University of Agriculture And Technology	<b>P.O. Box 62000 – 00200,</b> Nairobi,	Education, Science & Technology
10.	Karatina University	<b>P.O. BOX 1957—10101,</b> <b>Karatina,</b>	Education, Science & Technology

11.	Kenya Agricultural and Livestock Research Organization.	P.O. Box 57811, City Square, NAIROBI	Agriculture, Livestock & Fisheries
12.	Kenya Forestry Research Institute	P.O. Box 20412 - 00200 Nairobi	Environment, Water & Natural Resources
13.	Kenya Industrial Research & Development Institute.	P.O. BOX 30650 - 00100, NAIROBI.	Industrialization & Enterprise Development
14.	Kenya Institute of Mass Communication	P.O. BOX 42422, Nairobi 00100	Information, Communication & Technology
15.	Kenya Institute of Public Policy Research & Analysis (KIPPRA).	P.O. Box 56445-00200, Nairobi	Devolution & Planning
16.	Kenya Marine and Fisheries Research Institute.	P.O. Box 81651 080100 Mombasa	Agriculture, Livestock & Fisheries
17.	Kenya Medical Research Institute (KEMRI)	P.O. Box, 54840-00200, Nairobi	Health
18.	Kenya Medical Training College (KMTC).	P.O. BOX 30195-00100, Nairobi.	Health
19.	Kenya Multi-Media University.	P.O. Box 30305 - 00100. Nairobi	Education, Science & Technology
20.	Kenya School of Government.	P.O. Box 91 – 30400 Kabarnet.	Devolution & Planning
21.	Kenya School of Law.	P.O. Box 30369 – 00100, Nairobi	Office of The Attorney General & Department Of Justice
22.	Kenya Utalii College (KUC).	P.O. Box 31052-00600 Nairobi.	East African Affairs, Commerce & Tourism
23.	Kenya Water Institute. .	P.O. BOX 60013 – 00200, NAIROBI	Environment, Water & Natural Resources
24.	Kenyatta University.	P.O. Box 43844-00100. Nairobi.	Education, Science & Technology
25.	Kibabii University College.	P.O. Box 1699-50200. BUNGOMA	Education, Science & Technology
26.	Kirinyaga University College.	P.O. Box 143-10300 Kerugoya.	Education, Science & Technology
27.	Kisii University.	P.O. Box 408-40200, Kisii	Education, Science & Technology
28.	Laikipia University	P.O. Box 1100 – 20300. Nyahururu.	Education, Science & Technology
29.	Maasai Mara University	P.O. Box 861-20500, Rift valley.	Education, Science & Technology
30.	Machakos University College.	P.O. BOX 136 – 90100, Machakos.	Education, Science & Technology
31.	Maseno University.	P.O. Box 50881-00100, NAIROBI.	Education, Science & Technology



<b>32.</b>	Masinde Muliro University of Science and Technology.	<b>P.O Box</b> 190-50100. Kakamega	Education, Science & Technology
<b>33.</b>	Meru University of Science and Technology	<b>P.O. Box</b> , 972-60200. <b>Meru</b>	Education, Science & Technology
<b>34.</b>	Moi University	<b>P.O. Box</b> 1948 - 30100, Eldoret	Education, Science & Technology
<b>35.</b>	Murang'a University College	<b>P.O Box</b> 75-10200, <b>Murang'a.</b>	Education, Science & Technology
<b>36.</b>	National Crime Research Center	<b>P.O. Box</b> 21180-00100. NAIROBI.	Office of the Attorney General & Department of Justice
<b>37.</b>	Pwani University	<b>P.O. BOX</b> 195 KILIFI	Education, Science & Technology
<b>38.</b>	Rongo University College	<b>P.O. Box</b> 103-40404, Rongo	Education, Science & Technology
<b>39.</b>	South Eastern Education, Science and Technology Kenya University	<b>P.O BOX</b> 170-90200, Kitui	Education, Science & Technology
<b>40.</b>	Taita Taveta University College	<b>P.O. Box</b> 635 - 80300, Voi	Education, Science & Technology
<b>41.</b>	Technical University of Mombasa.	<b>P.O. Box</b> 90420 - 80100, Mombasa	Education, Science & Technology
<b>42.</b>	The Technical University of Kenya.	<b>P.O. Box</b> 52428 - 00200. Nairobi	Education, Science & Technology
<b>43.</b>	University of Eldoret.	<b>P. O. Box</b> 1125-30100 Eldoret	Education, Science & Technology
<b>44.</b>	University of Kabianga	<b>P.O Box</b> 2030 - 20200 Kericho	Education, Science & Technology
<b>45.</b>	University of Nairobi.	<b>P.O. Box</b> 30197, GPO, Nairobi.	Education, Science & Technology

**Government of Kenya (2019)**