RELATIONSHIP BETWEEN GREEN SUPPLY CHAIN PRACTICES, GREEN TRANSFORMATIONAL LEADERSHIP AND SUSTAINABLE PERFORMANCE OF MULTINATIONAL TEA FIRMS IN KENYA

REBBY CHEPKOECH

A Thesis Submitted to the Board of Graduate Studies in Partial Fulfilment of the Requirements for the Conferment of the Degree of Doctor of Philosophy in Business Administration (Procurement Option) of the University of Kabianga

UNIVERSITY OF KABIANGA

OCTOBER 2024

DECLARATION AND APPROVAL

Declaration

This thesis is my original work and has not been submitted for examination in University of Kabianga or any other institution for the award of a diploma or conferment of a degree.

Signature: …….. Date: ……..

REBBY CHEPKOECH

PHD/BSA/006/20

Approval

This thesis has been submitted with our approval as the university Supervisors.

Signature: …….. Date ……..

Dr. Pauline Keitany

Department of Marketing, Management Science, Tourism and Hospitality

University of Kabianga

Signature: …….. Date: ……..

Dr. Alfred Bett

Department of Marketing, Management Science, Tourism and Hospitality

University of Kabianga

COPYRIGHT

DEDICATION

ACKNOWLEDGEMENT

This thesis would not have been accomplished without the support and contributions of others. The names of those mentioned here are but representative of the many I also wish to sincerely thank the Almighty God for offering me life and profound grace. Finally, to all those who in one way or the other, contributed significantly to

ABSTRACT

Performance of firms has remained a global issue based on changes in climate and global warming among others. This issue has forced countries to adopt green strategies so as to reduce the effect of climate change on business sustainability. Climate change affect agricultural-processing firms directly leading to poor performance. Green supply chain practices and green transformational leadership are concepts introduced to businesses as a leap to solving problem of sustainable performance. The aim of this study was to determine the relationship between green supply chain practices, green transformational leadership and sustainable performance of multinational tea firms in Kenya. The specific objective were; to determine the relationship between eco-design practices; to establish the relationship between green purchasing practices, to examine the relationship between green logistics practices and to assess the relationship between environmental regulation and sustainable performance of multinational tea firm in Kenya. Further, the study sought to determine the moderating effect of green transformational leadership on the relationship of green supply chain practices on sustainable performance of multinational tea firm in Kenya. Sustainable resource theory, stakeholder theory, ecological modernization theory and Porter's value chain model were adopted in the study. The study adopted positivism philosophy with correlational and cross-sectional research design. A sample of 225 managers were selected using stratified sampling technique from a target population of 512 managers from the three multinational tea firms in Kenya. The study mainly used primary data collected using structured questionnaires. Content, face, criterion and construct validity of the instrument were achieved through interrogation of instrument by supervisors and experts. Reliability was tested using Cronbach Alpha coefficient having a threshold of more than 0.7 which was deemed reliable. Descriptive statistics were analyzed in form of Mean and Standard deviation. Multiple linear regression model and correlation analysis was used for data analysis. The multiple linear regression analysis indicated a weak relationship (R^2 = 0.034, F= 7.411; p<0.05). The results further showed that eco-design predicted significant relationship with sustainable performance ($\beta 1 = .051$, t= 2.722; p<0.05). The results further indicated that the linear relationship between green purchasing and sustainable performance was weak (R^2 = 0.073, F= 16.578; p<0.05). Green purchasing predicted significant relationship with sustainable performance ($\beta 1 = .119$, t= 4.072; p<0.05). The results (R^2 = 0.017, F= 3.640; p<0.05) indicated a weak linear relationship between green logistics and sustainable performance. The correlation results between environmental regulation and sustainable performance was insignificant (r = 0.013, p>0.05). The results on green transformational leadership indicated significant relationship with sustainable performance ($\beta 1 = .207$, t= 5.16; p<0.05). The R^2 value showed that green transformational leadership had a positive impact on sustainable performance (R^2 = 0.113, F=26.621; p<0.05). On the moderator there was a positive change of R^2 (0.099) indicating that it had a moderating effect on the relationship between Green supply chain practices and sustainable performance. The study recommends that multinational tea firms in Kenya should put resources in not only developing eco-design, green logistics, green purchasing and environmental techniques but also on the operationalization of the same. The study further recommends that the multinational tea firms should consider having a green transformational leader in place who will be charged with ensuring green procurement practices are operationalized. The findings may be useful to agricultural manufacturing companies in curbing wastage, improve environment as well as

economic benefit. This may benefit the Kenyan government in implementing green solutions.

TABLE OF CONTENTS

DECLARATION AND APPROVAL ..... **ii**
COPYRIGHT ..... **iii**
DEDICATION ..... **iv**
ACKNOWLEDGEMENT ..... **v**
ABSTRACT ..... **vi**
LIST OF TABLES ..... **xii**
LIST OF FIGURES ..... **xiv**
LIST OF ABBREVIATIONS AND ACRONYMS ..... **xv**
CONCEPTUAL AND OPERATIONAL DEFINITION OF TERMS ..... **xvi**
CHAPTER ONE **1**
INTRODUCTION **1**
1.1 Overview 1
1.2 Background on the Study 1
1.2.1 Green Supply Chain Practices 6
1.2.2 Green Transformational Leadership 12
1.2.3 Sustainable Performance of Firms 19
1.2.4 Multinational Tea Firms in Kenya 21
1.3 Statement of the Problem 22
1.4 Objectives of the Study 24
1.4.1 General Objective 24
1.4.2 Specific Objectives 24
1.5 Research Hypothesis 25
1.6 Justifications of the Study 25
1.7 Significance of the Study 26
1.8 Scope of the Study 27
1.9 Limitation and Delimitation of the Study 28
1.10 Assumptions of the Study 28
CHAPTER TWO **30**
LITERATURE REVIEW **30**
2.1 Introduction 30

2.2 Theoretical Framework 30
2.2.1 Ecological Modernization Theory (EMT) 30
2.2.2 Brundtland Theory 32
2.2.3 Institutional Theory 33
2.2.4 Porter's Value Chain Model 34
2.3 Literature Review 35
2.3.1 Eco-design Practices and Performance of Tea Firms in Kenya 36
2.3.2 Green Purchasing Practices and Performance of Firms 41
2.3.3 Green Logistics Practices and Performance of Firms 45
2.3.4 Environmental Regulation and Performance of Firms 49
2.3.5 Green Tranformational Leadership 52
2.3.6 Sustainable Performance of Firms 55
2.4 Conceptual Framework 59
2.5 Knowledge Gaps 61
CHAPTER THREE 70
RESEARCH METHODOLOGY 70
3.1 Introduction 70
3.2 Research Design 70
3.3 Area of Study 71
3.4 Target Population 72
3.5 Sample Size and Sampling Procedure 73
3.5.1 Sample Size 73
3.5.2 Sampling Procedures 73
3.6 Data Collection Instrument 75
3.7 Validity and Reliability of Research Instrument 75
3.7.1 Validity of the Instrument 75
3.7.2 Reliability of the Instrument 76
3.8 Data Collection Procedures 78
3.9 Data Analysis and Presentation 78
3.9.1 Simple Linear Regression Models 79
3.9.2 Multiple Linear Regression Model 80
3.9.3 Moderated Multiple Linear Regression Model 81
3.10 Diagnostic Tests 82
3.10.1 Multicollinearity Test 82

Multicollinearity Test 83
3.10.2 Normality Test 83
3.10.3 Linearity Test 84
3.10.4 Heteroscedasticity Test 84
3.10.5 Autocorrelation 85
3.11. Research Ethics 86
CHAPTER FOUR 87
RESULTS AND DISCUSSION 87
4.1 Overview 87
4.2 Response Rate 87
4.3 Demographic Information of the Respondents 88
4.3.1 Level of Management in the Organization 88
4.3.2 Highest Level of Education 89
4.3.3 Number of Years in the Organization 90
4.4 Descriptive Statistics 91
4.5 Green Supply Chain Practices 91
4.5.1 Eco-Design Practices 92
4.5.2 Green Purchasing 94
4.5.3 Green Logistics 98
4.5.4 Environmental Regulation 100
4.5.5 Green Transformational Leadership 102
4.5.6 Sustainable Performance of the Firm 105
4.7 Inferential Statistics 107
4.7.1 Pearson Correlation Analysis 107
4.7.2 Analysis of Variances (ANOVA) 110
4.7.3 Multiple Regression Analysis 110
4.8 Test of Research Hypothesis 113
4.8.1 Eco-Design and Sustainable Performance of the Firm 113
4.8.2 Green Purchasing and Sustainable Performance of the Firm 116
4.8.3 Green Logistics and Sustainable Performance of the Firm 119
4.8.4 Environmental Regulation and Sustainable Performance of the Firm . . 121
4.8.5 Regression Analysis for Green Transformational Leadership and Sustainable Performance of the Firm 123
4.9 Summary of Results of Tests of Hypotheses 132

CHAPTER FIVE 133
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS 133
5.1 Introduction 133
5.2 Summary of the Findings 134
5.2.1 Eco-Design and Sustainable Performance of Multinational Tea Firm in Kenya 134
5.2.2 Green Purchasing and Sustainable Performance of Multinational Tea Firm in Kenya 134
5.2.3 Green Logistics and Sustainable Performance of Multinational Tea Firm in Kenya 135
5.2.4 Environmental Regulation and Sustainable Performance of Multinational Tea Firm in Kenya 135
5.2.5 Effect of Green Transformational Leadership on the Relationship Between Green Supply Chain Practices and Sustainable Performance of Multinational Tea Firm in Kenya. 136
5.3 Conclusions 136
5.3.1 Eco-design and Sustainable Performance of Multinational Tea Firm in Kenya 136
5.3.2 Green Purchasing and Sustainable Performance of Multinational Tea Firm in Kenya 137
5.3.3 Green Logistics and Sustainable Performance of Multinational Tea Firm in Kenya 137
5.3.4 Environmental Regulation and Sustainable Performance of Multinational Tea Firm in Kenya 137
5.3.5 Effect of Green Transformational Leadership on the Relationship Between Green Supply Chain Practices and Sustainable Performance of Multinational Tea Firms in Kenya. 138
5.4 Recommendations. 138
5.5 Suggestions for Further Research. 139
REFERENCES 140
APPENDICES 164
APPENDIX I: INTRODUCTION LETTER 164
APPENDIX II: QUESTIONNAIRE 166
APPENDIX III: MAP OF BOMET COUNTY 173

APPENDIX IV: MAP OF KERICHO COUNTY 174
APPENDIX V: NACOSTI PERMIT 175
APPENDIX VI: CLEARANCE LETTER. 176
APPENDIX VII: AUTHORIZATION LETTER 177

LIST OF TABLES

Table 2.1 Summary of Empirical Literature Review 62

Table 3.1 Population Framework 721

Table 3.2 Sample Framework 743

Table 3.3 Reliability Statistics 77

Table 3.4 Multicollinearity Test ..... **Error! Bookmark not defined.**2

Table 3.5 Normality Test 83

Table 3.6 Linearity Test 843

Table 3.7 Heteroscedasticity Test 854

Table 3.8 Autocorrelation 865

Table 4.1 Response rate 887

Table 4.2 Level of Management in the Organization 887

Table 4.3 Highest Level of Education 898

Table 4.4 Number of Years in the Organization 89

Table 4.5 Eco-Design 921

Table 4.6 Green Purchasing 964

Table 4.7 Green Logistics 986

Table 4.8 Environmental regulation 1019

Table 4.9 Green Transformational Leadership Practices 1031

Table 4.10 Sustainable Performance of the Firm 1064

Table 4.11 Correlation Analysis 1086

Table 4.12 Analysis of Variances (ANOVA) 1108

Table 4.13 Model Summary. 11109

Table 4.14 Beta Coefficients 11210

Table 4.15 Regression Analysis for Eco-Design and Sustainable Performance of Multinational Tea Firms 1142

Table 4.16 Regression Analysis for Green Purchasing and Sustainable Performance of Multinational Tea Firms 1175

Table 4.17 Regression Analysis for Green Logistics and Sustainable Performance of Multinational Tea Firms 1197

Table 4.18 Regression Analysis for environmental regulation and Sustainable Performance of Multinational Tea Firms 12220

Table 4.19 Regression Analysis for Green Transformational Leadership and Sustainable Performance of Multinational Tea Firms 1242

Table 4.20 Model Summary for Moderated Linear Regression Analysis of the Moderating Variable Green Transformational Leadership 1264

Table 4.21 Summary of Results of Tests of Hypotheses. 13230

LIST OF FIGURES

Figure 2.1: Conceptual Framework 60

LIST OF ABBREVIATIONS AND ACRONYMS

ANOVA	Analysis of Variance
GOI	Green Organizational Innovation
GPP	Green Public Procurement
GSC	Green Supply Chain
GSCM	Green Supply Chain Management
GSCP	Green Supply Chain Practices
GSMP	Green Supply Management Practices
GTL	Green Transformational Leadership
HR	Human Resource
ICT	Information, Communication and Technology
KEMSA	Kenya Medical Supplies Authority
KNBS	Kenya National Bureau of Statistics
LCA	Life Cycle Assessment
MRA	Moderated Regression Analysis
NACOSTI	National Commission for Science Technology and Innovation
OECD	Organization for Economic Cooperation and Development
R&D	Research and Development
RBV	Research Based View
SDGs	Sustainable Development Goals
SEM	Structural Equation Modelling
SPSS	Statistical Package of Social Science
UK	United Kingdom
VIF	Variance Inflation Factor

CONCEPTUAL AND OPERATIONAL DEFINITION OF TERMS

Eco-design According to Thamsatitdej, Boon-itt, Samaranayake, and Wannakarn (2017), the environmental aspect refers to integration into the design of products and services throughout their entire life. The term in the study was used to mean measured reusable packaging, resource saving and efficiency of product.

Environmental Regulation According to Yang & Sheu (2011) environmental regulation refers to policies, procedure and strategies that are set in the organization to regulate impact of firm operations on the environment. In the study environmental regulation was used to mean examining green strategies, environmental policies, environmental procedures and green disclosure.

Green Logistics It describes the systems and procedures used in the transportation and logistics sector to enhance productivity, lower carbon emissions, and find environmentally friendly answers to market problems (Mlashkova, 2021). In the study green logistics was used to mean a measure in terms of turn around routing, reduction of wastage, life cycle assessment and inventory management.

Green Purchasing It is the purchase of goods and services that, when compared to equivalently priced alternatives, have a lesser or less significant impact on human health and the environment (University of Louisville, 2021). The study used green purchase to mean recyclable inventory, reduced inventory usage, green inventory and

	improved raw material.
Green Supply Chain Practices	It refers to environmental practices that integrate sustainable management process in traditional supply chain (Vachon & Klassen, 2016). The term was operationalized in the study to mean purchasing practices, reverse logistics practices and green logistics and eco-design practices.
Green Transformational Leadership	According to Chen, Chang & Lin, (2014) refers to a leader who inspires subordinates to perform above and beyond expected levels of environmental performance. The study used it to mean the measure in terms of green inspiration, green mindfulness and green self-efficacy.
Sustainable Performance	It refers to the measure of organizational output in terms of environmental, social and economic output (Antwi, Agyapong, & Owusu, 2022). The study used it to mean the output as result of green supply chain practices.

CHAPTER ONE

INTRODUCTION

1.1 Overview

Introduction provides an overview of green supply chain practices, green transformational leadership and performance of multinational Tea firms. These entails background, problem, objectives, justification, significance, scope and limitation of the study.

1.2 Background on the Study

Complexity in business environment with climate change has been one of the problems that needs multidimensional approach since it affects environmental, social, operational and economic performance (Qorri, Mujkic, Gashi, & Kraslawski, 2018). Garza (2013) argues that creating appropriate green supply chain practices would guarantee long-term sustainable development that would take care of future generations. Green supply chain practices mitigates the effect of rising population, depletion of natural resource, increase in pollution, wastages and regulate high carbon emission from large manufacturing companies (Younis, Sundarakani, & Vel, 2016).

For decades, environmental issues have been increasing and traveling faster than forest fire, country to region, region to world level territory, which is a serious cause of climate change and global warming. In addition, scarcity of natural resources and air and water pollution badly affect the fauna and flora, human life with different diseases such as ischemic heart disease, lung cancer, chronic obstruction pulmonary disease, stroke, Dracunculiasis, Cholera, Hepatitis, Typhoid fever, and Norovirus (SAR, Dong, Wei, Khalid, & Yu, 2017).

While, the green supply chain practices occurs to mitigate environmental degradations and control air, water and waste pollution through the adoption of green practices in business operations. Undeniably, the basic ideology behind green concept is to enhance environmental sustainability, but firms adopt green concept as "kill two enemies with one bullet". Because green supply chain practices can reduce the environmental pollution and production costs and it also can spur economic growth, create competitive advantage in terms of greater customer satisfaction, positive image and reputation and provide better opportunity to export their products in pro-environmental countries (Khan & Dong, 2017).

Globally, as the environmental awareness is increasing, firms are facing heavy pressure from different stakeholders including government and customers to mitigate their harmful effect on the environment (Luthra, Garg & Haleem, 2016). Indeed, corporate sector needs to consider integrating their business practices in service and manufacturing industry with sustainability and reducing end-to-end supply chain costs to achieve competitive advantage (Gunasekaran & Spalanzani, 2012). In the last couple of decades, growing impacts of global warming, climate change, waste and air pollution issues have involved increasing world-wide attention of experts to think more eco-friendly and find optimum possible solution towards "Green" (Rostamzadeh, Govindan, Esmaeili, & Sabaghi, 2015). Rath (2013) identified that GSCP (green supply chain practices) plays part in motivating organizational sustainability. With the environmental concerns rising continuously, GSCP deserves a persistent community concern in developed nations. Further, it has recently woken up the developing nations to the green movement (Kumar, Jain & Kumar, 2014).

In order to obtain a long-term production in organizations there is need to adopt green economy strategies, policies and concepts.

Supply chain controls entire life cycle of product from manufacturing to end product from supplier, manufacturers, warehouses, distributors and retail to the end consumer (Sahar, Afifudin, &Indah, 2020). Green supply chain Practice (GSCP) is a concept of integrating environmental processes through the use of green strategies and technologies into the traditional supply chain. These strategies are applied at sourcing through green purchasing, manufacturing through eco-designing, distribution through green logistics and management through environmental regulation.

GSCP involves driving value creation throughout the supply chain organizations in order to reduce overall environmental impact rather than merely attempting to mitigate the environmental impact of the supply chain (Omonge, 2012). The reduction of carbon dioxide emissions and the achievement of measurable benefits for an organization are frequently the focus of GSCP. An organization benefits from increased asset efficiency, decreased waste production, increased innovation, lower production costs, reuse of raw materials, higher profitability, and client perception of value addition (Thoo, Huam, Zuraidah & Siti, 2015).

Green supply chain practices envisage environmental regulation, green logistics, eco-design, and green purchasing (Padash, Eldhendi, & Ardestani, 2015). Maruf (2013) asserts that the GSCP has a significant impact on the organization's operations and environment. Green supply chain has adopted green logistics in logistics to ensure green recycling, waste reduction, life cycle analysis, and environmentally friendly design (Sari & Yanginlar, 2014). Green logistics includes the use of reverse logistics which encourage reusable product, recycling product, end life product re-use and reduction of harmful product. Green purchasing is a green supply chain practices that enables the firms to reduce wastage in raw material, reduction of carbon emission

material, green material that reduce electric wastage and improvement of materials (Gajendrum, 2017).

The process of eco-design has been used by industries as green supply chain management to design product and packaging that reduce waste, reusable packages, recyclable packages and products. Organizations that focuses on green supply chain management have developed environmental regulation that governs the implementation and management of environment (Elmagrhi, Ntim, Elamer, & Zhang, 2018).

Zhang, Xu, & Wang (2020) argues that green supply chain practices require green transformative leadership to achieve goals in the organization. This is important in implimentation of the green supply chain practices for economic growth. Green transformational leadership is an important part that contributes to sustainable development since it enhances green creativity and innovation which is important in green procurement (Shah, Sukamani, & Kusi, 2020). Green transformation leaders implement green supply practices through the use of green innovation, green inspiration, green mindfulness, and green self-efficacy to improve environmental performance (Singh, Del-Giudice, Chierici, & Graziano, 2019). A green transformational leadership is seen to be able to affect green performance in the firm through adoption of green self-efficacy and green mindfulness (Chen, Chang & Lin, 2014).

Globally, green supply chain practices have advanced through concern for economic, social and environment performance. In Pakistan, organization have adopted internal environment management, eco-design, customer cooperation, green communication, green purchasing and investment recovery as GSMP that would assist organization to develop corporate image. Thoo, Huam, Zuraidah & Siti (2015) examined Green

products, process design, environmental collaboration and environmental practices and found out to have a significant influence on sustainable performance.

Green logistic, reverse logistics, green purchasing and environment cooperation were also conceptualized as green supply chain practices in Saudi Arabia (Younis, Sundarakani & Vel, 2015).

In Malaysia, green supply chain practices has been rapidly expanding in order to include environmental conservation. The firms have invested in green design, green information technology, industrial symbiosis, reverse logistics and carbon management practices to combat the effect of carbon on environment (Islam, Karia, Fauzi, & Soliman, 2017). There is an increase in effort in innovations that are geared in incorporating green supply chain consent in the manufacturing, agricultural and transport section all over the global due to increased concern on the impact of carbon to environment. Developed world have enhanced their supply chain cutting carbon emission through adoption of green technology.

Regionally, there is slow adoption of green strategies as result of low economic capacity for green technology. Green supply chain practices have been possible through adoption of green technologies (Chu & Mbohwa, 2018) in South Africa. Similar, studies in South Africa by Ojo, Mbohwa & Akinlabi (2013) indicate that green supply chain practices is increasing by being adopted in developing countries in Africa.

In Kenya, banking sector have adopted green supply chain practices for competitiveness among commercial banks (Omonge, 2012). Reduction in waste level, offering superior services, increased customer based and operational efficiency were some of the green supply chain practices in commercial banks in Kenya. A study by

Kebenei (2016) used green manufacturing, operation and reverse logistic as well as green procurement to represent green supply chain practices. Green supply chain practices were found to have significant relationship with organization productivity.

The green supply chain practices in multinational tea firms in Kericho is part of a new concept to ensure economic development. Multinational tea Companies are among large scale tea manufacturing companies comprising Ekaterra Tea Limited, James Finlays Limited and George Williamson Limited (Charhai, 2014). The three companies are not only responsible for taking care of Mau Forest but create a buffer zone for local people from encroaching the forest. Hence, becoming the ideal institution to examine measures put in place to ensure that the environment is maintained as well as reduce cost of production to achieve performance.

1.2.1 Green Supply Chain Practices

The importance of GSCP has been growing over years, most organizations are investing in green supply chain initiatives to beat market competition and build brand image. Some of the green supply chain practices are green procurement, reverse logistics, customer cooperation on environmental initiatives, investment recovery and eco-design, internal environmental management, environment management system adoption such as ISO 14001, green manufacturing and packaging, environmental participation, green marketing, green suppliers, energy conservation and environmental collaboration with suppliers and customers (Jasne et al., 2018).

The aspect of supply chain practices gained popularity in the 1970s, thereafter green supply chain management captured the attention of all, such that almost every business organization has focused on sustainability irrespective of the size or nature, to the extent of integrating green initiatives into their strategic plans (Jasne et al.,

2018). The green supply chain framework involves adoption of green initiatives at different stages of the supply chain right from product design to sourcing, manufacturing, distribution, until product recovery.

It is considered as one of the main efforts aiming to integrate environmental parameters within the supply chain management systems (Jasne et al., 2017).

Due to worries about the rise in global temperatures causing unpredictable weather that would affect the production, food security, and other sectors, green logistics has gained popularity. The main components of green supply chain practices are eco-design, green procurement, reverse logistics, and green logistics. In order to ensure environmental management and carbon emission reduction, green strategies are required. To ensure sustainable performance, this is crucial (Padash, Bidhendi & Ardestani, 2015). Qorri, Mujkić, Gashi and Kraslawski (2018) found that green supply chain practices had significant influence on economic, environmental and social performance. The study also found that, firm size, geographical region and industry type had moderating effect on green supply chain practices. Green innovation is important in acceleration of adoption of green supply chain practices in improving both environmental and economic performance (Shafique, Asghar & Rahman, 2017) improving both environmental and economic performance.

According to Monteiro, Silva, Ramos, Campilho, & Fonseca (2019) eco-design practice entails green packaging which eliminates the pollution of packages through recycling, reuse or use of bio-degradable. Rosen & Kishawy (2012) emphasizes that eco-design of products ensures that end use of the product reduce pollution and improve environment. It is therefore important to evaluate product development, environmental impact of product through examining the product life assessment and recycling material (Thoo, Huam, Zuraidah & Siti, 2015).

Green purchasing is an important aspect of green supply chain practice (Younis, Sundarakani & Vel, 2015).

This is achievable through recyclable inventory, reduced inventory usage, green inventory and resource reduction. Green purchase or procurement enables the control of carbon footprint and pollution at onset of input or sourcing in green supply chain (Lăzăroiu, *et al.*, 2020).

Green logistics practices act as the main interlink from one process to the next in green supply chain. This start from inbound green logistics which involves the control of incoming material where it is important to control carbon emission (Sari & Yanginlar, 2014). Green distribution and outbound green logistics are important green logistics practices that are done on finished product until it reaches the final customer. Reverse logistics is a green logistics practice that allows the firm to reuse and recycle products and packages by returning to the manufacturer (Ahmed, Hui, Ahmed, Tarek & Mahmoud, 2020).

Environmental legislation is crucial in enabling green dynamic capability and tenable innovation to improve performance of firms (Xing, Liu, Shen, & Wang, 2020). Ramanathan, He, Black, Ghobadian, & Gallear (2017) asserts that environmental regulation are achieved by firms that are adopt dynamic approach to environmental regulations innovatively. Elmagrhi, Ntim, Elamer, & Zhang (2018) also found that environmental policies and regulation can be achieved through implimentation of environmental strategies, enviromental implementation and environmental disclosure. Borsatto, Bazani, & Amui (2020) pointed that countries' environmental regulation had positive impact on green innovatoin that results to global compact and environmental investment.

According to Vachon & Klasses (2016), the green supply chain practice has been lacking a comprehensive framework until more recently the internalization/externalization framework from the international management literature has proposed a theoretical foundation to categorize environmental management in the supply chain. The framework, which was also used recently to characterize supplier development activities and corporate social responsibility suggests that organizations can either conduct activities through markets (externalizing) or by incorporating those activities within the organization hierarchy (internalizing) (Husted, 2013). Hence, an organization's green supply chain practices imply internalizing by integrating its environmental management activities with other organizations in the supply chain or externalizing environmental management in the supply chain by employing market-based mechanisms. The former is termed environmental collaboration while the latter is environmental monitoring.

The goal of green supply chain practices is to minimize damage to resources and the environment within which enterprises operate, with regard to the supply chain, while pursuing economic benefits, in order to meet the sustainable development of societies. GSCP is referred to as an incorporation of environment-friendly initiatives into every aspect of supply chain activities encompassing sourcing, product design and development, manufacturing, transportation, packaging, storage, retrieval, disposal, and post-sales services, including end-of-product life management (Choi 2017).

The adoption of environmental management principles in sourcing, purchasing, manufacturing and assembly, packaging, logistics, and distribution is a broad topic covered by the green supply chain (Parmigiani, Klassen, & Russo, 2011). Eco-design techniques, green purchasing, green logistics, and environmental regulation are all

related to green supply chain practices. In order to achieve environmental and economic performance there is need for adoption of green innovation while ensuring institutional pressure for green supply chain practices (Shafique, Asghar & Rahman, 2017).

According to Qorri, Mujkić, Gashi and Kraslawski (2018) green supply chain practices has significant influence on firm's performance. However, there is need to examine whether green supply chain practices influence sustainable performance.

Eco-design practices has also become crucial where firms through institutional pressure have been able to use reusable packaging, product eco-design and resource saving. According to Monteiro, Silva, Ramos, Campilho and Fonseca (2019) eco-design of package reduce environmental pollution which leads to environmental performance. This is possible if the firm adopts green technology in operation and manufacturing (Rosen & Kishawy, 2012). According to Thoo, Huam, Zuraidah and Siti (2015) process design, green product and environmental practices is important in ensuring eco-design and achieving performance. Aslam, Waseem and Khurram (2019) in the study on green supply chain practices pointed that eco-design plays a role in ensuring product and package are designed with a focus of sustainability at consumer end-use. The current study focused on the gain achieved by eco-design in tea processing industry where it examines green packaging, product eco-design, product life assessment and recycling material as discussed by studies that focused on eco-design.

Green purchasing practices is crucial aspect of green supply chain management (Younis, Sundarakani & Vel, 2015). Firms can achieve green purchasing through purchasing, recyclable inventory, reduced inventory usage and green inventory. This assists the environment by minimizing or eliminating the effect on climate change,

carbon footprint and pollution (Lăzăroiu, *et al.*, 2020). Green procurement or purchasing focus on improving customer satisfaction as well as ensure organization performance (Dubey, Bag, Ali & Venkatesh, 2013). Similarly, Kittisak, Puttisat and Sudawan (2019) reveals that green purchasing is crucial in ensuring performance.

In the study by Younis, Sundarakani & Vel (2015) which focused on green supply chain practices pointed that green purchasing had economic impact on the economic performance since it lowers the long term cost of production. The studies point out that green purchasing revolve in reduction of carbon footprint, recycling, reduction and green inventory. The current study focused on recyclable inventory, reduced inventory usage, green inventory and resource reduction.

Green logistics practices ensures that turn around routing and wastage are reduced as well as life cycle assessment through cost reduction in transportation. Sari & Yanginlar, (2014) in their study on green logistics and development pointed out that green logistic ensures there is reduction of carbon emissions and reduction of packaging through reverse logistics. The reduction warehouse and logistics emissions are achieved through establishing short turn-around and networking logistics (Trivellas, Malindretos & Reklitis, 2020).

Reverse logistics which is part of green logistics is a follow up of sold product back to the organization for purposes of recycling, reconditioning, reproduction and disposal. Ahmed, Hui, Ahmed, Tarek & Mahmoud (2020) avers that the concept of reverse logistics reduces wastage through recycling and reusability as well as ensuring end re-use of a product in order to enhance environmental performance. It can also be used for returned goods by the customer based on disatisfaction or reconditioning of goods sold (Cullinane, Browne, Karlsson & Wang, 2017). Alnoor, Eneizan, Makhamreh and Rahoma (2019) found that reverse logistics ensured sustainable manufacturing,

This can be achieved through cost reduction associated with recycling, reconditioning, reproduction or disposal (Coşkun, Ağaoğlu & Kutluk, 2017). The current green logistics used for green distribution, outbound green logistics, reverse logistics and inbound green logistics.

Environmental regulation are procedures, policies and strategies applied by the firm to ensure green strategies are developed to sustain the firm. Xing, Liu, Shen, & Wang (2020) argues that environmental regulation is crucial, green supply chain practices that enable firms to use sustainable innovation and green dynamic capability to improve financial performance. Those firms that use dynamic approach in solving environmental regulation innovatively were proactive and better in environmental performance (Ramanathan, He, Black, Ghobadian, & Gallear, 2017).

El maghrhi, Nim, Elamer, & Zhang (2018) adds that environmental policies and regulation was attributed by environmental strategy, implementation and disclosure as promoted by female directors on enviromental performance. Country support on environmental regulations through innovation impact global environmental investments (Borsatto, Bazani, & Amui, 2020). Padash, Bidhendi & Ardestani (2015) asserts that environmental management system models assist in formulation of ecological management and audit policies that ensure environmental performance in organization. The current study focused on green policies, green procedures, environment strategy and environmental disclosure.

1.2.2 Green Transformational Leadership

Green transformational leadership involves leaders acting with mindfulness, self-efficacy, inspiration, and creativity towards their followers (Chen, Chang & Lin, 2014). Teixeira, Jabbour, De-Sousa, Latan, & De-Oliveira (2016) asserts that green

tranformational leadership plays an important role in ensuring green values leading to green supply chain. Green tranformational leaders are important in rolling out green strategies, values and creativity to ensure environmental sustainability (Singh, Del-Giudice, Chierici, & Graziano, 2019).

The study by Shah, Sukamani, & Kusi, (2020) found that green transformational leadership and sustainability of the firm was affected by green procurement and green creativity meadiators. Green transformative leaders are associated with environmental sustainability as Widisatria & Nawangsari (2021) claims in their study of green transformative leadership and sustainability. Zhao & Huang (2022) adds that green transformative leader, green human resource and green innovation are important aspects to sustainable business performance. In order to understand green transformative leadership it is important to examine green mindfulness, green self-ficacy, green inspiration and green creativity.

Various scholars have argued that businesses that take steps toward green processes, green creativity, and innovation will benefit from being first-movers in a field with production that is both environmentally friendly and resource-efficient, which will increase their corporate reputation and share of the market (Yong *et al.*, 2019). According to these researchers, businesses may turn green creativity into environmentally friendly products and services to help the environment (Jia *et al.*, 2018; Eide *et al.*, 2020). Furthermore, by integrating green creativity into the firms major concerns, firms can acquire a green competitive advantage over their competitors in such a volatile environment (Jia *et al.*, 2018).

The development of novel and valuable green ideas about producing green products, methods and practices, or delivery is referred to as green creativity (Li *et al.*, 2020).

Moreover, the ability to come up with creative, novel, and worthwhile ideas is referred to as creativity (Wyer *et al.*, 2010). It is determined by a variety of organizational and individual factors. A study conducted by Chen & Chang (2013) showed that leadership and organizational attitudes around environmental concerns influence green creative thinking. Green transformational leadership (GTL) encourages employees to engage in exhibiting green behaviour, which ultimately cultivates the behaviour of concern about the environment in a way that they may care for water and paper utilization in an effective manner which later can be reutilized and remain environmentally friendly (Mittal and Dhar, 2016; Li *et al.*, 2020). The following empirical research supports the argument that green leadership and other factors play a role in developing green creative behavior (Mittal and Dhar, 2015; Tuan, 2022; Singh *et al.*, 2020).

Although green transformative leadership is a critical component of any firm to support green creativity (Singh *et al.*, 2020), the relationship between green transformational leadership and an environmentally integrated development practice and management system has been studied by a number of researchers (Garg and Dhar, 2014; Singh *et al.*, 2020). GTL, according to these researchers, has an indirect impact on environmental-related behaviour and performance, while in some studies, it is found to have a moderated role and mediating role (Li *et al.*, 2020; Singh *et al.*, 2020). However, there is still a need to come up with empirical evidence of a direct link between green transformational leadership and environmental performance. The impact of green transformational leadership on employee motivation, as well as the indirect effects of GTL on organizational environmental performance, such as lower energy usage and enhanced recycling capabilities, has been studied (Mittal and Dhar, 2016; Li *et al.*, 2020).

The role of transformational leaders is very vital in creating and building the vision that leads to proactive steps toward the different tasks and achieving environmental concerns and green initiatives (Sun *et al.*, 2022).

In addition, transformational leaders support the culture of innovative ideas, implementation of those ideas in terms of actions, and building the model of "creativity-enhancing forces" (Sun *et al.*, 2022). The role of transformational leaders is immensely important in the success and implementation of innovative business ideas (Rehman *et al.*, 2021; Sun *et al.*, 2022). With the same notion, the role of TL in promoting a sustainable environment is also very crucial but still less focused worldwide, particularly in a developing country like Pakistan (Sun *et al.*, 2022). A study conducted in the Pakistani context found a positive and significant impact of TL on green performance (Zafar *et al.*, 2017).

Similarly, Pakistan being a developing country faces environmental threats and issues due to climatic change and global warming as narrated in the IQAir (2021), and a province of Pakistan (Lahore) is found to be the second on the list of highly polluted cities globally. The focus of SMEs has shifted to environmental degradation (Sun *et al.*, 2022). Moreover, environmental concerns and issues have paved the way for practicing green activities, particularly green creativity (Chen, 2011; Sun *et al.*, 2022). Since the majority of the SMEs are located in the Punjab Province, this study was mainly conducted in the Punjab Province of Pakistan (Shah *et al.*, 2021; Sun *et al.*, 2022). A quite number of studies have been conducted to examine the impact of TL on environmental performance and other factors (Sun *et al.*, 2022). However, the influence of the TL on green creativity has received less attention (Li *et al.*, 2020; Sun *et al.*, 2022), particularly in the SMEs which are the backbone of the Pakistan

economy (Shah *et al.*, 2021). In addition, very few studies have been conducted to investigate the mediating role of green organizational identity and green thinking.

Transformational leadership has been reported to exert a significant impact on fostering employees' creativity in previous studies (Salas-Vallina and Alegre, 2018; Caldera *et al.*, 2019). Green Organizational Innovation (GOI) was found to be critical in cultivating green creativity in employees working in the hospitality industry (Garg and Dhar, 2014). Employee behaviour is influenced by organizational identity, which provides a framework of reference for managers to clarify strategic issues (Garg and Dhar, 2014). Subsequently, organizational identity is a crucial element in moulding the employees toward environmental concerns (Chen, 2011; Li *et al.*, 2020). Environmental leaders create a GOI, and inspire them to think, act, and identify themselves toward pro-environmental behaviour and organizational efforts toward the environment (Mittal and Dhar, 2016).

As a consequence, the employees' creative activities are enhanced, and they have the possibility to engage in creative and better performance (Kaltiainen & Hakanen, 2022). In addition, green thinking encourages environmentally friendly business practices, such as the use of sustainable materials and energy-efficient manufacturing methods to lower carbon emissions, and result in better environmental practices (Caldera *et al.*, 2019). Green thinkers are environmentally conscious, and they demonstrate their concern for the environment by gardening, planting, and purchasing green products (Ali *et al.*, 2020). Individuals' ability of thinking and feeling about firm greening motivates them to adopt environmentally friendly activities.

Green thinking in the workplace enables businesses to create green creativity through green goods, processes, and technologies (Begum *et al.*, 2022). Green

transformational leadership influences followers' attitudes, ideals, and thinking by defining to them the green perspective of the world and green methods to incite green production

(Ahmed *et al.*, 2020). As a result, this study anticipated the role of green transformational leadership in developing a sense of the environment's goals, which spark green thinking and encourage employees to participate in green creativity.

Green mindfulness according to Zafar, Nisar, Shoukat, &Ikram (2017) motivates and assist in development of policies that improve green performance in an organization. The findings showed a connection between green transformational leadership and green performance and green mindfulness meditation. Green performance in an organization is boosted by green creativity and green mindfulness (Aeknarajindawat & Jermsittiparsert, 2019). Thus, the idealization of green supply chain strategies involves the cultivation of green mindfulness.

According to Zhang, Xu, & Wang (2020), creative process engagement served as a mediator between green transformational leadership and green creativity. Additionally, the relationship between creative process engagement and green transformational leadership was moderated by green innovation strategy. According to Chen, Chang, & Lin's (2014) research, green self-efficacy and green mindfulness had a moderating effect on green transformational leadership and performance. The current study will adopt green creativity as indicator based on its ability to engage creative minds in utilization of green strategies within the supply chain.

Internal green self-efficacy plays an important role in green transformation leadership and green product development (Zhang, Sun, & Xu, 2020). Green self-efficacy is linked with reducing the relationship between leadership and performacne, however,

it improved the understanding and application of green technology, ideas and creativity. This assist the green transformational leader to transform their followers with green behavours that focus on environmental conservation.

Chen, Chang & Lin (2014) also claims that green self-efficacy has a moderating role to the relationship between green transformational leadership and green performance. The current study used self-efficacy to enable organization to transform there green resource, ideas and technology to ensure environmental conservation within the supply chain management.

Green inspirational motivation behavior related to the ability of green transformative leader to energize and to provide ideas on the emotional and physical change towards green strategies and concepts (Robertson & Barling, 2017). According to Srour, Kheir-El-Din, & Samir (2020) green inspirational motivation was found to improve passion and optimism of employee to practice green innovative ideas. This created a positive emotional atmosphere resulting to increase in trust and social cohesion among the employees towards a common goal. This is important force towards green supply chain strategies to enhance sustainable development.

Green creativity is spured by green transformation leadership as alluded by Zhang, Xu, & Wang, (2020). According to the authors green creativity employees is inspired by a green transformative leadership who practice creative process engagement leading to employees adopting green strategies. This is crucial in enabling green related supply chain management practices. In the relationship between green transformative leadership and green creativity, creativity plays a mediating role. This indicates that a green transformative leader is able to influence there creativity of employee towards green innovation. Green transformative leadership was measured using green mindfulness, green creativity, green inspiration and green self-efficacy of

a leader to transform the green supply chain practices for performance. Therefore, the study adopted green mindfulness, green creativity, green inspiration and green self-efficacy as indicators of green transformative leadership.

1.2.3 Sustainable Performance of Firms

Sustainability is a global issue in today's world of business; firms therefore have to be careful about environmental issues in order to maintain a good image in today's competitive environment (Khan *et al.*, 2020). Gotschol *et al.*, (2014) argued that businesses should give more focus to green supply chain management (GSCM) for a better and sustainable Performance. Thus, it has become more challenging for firms to deal with several internal and external changes at the same time.

Sustainable Performance of firms is multidimensional concept that ensure environmental, social, operational and economic performance. Younis, Sundarakani and Vel (2015) used economic, operational, social and environment as dimension of measuring corporate performance. Qorri, Mujkić, Gashi and Kraslawski (2018) pointed that performance of the company relates to economic, social and environmental performance. Its also important to examine operational performance which relates to productivity of the firm. Padash, Bidhendi and Ardestani (2015) asserts that environmental performance is crucial in ensuring green strategies are implemented by an organization. Corporate performance in environment is important in ensuring biodiversity of future generation.

Dubey, Bag, Ali & Venkatesh (2013) measured organization's performance using customer satisfaction. However, financial and social performance was used on green logistic by Trivellas, Malindretos and Reklitis (2020). Intanible, economic and evironmental performance of the firm was used to measure sustainable performance

(Kittisak, Puttisat and Sudawan (2019). Therefore, majority focus on economic, social, environmental and operation performance as indicators of performance.

Climate issue has been the main concern of international forum affecting Sustainabilty (Gamboa-Bernal, Morento-Mantilla, & Orjuela-Castro, 2020). Global warming, drought, low food security and unpredicatable weather are some of the concerns that have made private and public organization be involved from all nations (Saeed, Oman, Rasheed, Waseem, & Tabash, 2021). Sustainable performance was found to be impacted by the adoption of green supply chain practices and green human resources. Additionally, it has been observed that green human resources mediated the link between green transformative leadership and sustainable performance (Sun, Askary, & Meo, 2021).

Ismatov (2015) indicates that one of the ways of bringing sustainability to supply chain is by reconsidering the chain's linear process and implementing the cradle to cradle rather than cradle to grave philosophy. This philosophy pre-supposes forming a reverse supply chain that can not only sustain performance but also value creating (Jensen, *et al.*, 2013). This means that by adopting this concept, you will have addressed various environmental, social and even economic issues by ensuring product take-back practices that requires producers/suppliers to arrange for activities like recycling or reuse of their products that are discarded or unsold.

Sustainable Performance is trending globally, as a means of reducing strains in natural resources, social improvement, increase economical benefits and environmental gains. This has become essential in ensuring the future community benefit socially, economically and environmentally. Therefore, the current study evaluated the relationship between green supply chain practices and performance of multinational

tea companies in Kenya. The study also measured the relationship between green transformational leadership and sustainable performance of a firm.

1.2.4 Multinational Tea Firms in Kenya

Tea is grown in the highlands located within the West and East of Rift and on higher altitude of between 1,500 metres and 2,700 metres above Sea Level. The highlands are spread across 19 tea-growing counties that include Nakuru, Narok, Kericho, Bomet, Nyamira, Kisii, Kakamega, Bungoma, Vihiga, Nandi, Elgeyo Marakwet, Trans-Nzoia, Kiambu, Murang'a, Nyeri, Kirinyaga, Embu, Tharaka-Nithi, and Meru (Tea Directorate, 2019).

Further Tea Directorate (2019) argued that growing conditions for tea include tropical volcanic red soils and favourable weather patterns such as well-distributed rainfall of between 1200 mm to 1400 mm per annum. Unlike other countries, Kenya produces tea year-round with minimal seasonal variations in quantity owing to its location along the equator. The tea industry makes an important contribution to the Kenyan economy. Tea is among leading foreign exchange earner contributing about 23% of total foreign exchange earnings and 2% of the Agricultural GDP (GoK, 2019).

Annually, the country produces over 450 million Kgs of tea, which earn the country over Ksh 120 billion in export earnings, and 22.0 billion on local sales. The industry supports about 5.0 million people directly and indirectly while an estimated 650,000 tea growers depend on tea making the industry one of the leading sources of livelihood in the country (GoK, 2019).

Kenya tea is renowned world-wide for its quality and safety due to adherence to the industry and good agricultural practices (minimal pesticides or agro-chemicals); good

husbandry practices and selection of high quality varieties; skillful processing practices (no additives, preservatives or artificial coloring); continuous improvements due to investment in modern technology and R&D; commitment to Global and National Food Safety standards (ISO, HACCP, KS1927) as well as compliance with environmental and social market requirements (GoK, 2019). Multinational tea firms provide employment both indirectly and directly. Ekaterra tea Kenya, James Finlays and Williamson tea firms has 8240 hectares, 5554 hectares and 3826 hectares respectively in Bomet and Kericho Counties. The three firms not only occupy the largest share of land that surround the Mau Forest which is the main water catchment for Kenya.

According to Monroy, Mulinge & Wetwer (2013) multinational tea firms are facing challenges in their performance. These are high cost of production, climate change and fluctuation of international tea prices. The relationship between green supply chain practices and performance of multinational tea firms in Kenya must therefore be determined, as well as the moderating effect of green transformational leadership on the relationship between green supply chain practices and performance of multinational tea firms.

1.3 Statement of the Problem

Green supply chain practices aims at reducing wastage, improve environmental degradation and enable performance of the firm along the supply chain. Multinational Tea firms are major economic drivers in Kenya. They provide employment to the society and act as source of foreign exchange. The tea sector which heavily depends on manufacturing of commodities is among the target sectors in the improvement of the environment. However, despite the adoption of green supply chain practices,

sustainable performance to date have not been fully achieved, it is also unclear whether green supply chain practices have positively influenced performance of tea firms. The symptoms of poor sustainable performance are poor performance of tea produce in global market, increase of unemployment in the multinational firms, and global warming effects resulting to drought, frost and floods. Kenya tea's performance on the global market, with earnings for the product dropping by 9.1% as indicated in the third quarter of 2021 compared with similar period in 2020. The Ministry of Agriculture was forced to intervene in the price of tea due to the alarming rate at which one of Kenya's top exports was losing value. There is an outcry that has been pointed out on environmental conservation and tenable use of natural resource resulting from deforestation, land and environmental degradation in the tea sector. It has been noted that since past couple of decades, growing impacts of global warming, climate change, waste and air pollution issues have involved increasing world-wide attention of experts to think more eco-friendly and find optimum possible solution towards "Green". These challenges has affected the sustainable performance of multinational tea companies where low tea prices, drought, frost, hailstones and low productivity is being witnessed. To address these challenges there is a need to balance between economical, ecological and social benefit in many agricultural manufacturing firms especially the Multinational tea firms. Despite the adoption of green supply chain practices and green transformational leadership sustainable performance to date have not been fully achieved, it is also unclear whether GSCM has positively influenced performance of tea firms and thus the need for this study. Therefore, this study addressed the aforementioned problems by investigating green supply chain practices, green transformational leadership and sustainable performance of multinational tea firms in Kenya.

1.4 Objectives of the Study

1.4.1 General Objective

The general objective of the study was to examine relationship between green supply chain practices, transformational leadership and sustainable performance of multinational tea firms in Kenya.

1.4.2 Specific Objectives

The study was guided by the following specific objectives;

i. To determine the relationship between eco-design practices and sustainable performance of multinational tea firm in Kenya.

ii. To establish the relationship between green purchasing practices and sustainable performance of multinational tea firms in Kenya.

iii. To examine the relationship between green logistics practices and sustainable performance of multinational tea firms in Kenya.

iv. To assess the relationship between environmental regulation practices and sustainable performance of multinational tea firms in Kenya.

v. To determine the moderating effect of green transformational leadership on the relationship between green supply chain practices and sustainable performance of multinational tea firm in Kenya.

1.5 Research Hypothesis

H_{01}: There is no significant relationship between eco-design practices and sustainable performance of multinational tea firm in Kenya.

H_{02}: There is no significant relationship between green purchasing practices and sustainable performance of multinational tea firm in Kenya.

H_{03}: There is no significant relationship between green logistics practices and sustainable performance of multinational tea firm in Kenya.

H_{04}: There is no significant relationship between environmental regulation practices and sustainable performance of multinational tea firm in Kenya.

H_{05}: Green transformational leadership has no significant moderating effect on the relationship between green supply chain practices and sustainable performance of multinational tea firms in Kenya.

1.6 Justifications of the Study

Climate change is a major global threat in 21st century as result of global warming. It has become national concern leading to national climate convention for developing necessary green policies to ensure environmental, social and commercial performance. Organization, individual and government are collectively required to develop green strategies to ensure a stable future.

There is global concern on the effect of global warming and socio-economic issues that have increased the need for green supply chain practices as well as green transformational leadership to steer ahead the green strategies to ensure sustainable performance.

The study is very crucial in examining relationship between green supply chain practices, transformational leadership and sustainable performance. Multinational tea firms run large manufacturing tea process plant, tea plantation and land that can be utilized in improving environment, social and economic performance.

1.7 Significance of the Study

The findings may be beneficial to agricultural manufacturing companies which may assist in curbing wastage, improve on environment as well as ensure the organization gain economic benefit. The results may also assist other sectors that have supply chain through improving social, economic and environmental performance. The tea industry may also benefit with adoption of sustainable management of resource to enable improvement in the performance of the organizations, employees and the nation.

The Kenyan government may also benefit with the effort to achieve environmental goals. Reduce the destruction of forest as well as maintain high revenue from the tea industries. This may save Kenya millions of shillings that would have been used to revamp environment.

The results of the study may also improve on the cost minimization; this may be the most important factor for firms to implement green practices in their supply chain operations. The implementation of green supply chain practices would help to cut down the costs of packaging, components and materials due to use of reused, recycled and remanufactured products. Undeniably, the green supply chain practices may be the most important tool for firms to decrease their products' cost, enhance profitability and increase market share.

On the other hand, to improve social performance, firms also may need to use the results of the study to adopt green practices in their business activities. Social

performance indicates improvement of people's quality life standard without compromising on environmental beauty. In addition, social performance includes the enhancement of firm image and the improvement of environmental sustainability, as well as reduction in environmental risks.

By adopting GSCP, firms may enhance their operational performance through improving products quality and improving delivery service. Green supply chain practices may also help organizations to improve their environmental performance such as reduction in carbon emissions, elimination of waste from end-to-end supply chain, effective and strong collaboration with suppliers would decrease their communication costs and easily promote reuse, recycling and re-manufacturing.

1.8 Scope of the Study

Multinational tea companies in Kenya were the focus of the study. Kenya has three multinational tea companies: Ekaterra, James Finlay, and George Williamson. The three multinational firms border the Mau Forest in Bomet and Kericho County. George Williamson has an annex farm and factories in Nandi County. The study's conceptual scope investigated green supply chain practices, transformational leadership, and firms sustainable performance concepts.

Green supply chain was measured in terms of green purchasing, green logistics, eco-design and environmental regulation. Green transformational leadership was measured using green creativity, green inspiration, green mindfulness and green self-efficacy. Finally, sustainable performance was examined using economic, social and environmental performance. Tea industry which is an agricultural industry that generates foreign exchange and employment in Kenya. The multinational tea companies are involved in tea supply chain from plucking, processing, packing and

selling to both local and international buyers and customer. The data collection was carried out between July and august 2023.

1.9 Limitation and Delimitation of the Study

The present study was not free from limitations. Best and Khan (2008), defined limitations as factors that the researcher has no control over them and that it may place shortcomings on the findings of the study and their applicability in different situations. Firstly, the use of purposive sampling technique to select the multinational tea firms limited the generalization of results; it means that the results of the study will be generalized to the entire country with caution. The researcher therefore, ensured that all the multinational tea firms participated in the study as well as achieve a scientifically obtained sample proposition from all management level.

Secondly, some of the respondents were reluctant to give freely the true information and wanted to provide information that they think was pleasing to the researcher. However, this was resolved by enlightening them that the research is purely objective and not subjective.

Finally, the study encountered the problem of unreliable information from the respondents, since the study relied purely on the respondent's memory. However, this was mitigated by probing them more about the information required and also ensuring that the questions asked were clear and proper explanation given to enhance understanding for their responses.

1.10 Assumptions of the Study

The study was carried out on certain assumptions; first, the study assumed that the answers that was provided by the respondents were honest and truthful. Secondly, the respondents' calendar of activities found the firms in operational for effective data collection. Finally, the study assumed that the information obtained from managers

informed how green supply chain practices, green transformative leadership and performance are achieved.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Theoretical framework and empirical review was assessed on green supply chain practices, green transformational leadership and performance of the firm. This was used to develop conceptual framework and knowledge gaps.

2.2 Theoretical Framework

The study was anchored on ecological modernization theory which is supported by sustainable resource theory, institutional theory and Porter's value chain model. The ecological modernization theory supports the need for adoption of green supply chain practices while sustainable resource theory focuses on ensuring sustainable performance using existing resource. Green transformational leadership is supported by the adoption of institutional theory which also supports green supply chain practices while the entire supply chain was supported by Porters' value chain model.

2.2.1 Ecological Modernization Theory (EMT)

Maoris created the ecological modernization theory in the 1800s. According to the theory, preventive innovation, state planning and coordination, and technological advancement can be used to jointly accomplish industrial development and environmental protection (Iles, 2019). Green technology adoption in supply, procurement and purchasing, manufacturing, logistics and distribution would enable greening of supply chain (Kouhizadeh & Sarkis, 2018). Hence, these would enable environmental as well as socio-economic benefit to the organization. This theory therefore, supports environmental regulation which are entailed in green supply chain practices and treat the practices as fundamental aspect of in creating economic development.

According to the state regulation cited by Dauvergne (2022) businesses and customers must work together to protect the environment. The state must become a more adaptable, decentralized, and preventive institution that networks with other social actors and uses a range of strategies and instruments other than coercion. While market participating companies and customers develop strategies to lessen the effects of industrial development (Zhang & Zhu, 2019). This can be accomplished by using green supply chain management techniques when producing goods and services.

Xie, Zhao, Chen, & Allen, (2022) criticized the ecological modernization theory indicated that the theory is a macro-level which require both internal and external environment change to enable it to succeed. Where the state and other stakeholders like customer should join hand in ensuring there is conducive ecological and economic environment. Hence some of the measure might not be within the reach of the organization.

In order to explain green supply chain practices, ecological modernization theory a macro-level theory must be integrated with meso-level theories. For instance, it has been used in conjunction with resource dependency theory to examine how corporate innovation and cooperative supply chain strategies have developed in response to environmental regulation (Sousa Jabbour, Vazquez-Brust, Jabbour, & Latan, 2017). In summary the study was anchored on this theory since it explains the need to have collective approach to green supply chain management as well as tenable performance.

2.2.2 Brundtland Theory

Brundtland introduced the sustainable theory also known as Brundtland theory in 1984. The theory proposes that successful sustainable performance through achieving present goals of the organization without affecting the future generation (Dtlev-Simonsen, 2022). Therefore, sustainability has three concepts that is environmental, society and economy. Due to change in climate organization are nowadays involved in taking measured that ensure carbon emission resulting greening supply chain and other functions in the organization. In order to ensure sustainable development, green supply chain practices employ green technology and green strategies in green manufacturing, green logistics, and green energy use (Nureen, Liu, Irfan, Malik, & Awan, 2023). The factor that can affect the implementation of green strategies; ethics, people, technology, innovation, environment and climate change.

The current theory not only support green supply chain practices as tool of ensuring sustainable development in the organization but also supports sustainable performance (Kalpande & Toke, 2021). Performance in businesses includes economic, social, and environmental factors over time. Shahzad, Qu, Zafar, & Appolloni, (2021) claims that the sustainable resource theory explains why process technologies will eventually replace product technologies. By lowering emissions and production costs, green technology enables the business to protect the environment. Competitive advantage created by humans will succeed comparative advantage created by natural resource endowment. This advantage is viewed in adoption of green technology and energy in solving immediate and futuristic problem. Adoption of green energy and technologies might require large financial investment which might not lead to immediate competitive advantage but rather a futuristic tenable benefit to the firm.

2.2.3 Institutional Theory

The study is anchored on institutional theory which explains the role of institution in adoption to new concept of management. According to institutional theory, the researchers discovered that firms' adoption of green practices and supply chain practices were influenced by external factors. The development of clean mechanisms, clean energy regulation, and restrictions on toxic emissions resulting from the production of electronic components were all cited as these factors or drivers for the adoption of green supply chain activities (Garai, Mondai, & Roy, 2018).

The concepts of green supply chain practices in multinational corporations and how the concept can be incorporated as part of green transformational leadership were explained by institution theory. Understanding the phenomenon is best accomplished through institutional theory. Additionally, El-Baz & Iddik (2022) have pointed to institutional theory as a key source in identifying factors that influence the use of GSCM. In order to comprehend the driving forces behind GSCM practices, this study is guided by the institutional theory.

Sarkis *et al.*, (2011), drawing on institutional theory, identified three isomorphic drivers of GSCM: coercive pressures from governments, environmental interest groups, and industrial associations; normative pressures from social pressures, consumer expectations, communities, and wider stakeholders; and mimetic pressures from copying the actions of a successful organization that is competitive through benchmarking. The tendency of the firm to practice GSCM increases with the level of coercive pressure (Zhu & Sarkis, 2007; Testa & Iraldo, 2010). For instance, companies accept a certain level of green practices in business operations, such as reduced CO_2 emission, eco-friendly product design, and an effort to avoid

environmentally hazardous substances during the procurement and production process, in order to avoid legislative hassles and to comply with current rules and regulations.

However, Testa & Iraldo (2010) asserted that internal organizational pressures, such as strategic motivation, may also be present (Laosirihongthong, Adebanjo, & Choon Tan, 2013). In contrast, mimetic pressures are placed on businesses that imitate market leaders in order to survive in the market place, whereas normative drivers are the social response to GSCP.

Internal drivers, on the other hand, are the company's commitment from the top executives who support green supply chain management in line with organizational values (Testa & Iraldo, 2010), support from mid-level managers as well as senior employees (Zhu & Sarkis, 2007), and long-term vision for expected business gains. This shows that the theory supports green transformative leadership.

Non-coercive drivers have a positive impact on both GSCP approaches (monitoring and collaboration), according to Tachizawa, Gimenez, & Sierra (2015) who classified GSCP as monitoring and collaboration based. Coercive drivers, however, suggested different implications, such as having a positive impact on monitoring based GSCPs practices but a negative impact on collaboration based GSCPs. SCM strategies are also shaped by an organization's desire to pursue cost leadership (cost reduction) and differentiation (innovation) strategies as well as gain the respect and confidence of stakeholders. As a result, both green transformational leadership and green supply chain management are supported by the theory.

2.2.4 Porter's Value Chain Model

Porter's value chain was proposed by Porter, M.E. in 1985 which indicates support activities and primary activities that are done to obtain competitive advantage

(Porter, 1985). According to Porter (2004) primary activity start with inbound logistics, operation or manufacturing, outbound logistics, marketing and sales and finding with service at the customer.

Support activities which include firms' infrastructure, human resource management, technical development and procurement functions are required to support the supply chain primary activities. Value chain model involves creation of competitive advantages as pointed by Porter (2004) through separation of activities, important of using activities to competitive advantage leading to margin, separation of cost of different activities and innovativeness in activities to create competitive advantage.

Bett (2013) pointed that there is need to develop appropriate innovation and marketing strategies with value chain to create competitive advantage. Due to concern of environmental issue there is need to integrate Porters' value chain with green strategies from different activities to create competitive advantage. Porter's concern was to improve existing supply chain management through value addition. Green supply chain management ideas tend to improve the outlook of Porter's model through introduction of green procurement, green logistics (green inbound logistics, green outbound logistics, reverse logistics, green distribution and green warehouse) and eco-design at processing. This model support green supply chain management model by integrating the traditional Porters' value model with green concepts.

2.3 Literature Review

The section provided the review of green supply chain management concepts into environmental regulation, eco-design, green logistics and green procurement. The section also focused on green transformational leadership and performance of the firms.

2.3.1 Eco-design Practices and Performance of Tea Firms in Kenya

Eco-Design or 'Green' Design also widely known as 'design for environment' consists of designing products for reduced consumption of materials/energy, reuse, recycle, recovery of materials or components and reduce use of hazardous products (Aital & Vijai, 2016). Further on, Wanyoike & Lagat, (2015) defined ecological design as "any form of design that minimizes environmentally destructive impacts by integrating itself with living processes.", thus, procurement of eco materials is the starting stage for manufacturing green products within a supply chain.

Ecological design is an integrative ecologically responsible design discipline. (Ingari *et al.*, 2018). It helps connect scattered efforts in green architecture, sustainable agriculture, ecological engineering, ecological restoration and other fields. The "eco" prefix was used to ninety sciences including eco-city, eco-management and eco-technique (Muma *et al.*, 2014). The inchoate developing nature of ecological design was referred to the "adding in "of environmental factor to the design process, but later it was focused on the details of eco-design practice such as product system or individual product or industry as a whole.

Wakulele, Otlock, Chepkulei & Kiswili, (2016) did a study on the effect of Eco-design Practices on the Performance of Manufacturing Firms in Mombasa County, Kenya. The study used cross-sectional survey research design, the study targeted 65 firms with a target population of 903 in Mombasa and used probit model in data analysis. The result findings indicate that by taking all other independent variables constant, a unit increase in design for raw material practice would lead to a 0.328 increment in environmental cost saving. A unit increase in design for manufacture would lead to a 0.845 decrease in environmental cost saving. A unit increase design for distribution would lead to a 4.271 increment in environmental cost saving.

A unit increase design for product use would lead to a 3.168 decrease in environmental cost saving. A unit increase design for end of life would lead to a 0.950 increment in environmental cost saving. A unit increase of years of operation would lead to a 0.032 decrease in environmental cost saving and a unit increase in staff size would lead to a 1.553 increase in environmental cost saving. The study by Wakulele *et al.*, (2016) used probit model and targeted 65 firms while the current study employed multiple linear regression and it only targeted three multinational tea firms.

Monteiro, Silva, Ramos, Campilho and Fonseca (2019) investigated on eco-design in relation to strategy of packaging in Asia. The study was based on survey design of packaging manufacturers. The results indicated that most of packaging companies have adopted environmental concepts through packaging's life cycle that are bio-degradable. The eco-design package has reduced drastically environmental politant packaging and brought about global environmental biodiversity. Packaging is crucial in eco-design as well as package design. The current study adopted eco-design in relation not only sustainable performance but also limited to economic and social performance. Eco-design were in terms of green packaging, product eco-design, product life assessment and recycling material. The study by Monteiro, Silva, Ramos, Campilho & Fonseca (2019) use survey design while the current study employed correlational and cross-sectional research designs.

Needs, practices and concepts of sustainable design and manufacturing was examined by Rosen & Kishawy (2012). The study used empirical review of literature where it compared manufacturing and design. Life cycle assessment and design for environmental and environmental practices were examined in relation to environmental development. The study pointed out that increase in technology and operation advancement in manufactuting in the future would improve performance

and environment stewardship. The study recommends that improved designing through technological improvement and development of tenable culture in companies would enhance eco-design. Package life circle as well as design remain crucial aspect in eco-design. However, the study used empirical review whereas the current study used primary data to collect data from the Multinational tea firms.

Momanyi (2013) did a study on the adoption of green manufacturing practices by food processing firms in Mombasa County, Kenya, Cross sectional survey research design was used and the study targeted 187 food processing firms, mean score analysis was used and the results indicated that the least perceived benefits from the results were, improved innovation performance, decrease in fine for environmental accidents, and the cost of saving for environmental projects with mean scores of 3.53, 3.34, and 3.32 respectively. This means that these firms have not invested in long-term strategy of adopting green manufacturing practices. The overall indication from the study was that there are significant benefits of adopting green manufacturing practices. The above study used Cross sectional survey research design and the study targeted 187 food processing firms and the current study used correlation and cross-sectional research design and only targeted three multinational tea firms with a target of 512 respondents.

Mohammed (2012) did a study on green supply chain management and performance of manufacturing firms in Mombasa, Kenya the study targeted 10 manufacturing firms with a target population of 91. The study used survey research design and Statistical analysis was used to interpret the results obtained, which consisted the use of Mean, Standard deviation and Ranks. The results indicated 0.6678 at 5% confidence interval implying that GSCM had a positive impact on most manufacturing firms in Mombasa.

The study by Mohammed (2012) used 10 manufacturing firms and survey design while the current study targeted three multinational companies and used cross-sectional and correlation research designs.

Babu (2013) did a study on green supply chain practices and operational performance of personal care manufacturing firms in Nairobi. The study employed a descriptive survey design and the target population comprised of Personal Care Manufacturing firms in Nairobi, Kenya. Primary data was collected by the use of a questionnaire and descriptive statistics used for data analysis. From the findings 33.33% of the respondents indicated that good image was created by CSR, 17.46% of the respondents indicated an increase in output against the same cost of material, 15.87% of the respondents indicated brand enhancement, 17.46% indicated a reduction on logistics costs, 15.87% indicated that manpower can be utilized to increase output. This shows that the operational performance of these firms is dependent on GSCMPs. Most of this studies are on green supply chain management and green manufacturing. Although eco design is one of the practices of GSCP, most studies have not done it in details to include the whole product life cycle. Therefore, there is a need to conduct a study on eco design practices in sustainable performance of the firm.

Aslam, Waseem & Khurram (2019) examined the impact of green supply chain practices on corporate image. The study also examined mediating role of green communications. Investment recovery, internal environment management, eco-design, customer cooperation, green communication and green purchasing were examined in the relation to development of corporate brand image. A sample of 120 Pakistan manufacturing firms listed in Stock Exchange were selected through cross-sectional study. The study found that corporate image was significantly shaped by customer cooperation, internal environment, green supply chain, inventory and ecofriendly

activities. Green communication acted as mediating role on the relationship between green supply chain practices and corporate image. Eco-design was one of the indicator of green supply chain which contributed to improvement in corporate image. Other factors that were discussed included green purchasing, green communication, investment recovery and internal environment management. The current study examined the green supply chain, which includes green purchasing, green logistics, eco-design, and environmental regulation on performance rather than corporate image, in order to close the conceptual gap.

Thoo, Huam, Zuraidah & Siti (2015) investigated green supply chain practices and performance of the firm. The role of green supply chain management is to reduce wastages as results of solid waste, energy, emissions and hazardous chemical. Findings revealed that process design, green product, internal environmental practices and environmental practices had positive relationship with tenable performance. Process design and green product were the leading predictor of performance. While supplier evaluation and selection had no significant effect on performance. Green products and process design remain important aspect of eco-design that ensures that eco-design product and packages. The current study sought to measure green supply chain management in terms of green purchasing, green logistics, eco-design and environmental management.

Borchardt, Wendt, Pereira & Sellitto (2011) did a study in Lagos Nigeria on re-design of a component based on eco-design practices: environmental impact and cost reduction achievements, Survey research design was adopted. The population for the study was 3512 employees from three of the leading fast-moving consumer goods companies in Lagos State, Nigeria from which a sample of 451 employees was

selected using the Cochran formula. Stratified random sampling technique was adopted.

A validated questionnaire was used to collect data. The response rate was 80.4%. Data were analyzed using descriptive and inferential statistics. Findings revealed that that Green Efficient Processes ($\beta = 0.234$, $t = 3.554$, $p<0.05$) and Green Recycling ($\beta = 0.391$, $t = 5.869$, $p<0.05$) have significant, positive, and direct effect on the operational cost of selected fast-moving consumer goods companies in Lagos State, Nigeria while Green Product Design ($\beta = 0.071$, $t = 0.980$, $p>0.05$) and Green Supply Chain ($\beta = 0.041$, $t = 0.615$, $p>0.05$) has an insignificant direct effect on operational cost in Lagos State, Nigeria. The above study used was done in Lagos, Nigeria while the current study was done in South Rift part of Kenya, targeting Multinational Tea firms.

2.3.2 Green Purchasing Practices and Performance of Firms

Green purchasing is one of the key strategic business process used by many companies to perform series of activities (Olaore & Adebisi 2013). Purchasing function plays a vital role in choosing the right product as purchased raw materials, components, parts and supplies can signify more than 50 percent of sales dollar (Wisner *et al.*, 2012; Olaore & Adebisi, 2013). Therefore, selecting the right suppliers is one of the important tasks of purchasing which directly reduces purchasing risk and maximizes overall value to the buyer organization (Rajan *et al.*, 2014). Additionally, purchasing can be served as a crucial link between the sources of supply and the organizational itself. As competitive pressures become more acute, buyer organizations are increasingly demanding their suppliers to fulfill stringent requirements in terms of quality, quantity, cost, and product mix and delivery efficiency (Hasan *et al.*, 2008) in order to gain a competitive advantage.

Consequently, this demand has increased the strategic role of purchasing in today business setting. In fact, purchasing function has become a holistic and comprehensive acquisition strategy to perform activities from supplier evaluation and certification, supplier development, supplier recognition programs, supplier relationship management to sourcing (Wisner *et al.*, 2012).

Purchasing can contribute a significant environmental threat in terms of discarded packaging materials. Over time, the level of awareness on global warming and other environmental issues has increased significantly, making a concern for companies to "green" their purchasing. According to Wu (2008), green purchasing takes into account the environmental and social responsibility in purchasing process. The environmentally-conscious purchasing initiatives include the procurement of product and services that meet environmental objectives such as reduced sources of wastages, recycling, reuse, resource reduction and substitution of materials (El Tayeb *et al.*, 2010). In a similiar vein, El Tayeb *et al.*, (2010) and Yang & Zhang (2012) claimed that green purchasing is the practice of choosing suppliers that provide eco-friendly materials and services.

Green purchasing aims to minimize negative environmental impacts in manufacturing process and transportation by using durable, recyclable and reusable materials (Sarkar, 2012). Companies that practiced environmental strategy in purchasing benefitted

from cost savings, better public image and decreased liability (Wisner *et al.*, 2012). Companies that are able to leverage their green supply base with lower cost, higher quality and concern about environment aspects (Rao, 2014) to impact their total cost structure and product quality will have a competitive advantage in their markets.

Many researchers have emphasized the importance of green purchasing in green supply chain practices. Carter *et al.*, (2000) found environmental purchasing activities have positive effects on firm performance via reuse, recycle and reduce concept. The green purchasing concept provides opportunity for firms to increase business performance.

Bowen *et al.*, (2006) claimed that green supply is one the essential function in supply chain activities to improve environmental performance in terms of integrated recycling and waste reduction.

Green purchasing and superior performance were examined by Dubey, Bag, Ali, & Venkatesh in (2013). Based on empirical evidence, the study conceptualizes a strategic framework to further strengthen the relationship between an organization's performance and the adoption of green procurement practices. Its focus was on the current trend in "green procurement" practices. According to the findings, market pressure, strong leadership, a strong regulatory environment, and quality management are all important factors that boost customer satisfaction. This effort is to ensure organization utilized green procurement or purchasing as means to improve customer satisfaction. The utilization of green purchasing ensure improvement in input which is replicated on output. The study used empirical envidence to collect data on green purchasing. The current study focused on primary data using questionnare.

Lăzăroiu, *et al.*, (2020) examined how green public procurement (GPP) was adopted. The study used relevant empirical sources like Web of Science and Scopus-indexed literature that was published between 2017 and 2020. In relation to green public procurement, this study focused on innovation in the procurement process, environmental regulations, pollution, carbon footprint, and climate change. Further research looked into current issues regarding the function of GPP in data-driven smart

tenable cities' automated algorithmic decision-making processes because, among other things, utilizing sensing and computing technologies, network connectivity systems, and the Cognitive Internet of Things will satisfy the never-ending demands of public administration. The use of green purchasing ensure low carbon footprint, low pollution and reduce climate leading to justifiable environment.

However, this was based on empirical review of studies. The current study used cross-sectional and correlation research design.

Younis, Sundarakani & Vel (2015) investigated the impact of implemeting green supply chain practices on corporate performance. The implementation of green supply chain practices was examined on different dimensions of corporate performance. Reverse logistics, environmental cooperation, green purchasing and eco-design were tested on the social, economic, environmental and operational dimension of corporate performance. The study used a sample size 117 manufacturing firms in United Arab Emirate to collect data using survery questionnaires. The findings revealed that green supply chain practices had different impact on different corporate performance dimensions. Green supply chain practices had no significant effect on environmental performance. However, environmental cooperation, green purchasing had a positive significant impact on operational performance, while as green purchasing had economic performance impact and reverse logicstic had positive significant effect on social performance. Green purchasing was associated with economic performance based on a sample size of 117. The current study targeted 512 and sample 225 managers fromthree multinational tea companies in Kenya.

Kittisak, Puttisat &Sudawan (2019) evaluated green supply chain practices in relation to performance as well as the moderating effect of total quality management in Vietenam. Green procurement, green logistic and legislation were used to examine

green supply chain management on Thailand electronic industry. Hence green supply chain practices were examined in relation to intangible, economic and environmental performance of firms. 50 sample size was carefully chosen using the Krejcie & Morgan sampling table and by adopting the convenient sampling data were collected. A structured questionnaire was designed for data collection from the respondents which consisted of two sections. Questionnaires were used to collect data from electronic industry of Thailand. According to the results regition for green environment, green logistics and green purchasing had a positve of 0.112, 0.128 and 0.001 significant effect on performance. The relationship between green supply chain practices and performance, however, was significantly moderated by total quality management practices. In the current study, it assessed the relationship between green supply chain and performance, green transformative leadership was used as a moderating variable.

2.3.3 Green Logistics Practices and Performance of Firms

Sari & Yanginlar (2014) established green logistics for implementation of development strategy. The study used empiricl review of literature. Environmental issues has become very crucial with more pressure from organization and world over. The adoption of green logistic has increasingly used by government and organization as means of environment maintainance. Green logistics entailed environmental impact of mode selection, air and noise emissions and packaging reduction. Other green logistic are recycling, remanufacturing and reusable packaging which are shared by reverse logistics. The current study showed green logistics in terms of green distribution, outbound green logistics, reverse logistics and inbound green logistics. Primary data where cross-section and correlational design were used in the current study to bridge the methodological gap.

Trivellas, Malindretos & Reklitis (2020) investigated implications of green logistic management on business and supply chain performance. COVID-19 and financial contraints has affected green agri-food supply chains where there is concern of sustainability issues. The study used questionnaires to collect data from 134 executive agri-food firms in Greece. Findings revealed that transportation and networking logistics and sharing of information influenced performance of the firm.

Green packaging influenced social and financial performance. Green warehousing and logistic emission had no relationship between performance. In this study green packaging, networking logistics and green warehousing which differs from current study. Green logistics was in terms of green distribution, outbound green logistics, reverse logistics and inbound green logistics in Kenya's multinational tea firms.

Ahmed, Hui, Ahmed, Tarek & Mahmoud (2020) examined the effect of reverse logistics and environmental performance. The research was guided by the philosophy of positivism and it applied the cross-sectional survey research design. The population of interest consist of 892 logistics firms in Kenya from which a sample of 300 firms was drawn. Primary data was collected from logistics executives using a structured questionnaire. Data were analyzed using covariance-based structural equation modelling (CB-SEM). As result of resource constrains and pollution, there is an increase concern in environmental tenability. This has lead to revolution in product design, recycling and legislation that assist firms to reduce the performance of the product. This has lead to improvement and adoption of environmental performance logistics operation and process such as reverse logistics and green logistics. The aim of the research focused on the understanding of reverse logistics in relation to barriers and drivers of its implementation in automotive industry. Some of the concepts examined are green consciousness, technology, cost and time on environmental

performance. The study by Ahmed, *et al*., (2020) used covariance-based structural equation modelling (CB-SEM) while the current study used moderated linear regression model.

Reverse logistics was examined by Cullinane, Browne, Karlsson & Wang (2017) in relation to improvement in performance through digitalization. Case study was used and Qualitative data was collected from interview and observation of reverse logistics operation in five clothing retailers as well as two logistics companies in Sweden.

The results indicated that due to increase in online purchase of clothes there is increase in reverse logistics by 12.4% through return of orders to the retailers as well as improving costs. Digitalization was found to be very crucial in minimizing the returns and address efficiency of reverse logistics. However, there is little research of reverse logistics in online clothing. Questionnaires was used in the current study to bridge the methodological gap.

Alnoor, Eneizan, Makhamreh & Rahoma (2019) investigated the effect of reverse logistics on manufacturing. Social, environmental and economical performance on sutainability of manufacturing was considered in relation to reverse logistics. A sample of 217 employees were selected randomly from manufacturing industry. Reverse logistics was found to have a positive effect of 0.111 on performance of manufacturing. Innovation and relocation were some of the proposed modification in manufacturing firm so as to meet the need of future genration. The study recommended that reverse logistics should be adopted to maintain company image as an important part of corporate responsibility.

Reverse logistics was investigated by Coşkun, Ağaoğlu & Kutluk (2017) in relation with cost and performance. Globalization has resulted to depletion of resource and

environmental degradation as result organization need to adopt new concepts in logistics. Reverse logistics has been advancely associated with flow of sold products from consumption point to recovery for disposal, reproduction, recycling or reconditioning. Cost reduction has been associated with reverse of logistics through adoption of recycling, recondition, reproduce or disposal. The study that reverse logistics should be treated as different course in learning institution. The adoption of reverse logistics would also solve environment issues such global warming. The study focused on green logistic where reverse regulation is an indicator on performance.

In their study on the effect of reverse logistics, Aggrey, Julius, Gregory, & Maurice (2018) sought to identify the impact of information management, evaluate the impact of lean agile manufacturing, and assess the impact of waste management on procurement performance among state corporations in Kenya (a case study of Kenya Medical Supplies Authority-KEMSA). The management level of a sample of 150 respondents was stratified, and respondents were chosen at random to complete the questionnaire. Third-party logistics, lean agile manufacturing, and procurement performance were found to be significantly correlated. The above study was done medical supplies firm while the current study was conducted in Multinational tea firms in South Rift part of Kenya.

In their study on an overview of green supply chain management in India, Nimawat & Namdev (2012). Multiple regression model was developed and used to establish the effect of GSCM on Organizational Performance. Correlation analysis coupled with single tailed significance test was conducted to test each hypothesis. ANOVA test was used to determine the level of significance of the relationship between the variables. The results were presented using tables. The study established that GSCP has positive effect on organizational performance they also noted that reverse logistics plays a role

in product returns, source reduction, recycling, materials substitution, material reuse, waste disposal, repair, and remanufacturing.

Businesses can use reverse logistics alongside waste management and recycling, depending on the need for sorting, collection, processing, handling, packaging, and distribution to specialized treatment facilities. Nimawat & Namdev (2012) used Multiple regression model. Correlation analysis coupled with single tailed significance test was conducted to test each hypothesis. ANOVA test was used to determine the level of significance of the relationship between the variables while this study employed correlation and cross-sectional research design.

Mumma, Nyaoga, Matwere, & Nyambega, (2014) sought to ascertain the impact of reverse logistics on environmental performance among tea processing businesses in Kericho County as part of their study on green supply chain management and environmental performance among firms in Kenya. Data were gathered from all 32 factory production managers and environmental representatives of tea processing firms in the County using self-administered structured questionnaires, and data were then analyzed using SPSS. The study was conducted using a correlation study design. The results showed that reverse logistics and environmental performance are positively correlated. The current study used the multinational tea firms.

2.3.4 Environmental Regulation and Performance of Firms

The relationship between financial performance and environmental regulation was studied by Xing, Liu, Shen, & Wang in (2020). The study also looked at whether green innovation and dynamic capability could mediate the link between environmental regulation and financial performance. Information was gathered from 355 Chinese manufacturing companies.

The results showed that green dynamic capability and sustainability exploration innovation as well as green dynamic capability and green exploitation innovation were two different mediation paths through which environmental regulation had a significant impact. Therefore, dynamic capability and innovation had mediating effect on environmental regulation and financial performance. The environmental regulation was examined on financial performance which represent economic performance. The current study focused on performance of the firm which entailed social, environmental and economic performance.

Ramanathan, He, Black, Ghobadian, & Gallear (2017) examined environmental regulation, innovation and performance of firms. Nine cases of Chinese and United Kingdom (UK) firms were used. The study reviewed Porter hypothesis where data from cases study were conceptualized. Findings indicated that dynamic approach depending on resources and capabilities in the firm to respond to environmental regulation innovatively. These firms took a proactive approach in managing environmental performance to achieve economic development. The current study used a survey of multinational firms rather than a case study of firms.

Elmagrhi, Ntim, Elamer, & Zhang (2018) analyzed environmental policies and regulation, governance structure and environmental performance in relation to the role of female directors. Female directors' age and level of education, gender diversity in the board influenced Chinese corporations' environmental performance. A dataset from 2011 to 2015 of 383 listed A-shares Chinese firms with 1,674 observation. The findings revealed that female directors' age had positive influence on environmental performance in terms of strategy, implementation and disclosure. The current study examined multinational firms rather than listed public companies.

Environmental regulations was investigated by Borsatto, Bazani, & Amui (2020) in relation to green innovation and financial performance. A sample of 159 industrial companies were analyzed using Structural Equation Modeling. The findings of environmental regulations and size of the firm were founf to have a significant positive impact on environmental investments. However, countries competitiveness had no positive influence on green innovation efforts. Similarly, internationalization of companies had no significant effect on companies' green innovation constructs.

Green innovation did not reflect positively on financial performance. The current study used moderated linear regression model rather than structural equation modelling.

Padash, Bidhendi, & Ardestani (2015) examined the development of the green strategy management framework. The Plan-Do-Check-Act cycle, which is emphasized in the environmental management system model, is the first framework and the first system to guarantee the monitoring, tracking, and reporting of emissions data. The model helps manage the environment and reduce carbon emissions, which is appropriate for a green manufacturing strategy. The second model is an ecological management and audit scheme, which contributes significantly to material and energy efficiency through the management of biodiversity, waste reduction, and emissions. Through the use of key performance indicators, which over 4600 organizations have adopted, it ensures environmental performance and monitoring. The life cycle assessment (LCA) model evaluates the environment based on an activity, process, or product and considers the resources used, the energy used, as well as any environmental wastes. The current study examined green supply chain management on performance.

2.3.5 Green Tranformational Leadership

Green transformational leadership is defined by Chen & Chang (2013) as the trait of a leader who encourages and motivates his colleagues to achieve environmental goals that go above and beyond what is expected of them from an environmental perspective. Green transformational leadership (GTL) is an emerging concept in organizations that seeks to highlight its importance in fostering and practicing green initiatives (Du & Yan, 2022). GTL refers to the behavior and understanding of leaders about the importance of actions to protect the environment and also influence the employees towards a greener cause (Begum *et al.*, 2022). The exact meaning of GTL is defined as the "behavior of leaders who motivate followers to achieve environmental goals and inspire followers to perform beyond expected levels of environmental performance" (Chen & Chang, 2013). Green transformational leadership inspires the employees to serve a sublime cause creating in them belongingness for pro-environmental behaviors beyond what is beneficial for themselves (Robertson, 2018).

Green transformational leadership relates to behaviour of leaders who motivate their followers in achieving green creativity, achieved environmental goal and inspire green strategies (Singh, Del-Giudice, Chierici, & Graziano, 2019). This implied that green transformational leaders are oriented environment ideologies that boost environmental, social and economic performance of the firm. Green behaviour of the transformative leadership is important to followers developing individual's green value (Zhou, Zhang, Lyu, & Zhang, 2018). According to Teixeira, Jabbour, De-Sousa, Latan, & De-Oliveira (2016), green tranformational leadership plays an important role in ensuring not only green values but also ensure green supply chain concepts are adopted leading to improvement of firms performance.

It was discovered that green transformational leadership influences green creativity (Zhang, Xu & Wang, 2020). The authors contend that participation in the creative process acts as a bridge for green creativity. Green innovation strategy did, however, play a moderating role in the connection between creative process engagement and green transformational leadership. Bakri & Abbas (2020) in their study of transformational leadership role in biodiveristy pointed that a tranformative leader should integrate green strategies in individual consideration, inspiration motivation, intellectual stimulation and idealized influence in order to achieve economic development.

Widisatria & Nawangsari (2021) found out that green transformational leadership had a positive relationship with economic performance of corporation.

The author added that organizational citizenship behavior for the environment had mediating effect on the relationship between green transformational leadership and tenable performance of corporation. Green human resource management has also be found to have mediating effect on the relationship between green transformational leadership and environmental biodiversity (Sun, Askary, & Meo, 2021).

Kim *et al*., (2019) carried out a study on green transformational leadership and firm's performance and found a positive relationship between GTL and the performance of the hotel industry. The study's findings showed that GTL plays a significant positive role in firm performance. Roscoe *et al*. (2019) also examined the nexus between GTL and firm performance. The findings show that GTL plays a major role in improving firm performance. Rawashdeh et al., (2021) found GTL positively and significantly enhances the environment in the health sector of Jordan.

Green tranformational leadership was examined by Shah, Sukamani, &Kusi, (2020) on performance as well as the mediating effect of green procurement and green creativity. Compential theory of creativity and resource based view theory was used. A sample of 305 construction project team members in Nepal. Empirical results were obtained structural equation model. Green transformational leadership, green procurement and green creativity had positive significant effect on performance of the firm. Additionally, green procurement and green creativity had partial mediation effect on relationship between green transformational leadership and construction firm's performance. However, the current study investigated the moderation effect of green transformational leadership on the relationship between green supply chain practices and sustainable performance.

Zhang, Xu, & Wang (2020) investigated green transformational leadership on green creativity.

However, creative process engagement and green innovation strategy were treated as intermediary bond and boundary spanner respectively. The study was done in 23 companies consisting a sample of 46 supervisors and 298 employees. The results indicated that green innovation strategy had moderating role as boundary spanner path linking creative process engaement and green transformational leadership. However, there existed mediating effect of creative process engagement as intermediary bond between green transformational leadership and green creativity.

Chen, Chang, & Lin (2014) investigated the impact of green transformational leadership on environmental performance, using green self-efficacy and green mindfulness as mediators. The moderating effects of green self-efficacy and green mindfulness on green transformational leadership and green performance were investigated using a structure equation modeling method. The results showed that

green transformational leadership had a favorable impact on green performance, green self-efficacy, and green mindfulness. Green performance and green transformational leadership were partially mediated by green self-efficacy and green mindfulness.

The impact of green transformational leadership and motivation on a company's corporate performance (Widisatria & Nawangsari, 2021). The mediating variable, though, was organizational citizenship behavior for the environment. At PT Karya Mandiri Sukses Sentosa, 40 employees were chosen using saturated sampling. The data analysis method used was structural equation modeling. Results showed that organizational citizen behavior for the environment and green transformational leadership had a positive, significant impact on corporate performance. Organizational citizen behavior for the environment had a positive, significant relationship with green transformational leadership and motivation. Green transformational leadership and corporate performance were mediated by organizational environmental citizen behavior. Similarly, organizational citizen behavior for environment had mediating effect of motivation on corporate performance. The current study focused on green transformational leadership, green supply chain management and sustainable performance.

2.3.6 Sustainable Performance of Firms

Performance is multi-dimensional concept that entail operational, social, economic and environment performance. However, some green supply chain studies put a focus on environmental performance, and this still remains one dimension of performance. According to Younis, Sundarakani, & Vel (2015) who examined green supply chain practices (Padash, Bidhendi & Ardestani, 2015; Ahmed, Hui, Ahmed, Tarek & Mahmoud, 2020). Economic, social and environmental perforamance remained to be the main indicators of tenable performance (Alnoor, Eneizan, Makhamreh and

Rahoma, 2019; Qorri, Mujkić, Gashi & Kraslawski, 2018). Other measure of performance are green performance and corporate tenable performance as employed by Chen, Chang & Lin (2014) and Widisatria & Nawangsari (2021) respectively.

Environmental biodiversity has gained more concern globally with environmentalist and nations coming in passing policies that would incorporate public as well as private sector (Gajendrum, 2017). Social and environmental dimensions has remained to be crucial in modern society, it is significantly affected by green and tenable supply chain management mainly in the emerging economies (Gamboa-Bernal, Morento-Mantilla, & Orjuela-Castro, 2020). Green human resource has been found by Sun, Askary, & Meo (2021) to mediate the relationship between green transformatial leadership and environmental performance of small and medium enterprises.

Victoria, (2016) did a study on Impact of sustainability practices on the firms' performance in Philippines using survey data collected from five multinational firms operating in Cebu's export processing zone. The study adopted the quantitative method of research specifically the descriptive normative survey. The primary data gathering procedure for this research was through the use of the questionnaire with structured, closed ended questions. The primary data gathering procedure for this research was through the use of the questionnaire with structured, closed ended questions. The results revealed that the sustainability practices had a significant impact on the overall performance of the firms. This indicates that conventional single objective of improving the business's economic performance has been replaced with the concept of improving the multiple bottom line of measuring sustainable performance in terms of making profit while considering the impact of the firms' actions on the environment and its various stakeholders, thereby making the firm

more economically sustainable in the long run. The current study bridged the methodological gap of the above study.

In their study, Qorri, Mujki, Gashi, & Kraslawski (2018) examined a company's performance and green supply chain practices. Economic, social, and environmental performance were used to gauge performance. Based on a meta-analysis method with 85 independent effects and a sample size of 20011 firms, this was done to determine how green supply management affected the performance of the company. The results showed that using a green supply chain had a positive, significant impact on the company's performance. It was also found that green supply chain practices had significant effect on economic, social and environmental performance leading to firm's performance. This moderation was moderated significantly by the firm size, industry type and geographical region. The current study used economic, social and environmental performance.

Shafique, Asghar & Rahman (2017) examined the impact of green supply chain practices on performance. The study measured performance using economic and environmental performance in electronic firms. It also investigated the institutional pressure and green innovation moderating and mediating role respectively. A sample of 500 electronic firms in Pakistan were surveyed using questionnaires. Hayes' statistics test, multiple logistic regression, moderated regression, linear regression, Pearson Correlation and descriptive statistics were used in analysis. The findings showed that green supply chain management techniques were subject to institutional pressure and could make use of green innovation already in place to enhance both environmental and economic performance. Along with measuring environmental and economic performance, the current study gauged social performance. Marasuriya (2018) conducted an organized review of the literature on performance supply chain

management theories. Aspects of the social, environmental, and economic nature were used to gauge performance.

The research looked at literature from 1995 to 2015. The findings indicate that the theories of agency, institutions, transaction costs, and RBV were applied. However, these theories does not support all three performance aspect that is social, economic and environmental. Therefore, there is need for research on social aspect of performance with appropriate theoretical framework that support supply chain management.

Prado, (2018) did a study on the effects of sustainability performance on corporate financial performance using a structural equation modeling approach in Germany. The study used a target from 179 organizations that reported their sustainable information using the standards reporting model, until the end of 2018. The construct portraying environmental performance was found to be substantially related to financial performance. The other relationship that was found regarded the Social Performance construct as weakly related to the accounting performance. The above study used structural equation modelling while the current study used multiple linear model.

Onu & Mbohwa (2018) proceeding of conference investigated green supply chain management and industrial practices. Performance of the firms were examined using environmental performance. Industries have transformed there operation to allow green supply chain through adoption of sensor technologies, radio frequency identifiers and cloud innovation in order to meet customer expectation. As result of growing internet connection, emission control initiative and energy efficiency has resulted to emerging fourth industrial revoluation that favour performance practices.

The paper discussed the technological benefit, approach and barriers in achieving GSCM for economic development.

Technology was found to be responsible for improvement of productivity. The study compared the growth of adoption of technology as a means of improving environmental impacts through the use of information technology and conservation of energy for future performance. The curent study focused on economic and social besides environmental performance.

2.4 Conceptual Framework

Firm's performance which was measured by environmental, social, operational environmental performance represented the dependent variable. Green purchasing, reverse logistics, green logistics and eco-design practice represent independent variable. Where green purchasing was measured using recyclable inventory, reduced inventory usage, green inventory and improved raw material. While reverse logistics was measured using reusable product, recycling product, end life product re-use and reduction of harmful product. Green logistics which used green recycling, reduction of wastage, life cycle assessment and reduction of hazardous products were used as indicators. Finally, Eco-design practice was measured using reusable packaging, product eco-design, resource saving and efficiency product process. Moderating variable was green transformational leadership which was measured using green mindfulness, green self-efficacy, green creativity and green inspiration.

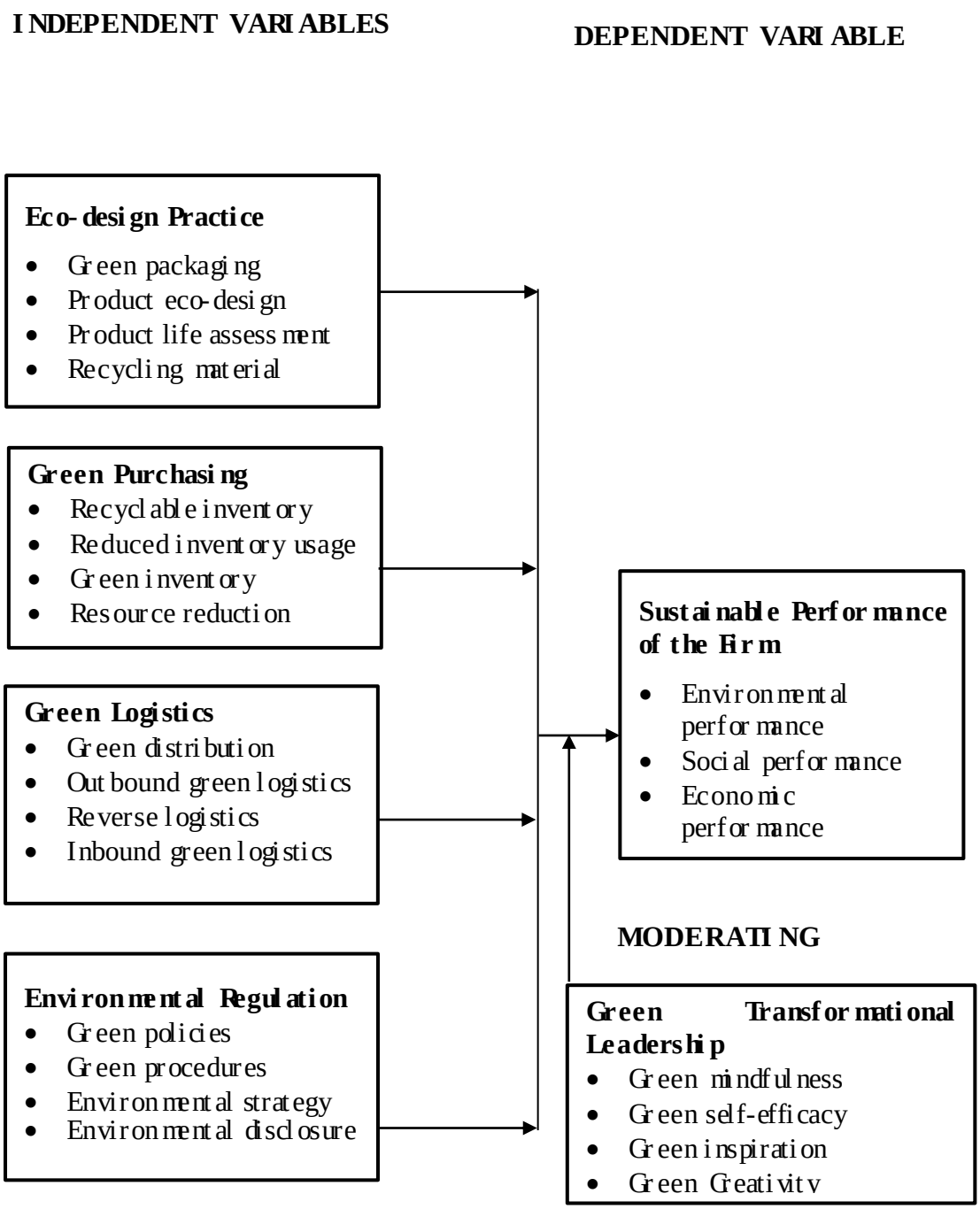


Figure 2.1: Conceptual Framework

Source: Adapted and modified from (Kim *et al.*, 2019; Lăzăroiu, *et al.*, 2020; Zhang, Xu, & Wang, 2020)

2.5 Knowledge Gaps

Conceptual gap was addressed by the current study arising from Padash, Bidhendi & Ardestani (2015) which studied green strategy management framework and development. The current study focused on green supply chain management. In the study by Monteiro, Silva, Ramos, Campilho and Fonseca (2019) eco-design was examined on performance of packaging. The current study bridges conceptual gap by examining performance in terms of social, economic and environmental performance. Conceptual gap in Aslam, Waseem & Khurram (2019) study's of green supply chain management on corporate image was addressed by current study where performance were measured against green supply chain management. Green supply chain practices was measured by process design, green product, internal environmental practices and environmental practices on performance as researched by Thoo, Huam, Zuraidah & Siti (2015). The conceptual gap was addressed by measuring green supply chain management in terms of green purchasing, green logistics, eco-design and environmental management.

Green supply chain practices and performance was moderated by total quality management in study by Kittisak, Puttisat & Sudawan (2019). Chen, Chang & Lin (2014) in the study also focused on green transformational leadership and green performance with mediators as green self-efficacy and green mindfulness leading to conceptual gap. The current study addresses the moderating of green transformative leadership on green supply chain practices and performance. Alnoor, Eneizan, Makhamreh & Rahoma (2019) investigated reverse logistics on performance manufacturing which was addressed by current study where the main focus was on performance.

Similarly, Coşkun, Ağaoğlu & Kutluk (2017) focused on reverse logistics and cost rather than performance where current study addresses. Xing, Liu, Shen, & Wang (2020) in their study did environmental regulation and financial performance whereas the current study focused on development in terms of economic, social and environmental performance.

Empirical review through meta-analysis of literature as adopted by Rosen & Kishawy (2012). Similarly, Lăzăroiu, *et al*. (2020) reviewed literature between 2017 to 2020 to examine green procurement adoption n public sector. Dubey, Bag, Ali & Venkatesh (2013) used empirical evidence on green purchasing in relation to superior performance. Sari & Yanginlar (2014) also used empirical evidence to examine the implementation of green logistics development strategy. Ramanathan, He, Black, Ghobadian, & Gallear (2017) examined environmental regulation, innovation and performance of firms using reviewed Porter hypothesis. To address this methodological gap cross-section and correlational research design that depended on primary data was used.

Methodological gaps that involved the sample size and scope of the study were addressed. Younis, Sundarakani & Vel (2015) did green supply chain practices on corporate performance where a sample size of 117 manufacturing firms in United Arab Emirate. A sample of 134 executive agri-food firms were used in greece to examine the implicaiton of green logistic management on performance business and supply chain performance. A survey of 1674 observation from 383 listed A-shares Chinese firms were examined by Elmagrhi, Ntim, Elamer, & Zhang (2018). The current study used a target of 512 managers from three multinational tea firms with a sample of 225 managers collected using stratified sampling technique.

Web surveys was used by Ahmed, Hui, Ahmed, Tarek & Mahmoud (2020) where reverse logistics was examined on environmental performance. Qualitative data collection was adopted by Cullinane, Browne, Karlsson & Wang (2017) using inteview and observation. The current study used questionnaires to collect data from the multinational tea firms in Kenya. Borsatto, Bazani, & Amui (2020) focused on environmental regulation and financial performance, however, the study also examined green innovation using structural equation modelling. The current study adopted moderated linear regression model.

Contextual gaps were addressed in the current study. Green transformational leadership were extracted in the context of corporate performance in PT Karya Mandiri Sukses Sentosa as study Widisatria & Nawangsari (2021). Zhang, Xu, & Wang (2020) focused on companies where the study examined green transformational leadership on green creativity. Trivellas, Malindretos and Reklitis (2020) did a study in Greece's agricultural processing firms. Multinational tea companies in Kenya that manufacture agricultural products was the subject of the current study.

Table 2.1

Summary of Empirical Literature Review

Author	**Title / Objectives**	**Findings**	**Research Gap**
Wakulele, Odock, Chepkulei and Kiswili, (2016)	Eco-design practices and performance of manufacturing firms.	Raw material practices, distribution design, product design and operation had positive influence on environmental cost saving.	The current study used multiple linear regression while the study by the mentioned author used probit modelling.
Monteiro, Silva, Ramos,	Eco-design and strategy of	Eco-design package lead to reduction in environmental	The study adopted correlation and cross-

Campilho and Fonseca (2019)	packaging in Asia.	pollutant packaging and therefore, improved environmental biodiversity.	section research design as opposed to survey design.
Rosen and Kishawy (2012)	Sustainable design practices, needs and concepts in manufacturing.	Technology and operation advancement in manufacturing section have improved environmental performance and stewardship.	The current study collected primary data rather than the use of empirical review of literature.
Momanyi (2013)	Green manufacturing practices by food processing firms.	Green manufacturing practices had significant innovation performance, decrease in environmental accidents and cost of saving for environmental projects.	Current study adopted correlational and cross-sectional research deign as opposed to cross-sectional survey research design.
Mohammed (2012)	Green supply chain management and performance of manufacturing firms in Mombasa.	Green supply chain management had positive significant impact on the performance of manufacturing firms in Mombasa.	The study used survey of 10 manufacturing firms while the current study targeted three tea multinational firms using cross-section and correlation research design.
Babu (2013)	Green supply chain practices and operational performance of personal care manufacturing firms in Nairobi.	Good image, brand enhancement, reduce logistic cost, reduce cost of material and manpower utilization were some of operational performance that were significantly improved by green supply chain practices.	The current study examined eco-design on sustainable performance rather than green supply chain management and operation performance.

Aslam, Waseem and Khurram (2019)	Green supply chain practices and corporate image, mediated by green communication.	Corporate image was significantly improved through customer cooperation, internal environment, green supply chain, inventory and eco-friendly activities.	The current study examined green purchasing, green logistics, eco-design and environmental regulation on performance rather than corporate image.
Thoo, Huam, Zuraidah and Siti (2015)	Green supply chain practices and performance of the firm.	Process design, green product, internal environmental practices and environmental practices had positive significant on firm performance.	The current study sought to measure green supply chain management in term of green purchasing, green logistics, eco-design and environmental management.
Dubey, Bag, Ali, & Venkatesh, (2013)	Green purchasing and superior performance.	Market pressure, strong leadership, strong regulatory environment and quality management were significant customer satisfaction aspects.	The current study adopted primary data using questionnaires while the mentioned study adopted empirical literature review
Lăzăroiu, et al., (2020)	Green public procurement.	Green purchasing enables firms to ensure low carbon footprint, reduce pollution and climate change leading to environmental performance. Green purchasing practices has achieved through data-driven smart cities, sensing and computing technology as well as network connectivity and internet.	The study adopted empirical review of literature while the current study adopted cross-sectional and correlation design that used primary data.

Younis, Sundarakani & Vel, (2015)	Green supply chain practices and corporate performance.	Green supply chain given by reverse logistics, environmental cooperation, green purchasing and eco-design had no impact on environmental performance. However, environmental corporation, green purchasing had positive impact on operational performance. Green purchasing had economic performance and	The current study targeted 225 managers from the three multinational tea companies as opposed to 117 respondents.
Kittisak, Puttisat & Sudawan (2019)	Green supply chain practices and performance as moderated by total quality management in vietenam	Green purchasing had positive significant influence on performance however, green logistics and green environment had no impact on performance. Quality management practices moderated the relationship between green supply chain and performance.	The current study examined the relationship between green supply chain and performance, with green transformative leadership as moderating variable.
Sari & Yanginlar (2014)	Green logistics and implementation of development strategy.	Green logistics had increasingly affected the environmental conservation. The study also found that green logistics reduce impact on air and noise emission.	Green logistic in the current study was in terms of green distribution, outbound green logistics, reverse logistics and inbound green logistic asesed using primary data rather than empirical

			review of literature.
Trivellas, Malindretos & Reklitis (2020)	Green logistics management on business and supply chain performance.	Transportation, networking logistics and sharing of information has influenced social and financial performance.	Green packaging, networking logistics and green warehousing used in the study differ from current study that used green distribution, outbound green logistics, reverse logistics and inbound green logistics
Ahmed, Hui, Ahmed, Tarek & Mahmoud (2020)	Reverse logistics and environmental performance.	Resource constrains and pollution have increased concern in environmental tenability. Product design, recycling and legislation that assist firms to reduce the performance of the product.	The study used covariance-based structural equation modelling (CB-SEM) rather than multiple linear regression modelling
Cullinane, Browne, Karlsson & Wang (2017)	Reverse logistics and performance through digitalization.	Digitalization was important in reduction of returns and improving the efficiency of reverse logistics.	Questionnaires was used in the current study rather than empirical review of literature.
Alnoor, Eneizan, Makhamreh & Rahoma (2019)	Reverse logistics on manufacturing.	Reverse logistics had positive significant effect on performance of manufacturing.	The current study examined not only reverse logistic but included green distribution, outbound green logistics, and inbound green logistics
Coşkun, Ağaoğlu & Kutluk (2017)	Reverse logistics on cost and performance.	Reverse logistics in terms of recycling, recondition, reproduce and disposal had	The study examined green logistics where reverse logistics in one of the

		positive association with the flow of product sold and cost reduction.	indicator on performance rather than cost reduction.
Aggrey, Julius, Gregory, & Maurice (2018)	Lean agile manufacturing and impact of waste management on procurement performance.	Lean agile manufacturing had positive significant relationship with procurement performance.	The study was done in tea industry where multinational tea firms in South Rift of Kenya was examined rather than Medical Supplied Authority in Kenya.
Nimawat & Namdev (2012)	Green supply chain management and organizational performance.	Green supply chain management had positive effect on organizational performance.	ANOVA analysis was used to test the relationship between variable, however, the current study adopted multiple linear regression analysis.
Benard, Onyango, Muma *et al.*, (2014)	Reverse logistics on environmental performance along tea processing business in Kericho County.	The study found that reverse logistics had positive significant influence on environmental performance.	The current study used the multinational tea firms where regression analysis was adopted in analysis rather than ANOVA analysis.
Xing, Liu, Shen & Wang (2020)	Financial performance and environmental regulation.	Environmental regulation was mediated by green dynamic capability, sustainability exploration innovation, green dynamic capability and green exploitation innovation.	The current study focused on performance in terms of social, environmental and economic performance.
Ramanathan,	Environmental	Dynamic approach depended	The current study used a

He, Black, Ghobadian, & Gallear (2017)	regulation, innovation and performance of firms.	on resources and capabilities in the firm in respond to environmental regulation.	survey of multinational firms rather than case study of firms.
Elmagrhi, Ntim, Elamer, & Zhang (2018)	Environmental policies and regulation, governance structure and environmental performance.	Female's directors' age had positive influence on environmental performance in terms of strategy, implementation and disclosure.	The current study examined multinational firms rather than listed public companies.
Borsatto, Bazani, & Amui (2020)	Environmental regulation and green innovation and financial performance.	Environmental regulation and firm size had positive significant relationship with financial performance.	The current study adopted linear regression modelling rather than structural equation modelling.
Padash, Bidhendi, & Ardestani (2015)	Green strategy management framework.	Life cycle assessment model which was an activity, process, or product and considers the resources used, the energy used, as well as any environmental wastes.	The current study examined green supply chain management on performance.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

Methodological procedures, description and collection of data are explained in this chapter. This entails research design, area of study, population and sampling procedures, data collection tools, its validity and reliability as well as data collection produces, analysis and presentation. Ethical consideration is also explained in this section.

3.2 Research Design

A research philosophy is a set of principles for gathering, evaluating, and using information about a phenomenon (Saunders, Lewis & Thornhill, 2012). According to Collins (2010), research philosophies can be divided into three groups based on their focus on the origin, nature, and development of knowledge: pragmatism, positivism, and realism or interpretivism. The study adopted positivism research philosophy which enables independence of the study from researcher manipulation (Bryman & Bell, 2015). As a result the data collected has no interference from its original state. This allowed the study to collect quantitative information from the subject with high accuracy. The information collected can be used for generalization purpose.

Correlation and cross-sectional research designs were utilized in this study. According to Creswell & Creswell (2017) as study can have quantiative, qualitative or mixed approach to research. Correlation design plays an important role in testing the hypothesis mainly in establishing the linked between two or more variables (Abbott & McKinney, 2013).

This allows correlation design to be adopted in quantitative data to examine the interrelationship between green transformational leadership, green supply chain practices and sustainable performance. Cross-sectional survey research design benefits from quantitative based on its ability to collect data at a snapshot of time (Creswell & Creswell, 2017). These designs were preferred because they are exploratory, allow for comparisons and analysis of the research findings, and also enables the researcher to collect, summarize, present, evaluate and interpret the data in a simpler and more understandable form (Kothari, 2008).

3.3 Area of Study

The study focused on Kericho and Bomet Counties. The two counties are the part of South Rift region. Kericho County lies between longitudes 35^0 02^0 West and 35^0 40^0 East and also between the Equator and latitude 0230 South. The County is bordered by Nandi South to the North, Nakuru to the South east, Kibatech Northwest and Nyando to the West, Nyamira and Rachuonyo to the Southwest and Bomet to the South. The county has an area of 1,125.1 km^2.

Bomet County borders the County of Kericho to the North and North Eastern, Narok County to the South Eastern, Nyamira County to the North West and Nakuru County to the East. It covers an approximate area of 2,037.4 Kilometers square where 1,716.6 Kilometers square of this land is suitable for farming (Bomet County Development Profile 2018). Bomet County is divided into five sub-counties namely: Sotik, Chepalungu, Bomet East, Bomet Central and Konoin (Bomet County Development Profile 2018). Data was collected from multinational tea companies within Kenya which includes James Finlays, George Williamson and Ekaterra tea Limited.

The three multinational companies have extensively established in other countries producing tea such as in Sri Lanka, India and China.

However, in Kenya they are mainly situated in Kericho and Bomet County where tea is the main cash crop. The three firms have vast land of tea plantation and extensive tea factories distributed in the two counties.

3.4 Target Population

Asiamah, Mensah, & Oteng-Abayie (2017) defined target population as a representation of the specified scope where specific features are neccesary in obtaining the objective of the study. Kothari (2011) defines population as the domain of the researcher. The target population, according to Sekaran and Bougie (2016), is a group of people or circumstances that the researcher wants to study. According to them, the characteristics of a study population should align with the interests of the researcher. The study targeted 512 top, middle and lower-level managers from tea plucking to tea product distribution from the three multinational companies. The managers were appropriate for the study because they have knowledge on the green supply chain practices, green transformative leadership and economic development. The population framework is presented in table 3.1.

Table 3.1
Population Framework

Stratums	**Management level**			**Sub-Total**
	Top	**Middle**	**Lower**	
James Finlays	12	43	181	236
George Williamson	8	24	87	119
Ekaterra Tea	10	38	109	157
Sub-Total	30	105	377	512

Source: Jame Finlays, George Williamson and Ekaterra Tea HR (2022)

3.5 Sample Size and Sampling Procedure

This section discusses the sample size determination formula and the sampling procedures used to select the sample size.

3.5.1 Sample Size

A sample size is a scientific method that is used in obtaining a sample from target population and ensuring that the right data with required characteristics are collected (Masuku & Sing, 2014). Sarantakos (2005), defined sampling as choosing units of a study population that are to be included in the study in such a way that it is a representative of the entire population. The study used Taro Yamen (1974) formula in calculating the appropriate sample size. This is given by the formulae;

Therefore for this study;

3.5.2 Sampling Procedures

Kothari (2011) explains sampling procedure as the process of selecting portions of an aggregate or totality from which a judgment or conclusion is made. By concentrating only on a small portion of the population, it is the process of learning details about the entire population. According to Copper & Schindler (2011), Mugenda and Mugenda (2012), inferential statistics frequently use sampling to make predictions about population behavior. A researcher can be certain that the sample accurately reflects the characteristics of the population by using sampling techniques.

In order to obtain the desired sample, multistage sampling procedure was adopted. In the first stage a stratified random sampling procedure was used to obtain the sample

of the respondents from each multinational company. The area under study has three multinational companies which formed the strata for this study. In the second stage, a proportionate sampling procedure was used to select the respondents from each management level. A list of top, middle and lower management was obtained from the Human Resource manager for each of the multinational tea firms. The names of the management was serially numbered first and then randomly ordered and picked using a simple random sampling technique. This technique gave each respondent an equal opportunity of being selected and therefore increased the chances of obtaining an appropriate and representative sample size. This was advantageous in the sense that the sample frame was already available in the form of a list (Kothari, 2004). The sample framework is shown in Table 3.2.

Table 3.2

Sample Framework

Stratums	**Details**	**Management level**			**Sub-Total**
		Top	**Middle**	**Lower**	
James Finlays	Total	12	43	181	236
	Sample	5	19	80	104
George Williamson	Total	8	24	87	119
	Sample	4	11	38	52
Ekaterra Tea	Total	10	38	109	157
	Sample	4	17	48	69
Sub-Total	Total (N)	30	105	377	512
	Sample (n)	13	46	166	225

3.6 Data Collection Instrument

This study used both primary and secondary data. Primary data was collected directly from the management using structured questionnaires. Structured questionnaires was used for data collection. According to Taherdoost (2016) semi-structured questionnaires are appropriate since it has open and close ended questions which allow the researcher to extract both qualitative and quantitative data without affecting the respondents. This allows independents between researcher and the study resulting to acquisition of information from the subjects with manipulation.

The questionnaire consisted of four sections. Section A, representing general information, section B, C and D representing green supply chain practices, green transformational leadership and sustainable performance respectively. The questionnaires adopted a five-point Likert Scale which was appropriate in obtaining mean and standard deviation. The Likert scale measured 1 as strongly agreed and 5 as strongly disagreed.

Some of the secondary sources of information that were used are; journals, books, and websites

3.7 Validity and Reliability of Research Instrument

The study examined validity and reliability of the research instrument. The study conducted a pilot study in George Williamson Tea company in Nandi County which is in North Rift which enabled the researcher in testing the reliability of research instrument, however, the respondents were excluded in the actual study.

3.7.1 Validity of the Instrument

How well a data collection tool measures what it is intended to measure is referred to as validity (Naibei, 2015). According to Cooper & Schindler (2011), a good

measurement tool should have the ability to accurately counter or indicate the variables that the study is trying to measure. The instrument should also be easy to use and effective. The questionnaire went through validity evaluations to see how well it captures what the researcher is intending to measure.

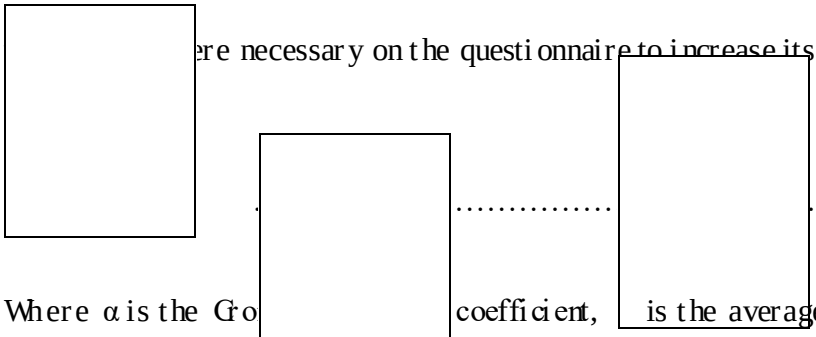
In order to obtain accurate data representing the objective of the study validity of the instrument was ensured. Content validity was examined by supervisor based on the conceptualization of question according to conceptual framework. Similarly, face validity was achieved through interrogation of questions by supervisor and experts on how each question provides accurate presentation of information which is intended to answer research hypothesis. Criterion validity was also examined to ensure that the questions are measurable. Finally, construct validity was attained through ensuring that each item in question achieved intended objectives (Grimm & Widaman, 2012). The researcher also made sure that the instructions for completing the questionnaire were the same for every participant and that the questions were written in plain language that the respondents could understand. To determine suitability for factor-factor analysis, the instrument were statistically tested using the Kaiser-Meyer-Olkin (KMO) value and Bartlett's test of sphericity.

3.7.2 Reliability of the Instrument

According to Mohamad, Sulaiman, Sern, & Salleh (2015) the consistency of the instrument after repeated measure is crucial in ensuring the reliability of the research tool. In order to determine reliability of the instrument 23 questionnaires representing 10% of the sample were piloted in George Williamson Tea company subsidiaries in Nandi County which is in North Rift. The firm had similar management and characteristic as the mother firm in Kericho county making it appropriate for piloting. Taber (2017) pointed out that Cronbach Alpha coefficient is appropriate realibility

measure of research instrument. However, the respondents never took part in the actual research.

Data from the pilot study were analysed using Cronbach's Alpha coefficient, mathematically expressed as shown in the following below equation. Adjustments were necessary on the questionnaire to increase its reliability.



.....(3.2)

Where α is the Cronbach coefficient, is the average inter-item covariance among the items, is the average variance and N is equal to the number of items/observations. The reliability of the tool was determined by the use of the Cronbach's Alpha coefficient. . A coefficient of more than 0.7 was found in all the study variables which showed that the data collection instruments were reliable. After calculating the Cronbach's Alpha coefficient for this study, the reliability coefficient results are as shown in Table 3.3.

Table 3.3

Reliability Statistics

Variables	**No. of items**	**Cronbach's Alpha**
Eco-design	5	0.819
Green Logistics	5	0.797
Green Purchasing	6	0.803
Environmental Regulation	6	0.790
Green Transformational Leadership	5	0.771
Sustainable Performance	7	0.770
Average		0.792

Table 3.3 indicates the Cronbach's alpha coefficient of the six variables studied namely; eco-design, green purchasing, green logistics, environmental regulation, green team leadership and sustainable performance. The questionnaire indicators based on the study items indicated that all the study variables were generally reliable **as shown by a reliability score of above 0.7.**

3.8 Data Collection Procedures

Data collection is the process of obtaining details about a research topic from primary, secondary, or both data sources (Babbie, 2015). Clearance letter was sought from the University of Kabianga, which was used to apply for a research permit from the National Commission for Science, Technology, and Innovation. Prior to requesting permission from the three multinational tea companies in Kenya, permission was sought from the County government, County Commissioner, and Ministry of Education. Then the researcher with the help of research assistance distributed the questionnaires to the respondent and request a time frame of two weeks to pick them back.

Data was collected after seeking consent from the respondents. The questionnaires was self-administered and collected within duration of two weeks. Once all questionnaires had been responded to and collected the researcher cleaned and coded the questionnaires ready for analysis.

3.9 Data Analysis and Presentation

Data analysis includes editing, coding, classification, tabulation, and graphical presentation (Hall, 2010). To maintain consistency and accuracy, the research data was edited to make it clear and unambiguous. Reducing large amounts of data to

manageable sizes, producing summaries, searching for patterns, and using statistical techniques are typical data analysis tasks (Cooper & Schindler, 2011).

Upon receipt of the filled questionnaires, the initial screening of data begun by sorting, coding, and cleaning. Incomplete data sources were discarded. The other pieces were then be numbered and coded using a coding frame ready for entry and analysis. For the determination and description of elements of independent variables, descriptive statistics was used for the dependent variable. Descriptive analysis entailed frequencies, mean as well as standard deviation which were presented using frequency table and charts. Inferential statistics played a major role in testing the hypothesis of the study. Simple regression was adopted in testing the first four hypotheses and moderated multiple regression was utilized in testing the fifth hypothesis. The study adopted correlation analysis for testing direct relationship between variables examined.

In order to test hypothesis simple linear regression was adopted to test direct relationship between green supply chain practices and sustainable performance. However, hierarchical technique was used to introduce moderated multiple linear regression analysis. Therefore, the data adopted Baron and Kelly approach of moderated multiple linear regression (Baron & Kenny, 1986).

3.9.1 Simple Linear Regression Models

Simple linear regression analysis was appropriate based on its ability to test effect of independent variable on dependent variable. This took into consideration the individual predictor significant effect testing at 5% level as well as measure of the coefficient of determination (R^2) individually on the dependent variable. Therefore, there were four simple regression models representing the relationship between eco-

design practices, green purchasing, green logistics and environmental regulations on performance of the firm respectively.

Where;

Y= Sustainable Performance of multinational firms

β_0 = Constant,

β_1, β_2, β_3, β_4 = Beta coefficient of X_1, X_2, X_3, and X_4, respectively,

X_1 = Eco-design, X_2= Green Purchasing, X_3= Green Logistics, X_4= Environmental Regulation, ε= Error coefficient.

3.9.2 Multiple Linear Regression Model

The study adopted multiple linear regression model in formulating the weighted effect of green supply chain practices on sustainable performance of the firm. This provided individual effect of eco-design practices, green purchasing, green logistics and environmental regulation. In order to form a weighted mean that represented green *was used. This implies that weighted mean as presented by Sharma (1996), is given* by $X = w_1X_1 + w_2X_2 + \cdots + w_jX_j$, in which w_j was estimated by in the regression model.

This allowed the study to provide the overall weight effect of eco-design practices, green purchasing, green logistics and environmental regulations as presented in Equation 3.7.

Y	= Sustainable Performance of Multinational Firm
β_0	= Constant Term
$\beta_1, \beta_2, \beta_3, \beta_4$	= Beta coefficients
X_1	= Eco-design practices
X_2	= Green procurement practices
X_3	= Green logistics practices
X_4	= Environmental regulation practices
	= Error Term

3.9.3 Moderated Multiple Linear Regression Model

Moderated Multiple linear regression model was adopted in testing direct relationship between green supply chain practices (X) on performance of multinational tea firm (Y) as presented by Equation 3.8. However, the moderated multiple linear equation was adopted to determine the effect of interaction between green supply chain practices (X) and green transformational leadership (Z) on performance of multinational tea firms as represented in Equation 3.9. The study evaluated the R^2 change between equation 3.8 and 3.9 if it is significant in order to test if there is significant change before introduction of green transformational leadership and after moderating on the relationship between green supply chain model and Sustainable performance of multinational firms.

The moderated multiple regression model will include;

Where;

Y	= Sustainable Performance of Multinational Firm
β_0	= Constant Term
$\beta_5, \beta_6, \beta_7$	= Beta coefficients
X	= Green Supply Chain Practices
Z	= Green transformational leadership
X*Z	=Interaction between the green transformational leadership (Z) and green supply chain practices (X).
e	= Error Term

3.10 Diagnostic Tests

Diagnostic test was necessary for adoption of multiple linear regression model. Multiple linear regression model must achieve normality, linearity, homoscedasticity, with no autocorrelation nor multi-collinearity (Hair, 2014).

3.10.1 Multicollinearity Test

For this study, multicollinearity test was performed to check for correctness of the estimates of the variables using Variance Inflating Factor (VIF). It is the most widely

used measure with independent variables. VIFs between 1 and 10 suggest that there no multicollinearity among independent variables.

Table 3.4 indicates that factors in the independent variables had VIF values less than 10, hence confirming the absence of multicollinearity.

Variables	Collinearity Statistics		Comments
	Tolerance	VIF	
Ecological Design	0.204	4.911	Acceptable
Green Purchasing	0.152	6.566	Acceptable
Green Logistics	0.607	1.647	Acceptable
Environmental Regulation	0.940	1.064	Acceptable
Green Transformational Leadership	0.414	2.415	Acceptable

Table 3.4

Multicollinearity Test

3.10.2 Normality Test

Normality was examined using Skewness and Kurtosis test which examines whether the variables are normally distributed or not for large and small sample respectively where the skewness and kurtosis values according to Creswell (2012) should be between -2 and +2.

Table 3.5

Normality Test

	Skewness		Kurtosis	
	Statistic	Std. Error	Statistic	Std. Error
Ecological Design	-.435	.167	-1.547	.333
Green Purchasing	-.229	.167	-1.697	.333
Green Logistics	-.715	.167	-.556	.333
Environmental Regulation	-.525	.167	-.197	.333

Performance	-1.491	.167	1.972			.333

The test results showed that all variables had values between the recommended **ranges. Therefore, the study variables had a normal distribution as shown in Table 3.5.**

3.10.3 Linearity Test

Linearity was tested using one-way ANOVA test of linearity between green supply chain practices, and sustainable performance. The test will only be linear if the significant level obtained is less 5% (Field, 2009).

Table 3.6

Linearity Test

			Sum of Squares	df	Mean Square	F	Sig.
Performance * GSCPractices	Between Groups	(Combined)	217.830	21	10.373	5.227	.000
		Linearity	29.402	1	29.402	14.816	.000
		Deviation from Linearity	188.428	20	9.421	4.747	.000
	Within Groups		377.057	190	1.985		
	Total		594.887	211			

As indicated in table 3.6, the results indicated that the green supply chain practices and sustainable performance variables were linear.

3.10.4 Heteroscedasticity Test

Heteroscedasticity refers to instance where the variance of the residual-term is not constant but varies with changes in explanatory variables (Gujarati, 2003). Since the data for this research is a cross-section of multinational tea firms in Kenya, this raises concerns about the existence of heteroscedasticity. The Multiple Linear Regression Models assumes that the error term is homoscedastic, that is, it has constant variance.

If the error variance is not constant, then there is heteroscedasticity in the data. According to Field (2009), heteroscedasticity problem is absent if the p values of independent variables are greater than the significant value of 0.05.

Table 3.7

Heteroscedasticity Test

Variables	Unstandardized Coefficients		Standardized Coefficients	t	p-value
	B	Std. Error	Beta		
(Constant)	4.231	2.137		1.980	.000
Ecological Design	.035	.030	.179	1.181	.239
Green Purchasing	-.080	.054	-.258	-1.466	.144
Green Logistic	-.058	.046	-.110	-1.256	.211
Environmental Regulation	-.088	.070	-.088	-1.250	.213
Green Transformational Leadership	.070	.040	.187	1.752	.081

Table 3.7 indicates that all p values for all the variables are greater than 0.05 indicating the absence of heteroscedasticity.

3.10.5 Autocorrelation

The presence of correlation in the residuals was tested through the use of the Durbin-Watson statistic in the regression analysis. This was important since high levels of correlation may result in inefficient findings. Yupitun (2008) notes that Durbin-Watson test statistic is used to check for autocorrelation among residuals in a Multiple Linear regression. The Durbin-Watson statistic should be between 1.5 and 2.5 (Verbeek, 2012). Table 3.8 shows that the Durbin- Watson value was 1.838 which indicates that autocorrelation in the sample did not exist in the regression model and **therefore the residuals had independent errors.**

Table 3.8

Autocorrelation

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.691a	.537	.433	.31408	1.838

3.11. Research Ethics

Letter seeking authorization for data collection from the university was obtained from the University of Kabianga's Board of Graduate Studies, which then issued a letter introducing the researcher as a postgraduate student at the school. The initial letter was utilized to seek research permit from the National Commission for Science, Technology, and Innovation (NACOSTI). In order to conduct the study, the management of the Multinational tea firms approved research using the obtained permit. The purpose of the study was explained to the respondents with the aid of research permit, and they were made aware that the data they provided was to be used for academic purposes only. Furthermore, respondents were given the assurance of anonymity, strict confidentiality of the information they provide, and the right to withdraw from the data collection process at any time without being charged. To prevent plagiarism and uphold copy rights patents, the researcher properly cited all information gleaned from peer-reviewed publications, books, articles, theses, and other research materials.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Overview

The chapter presents the results and discussion of the study constructs. It gives the results of descriptive and inferential analysis. Tables summarizing statistics from analysis and test of hypotheses are presented and the subsequent interpretation of results given. Data analysis involved cleaning the data collected by checking for any incompleteness, inconsistencies and errors. Descriptive statistics were used to determine the basic features of data while inferential statistics were used to draw inference about the population.

4.2 Response Rate

Table 4.1 indicates the response rate per firm; James Finlay had the highest number of respondents 47.6% owing to its size, Ekaterra was second with 29.2% while George Williamson had 23.2% response rate. This rate represented 94.2% response rate and was considered appropriate in making inference from about the population. According to Mugenda and Mugenda (1999), a response rate of 50% is adequate for analysis and reporting; a rate of 60% is good and a response rate of 70% and over is excellent. Therefore, for this study, the response rate of 94.5% was excellent for analysis and reporting.

Table 4.1

Response rate

	Frequency	Percent
James Finlay	101	47.6
Ekaterra	62	29.2
George Williamson	49	23.2
Total	**212**	**100.0**

4.3 Demographic Information of the Respondents

Information of the respondents' in regards to level of management, education and the number of years they had worked in the particular organizations was captured and analyzed.

4.3.1 Level of Management in the Organization

This section evaluated the respondents' level of management in their organizations. The results are provided in table 4.2.

Table 4.2

Level of Management in the Organization

	Frequency	Percent
Operational level	151	71.2
Middle level	52	24.5
Top level	9	4.2
Total	**212**	**100.0**

The findings indicated that; 71.2% who were the majority worked in the operational level, 24.5% worked in the middle level with only 4.2% of the respondents being top

level managers. The findings demonstrated that the study targeted all cadres of management staff who were well represented.

4.3.2 Highest Level of Education

The study also sought to examine the respondents' highest level of education in their respective firms. Table 4.3 provides the findings.

Table 4.3

Highest Level of Education

	Frequency	Percent
Secondary Level	0	0.0
Tertiary level	56	26.4
Undergraduate Level	108	50.9
Masters Level	48	22.6
PHD Level	0	0.0
Total	212	100.0

As indicated, majority of the respondents 50.9% held undergraduate qualification while 26.4% went up to tertiary level of education. 22.6% had master level qualification. The table also indicated that in the no respondent had PhD has the highest level of education and also no one indicated secondary level as the highest level of education. Therefore the respondents understood clearly the research questions responded as accurately as possible. The level of education plays an important role in management of a firm. Formal education provides a route for the acquisition of useful knowledge on management due to the ability to read and comprehend information on various activities. Education also provides an avenue for employment opportunities as a source of income used to purchase food for the

household. Mukudi (2003), did a study in sub-Saharan Africa and his results revealed that education plays an integral role in enabling individuals to access public information, especially concerning health, nutrition, and hygiene. He also argues that people with a minimum level of education are more likely than people with no education to obtain information about maintaining the environment. The current study result is also in convergence with the research finding by Haile, Alemu and Kudhlande (2005), that was conducted in Ethiopia on educational attainment by the household head. The finding revealed that educational attainment by the household head could lead to awareness of the possible advantages of environmental issues by means of technological adoption. The current study results on education levels are divergent to those reported by Omoro (2013), in Nyando District, Nyanza Province, where 83% of the respondents had not gone beyond primary school levels with only 6% having gone past secondary school level. The current high level of education is associated with improved agronomy (Omondi, 2019).

4.3.3 Number of Years in the Organization

This section aimed at evaluating the staff continuous service with specific firms in terms of years. The findings are as shown in Table 4.4.

Table 4.4

Number of Years in the Organization

	Frequency	Percent
Less than 1 year	0	0.0
1-5 years	57	26.9
5-10 years	88	41.5
Over 10 years	67	31.6
Total	**212**	**100.0**

The study found that 41.5% who were the majority had worked for 5 to 10 years, 31.6% had worked with their respective firms for over 10 years with the minority of the respondents 26.9% Having worked for 1-5 years. This infers that the respondents had vast knowledge on the operations of the multinational tea industry which was the subject area that was under study.

The current study finding is consistent with results from a study by Cahn, (2007), who argued that more experience in working place are more important for effective work production. The results are also convergent to the findings by Wanjala et al., (2015), who argued that employees who have long years of experience in a particular field/area can apply skills for effective production and sustainability.

4.4 Descriptive Statistics

In this section, descriptive analysis for the study variables; Eco-design, Green purchasing, Green logistics, Environmental regulation and Green transformational leadership is discussed. Descriptive statistics summarized the main characteristics of each of the study variables.

The variables were examined using a 5 point likert rating scale where: 5 - Strongly Agree; 4 - Agree; 3 - Neither Agree nor Disagree; 2 - Disagree; 1 - Strongly Disagree

4.5 Green Supply Chain Practices

The green supply chain practices that were looked into include Eco-Design, Green purchasing, Green Logistics and environmental regulation. The results are discussed in the below section.

4.5.1 Eco-Design Practices

The respondents indicated the extent to which Eco-design influenced sustainable performance of multinational tea firm in Kenya. The variable had seven indicators. A Likert scale of 1-5 was used to measure the indicators where 5 represented "strongly agree'' and 1 represented "strongly disagree". The central point of the scale was 3 representing "neither agree nor disagree".

Low scores of less than 2.5 were associated with low levels of agreement while high scores greater than 2.5 were associated with high levels of agreement on the influence of eco-design on sustainable performance of multinational tea firms in Kenya. Descriptive results of the seven variable indicators are summarized and presented in Table 4.5.

Table 4.5

Eco-Design

Eco-Design Indicators	**N**	**Min**	**Max**	**Mean**	**Std. Dev.**
The firm has developed green packaging for tea product that are biodegradable and reusable	212	1.00	5.00	3.717	1.586
The firm has developed green packaging for tea product that are biodegradable and reusable	212	1.00	5.00	3.589	1.264
We have developed eco-design products that reduce waste	212	2.00	5.00	4.273	0.695
We have developed dissolvable tea products to reduce environmental degradation	212	1.00	5.00	3.542	1.350
Our firm have ensured resource saving is achieved	212	2.00	5.00	4.325	0.855
We ensure that Waste production are re-usable to ensure zero wastage of resources	212	3.00	5.00	4.438	0.542
We have differentiated product that ensured product development	212	2.00	5.00	3.764	0.779
Aggregate Score				**3.949**	**1.010**

The respondents agreed (μ=3.717, δ=1.586) that tea multinational firms had developed green packaging for tea product that are biodegradable and reusable, it also revealed that the respondents agreed (μ=3.589, δ=1.264) that the firm had developed green packaging for tea product that are biodegradable and reusable, they agreed (μ=4.273, δ=.695) that tea multinational firms have developed eco-design products that reduce waste.

Further, the respondents agreed (μ=3.542, δ=1.350) that the firms have developed dissolvable tea products too in an effort to reduce environmental degradation, on whether multinational tea firms have ensured resource saving is achieved, (μ=4.325, δ=.855) this is an indication that majority of them agreed.

Multinational firms ensures that waste production are re-usable, this has led to zero wastage of resources according to the respondents who agreed (μ=4.438, δ=.542). Lastly, the respondents agreed that (μ=3.764, δ=.779) their firms have differentiated **products that ensured product development.**

The aggregate results show that Eco-design influence sustainable performance of the multinational tea firms to a great extent (μ=3.949, δ=1.010). The data revealed that the tea multinationals are putting efforts to ensure that the eco-design practices in place leads to sustainability of multinational firms operations.

The findings concur to that of Monteiro, Silva, Ramos, Campilho and Fonseca (2019) who investigated on eco-design in relation to strategy of packaging in Asia. The results indicated that most of packaging companies have adopted environmental concepts through packaging's life cycle that are bio-degradable. The study is also convergent to that of Rosen & Kishawy (2012) who emphasized that eco-design of

products ensures that end use of the product reduce pollution and improve environment.

The findings is also concurrent to the study by Babu (2013) who did a study on green supply chain practices and operational performance of personal care manufacturing firms in Nairobi.

From the findings 33.33% of the respondents indicated that good image was created by CSR, 17.46% of the respondents indicated an increase in output against the same cost of material, 15.87% of the respondents indicated brand enhancement, 17.46% indicated a reduction on logistics costs, 15.87% indicated that manpower can be utilized to increase output. This shows that the operational performance of these firms is dependent on GSCMPs.

4.5.2 Green Purchasing

On green purchasing as a practice, the respondents indicated the extent to which it influenced sustainable performance of multinational tea firm in Kenya. Green purchasing also had seven indicators where a Likert scale of 1-5 was used to measure them. A score of 5 represented "strongly agree'' and 1 represented "strongly disagree". The central point of the scale was 3 representing "neither agree nor disagree". Low scores of less than 2.5 were associated with low levels of agreement while high scores greater than 2.5 were associated with high levels of agreement on the influence of green purchasing on sustainable performance of multinational tea firms in Kenya.

Descriptive results of the seven variable indicators are summarized and presented in Table 4.6.

Table 4.6

Green Purchasing

Green Purchasing Indicators	N	Min	Max	Mean	Std. Dev.
Our procurement department have purchased recyclable inventory to reduce waste	212	2.00	5.00	3.976	1.064
Our firm have been reusing statutory implements and tools	212	2.00	5.00	3.735	1.116
we make purchases that uses green technology to ensure environmental conservation	212	1.00	5.00	3.471	1.278
The purchases department develop plans that are environmental friendliness	212	4.00	5.00	4.405	0.492
Inventory purchase machinery with low carbon emission	212	4.00	5.00	4.575	0.495
Our firm Purchase green inventory considering Environmental Conservation	212	4.00	5.00	4.500	0.501
Green purchasing policies are in place to ensure green supply chain practices	212	4.00	5.00	4.443	0.497
Aggregate Score				**4.132**	**.0777**

According to the findings, respondents agreed (μ=3.976, δ=1.1064) that procurement departments have been purchasing recyclable inventory to reduce waste, tea multinational firms have also been reusing statutory implements and tools according to majority of respondents who agreed (μ=3.735, δ=1.116). The respondents partially agreed (μ=3.471, δ=1.278) that tea multinational firms make purchases that uses green technology to ensure environmental conservation. The purchases departments according to majority of respondents who agreed develop plans that are environmentally friendly (μ=4.405, δ=.492) with a strong agreement by those polled that firms purchase machinery with low carbon emission (μ=4.575, δ=.495).

Respondents further strongly agreed that their firms purchases green inventories that considers environmental conservation (μ=4.500, δ=.501). Lastly green purchasing policies are in place to ensure green supply chain practices are upheld according to majority of respondents who agreed (μ=4.443, δ=.497). The overall mean of (μ =4.132) and standard deviation (δ =0.777) indicated that majority of the respondents were of the view that green purchasing equally had an influence on sustainable performance of multinational tea firms in Kenya.

The findings concur to that of Younis, Sundarakani & Vel, (2015) who argued it has an important aspect of green supply chain practice and it is achievable through recyclable inventory, reduced inventory usage, green inventory and resource reduction. The results of the study is also convergent to the findings of Lăzăroiu, et al., (2020) who posed that green purchasing enables the control of carbon footprint and pollution at onset of input or sourcing in green supply chain.

The study is similar to the study by Sarkar (2012) who found out that Green purchasing aims to minimize negative environmental impacts in manufacturing process and transportation by using durable, recyclable and reusable materials. Companies that practiced environmental strategy in purchasing benefitted from cost savings, better public image and decreased liability. The study by Sarkar also found out that companies that are able to leverage their green supply base with lower cost, higher quality and concern about environment aspects to impact their total cost structure and product quality will have a competitive advantage in their markets.

Similarly, the study results are in concurrent with that of Kittisak, Puttisat and Sudawan (2019 who found out that green purchasing is crucial in ensuring performance. In the study by Younis, Sundarakani & Vel (2015) which focused on green supply chain practices pointed that green purchasing had economic impact on

the economic performance since it lowers the long term cost of production. The studies point out that green purchasing revolve in reduction of carbon footprint, recycling, reduction and green inventory.

4.5.3 Green Logistics

This section evaluated green logistics variable using the six indicators provided. The descriptive results are summarized and presented in Table 4.7. A Likert scale of 1-5 was used to measure them. A score of 5 represented "strongly agree'' and 1 represented "strongly disagree". The central point of the scale was 3 representing "neither agree nor disagree". Low scores of less than 2.5 were associated with low levels of agreement while high scores greater than 2.5 were associated with high levels of agreement on the influence of green logistics on sustainable performance of multinational tea firms in Kenya.

Table 4.7

Green Logistics

Green Logistics Indicators	**N**	**Min**	**Max**	**Mean**	**Std. Dev**
We have developed transportation technology that ensure low carbon footprint and wastage of resources	212	4.00	5.00	4.566	0.496
Our firm have a turnaround rooting of tea leaves are reduced to increase operation	212	4.00	5.00	4.353	0.479
The firm have efficient rooting of tea product to both international and local markets	212	3.00	5.00	4.547	0.508
We have reduced wastage of tea along the supply Chain	212	3.00	5.00	4.448	0.654
We have reverse logistics to ensure farming equipment are reused	212	3.00	5.00	4.349	0.653
Green logistic policies are in place to ensure efficiency in operational performance	212	3.00	5.00	4.481	0.738
Aggregate Score				**4.457**	**0.504**

The findings on green logistics indicated that a higher number of respondents strongly agreed that their firms have developed transportation technology that ensure low carbon footprint and wastage of resources (μ=4.566, δ=.496). On whether their firms have a turnaround routing of tea leaves are reduced to increase operation, majority of the respondents agreed (μ=4.353, δ=.479) that indeed that was the case. The firm have efficient rooting of tea product to both international and local markets (μ=4.547, δ=.508) according to majority of respondents who strongly agreed.

The assertion that firms have reduced wastage of tea along the supply chain due to reliable green logistic practices was supported by a majority of respondents who agreed with the claim (μ=4.448, δ=.654). The respondents also agreed (μ=4.349, δ=.653) that they use reverse logistics to ensure farming equipment are reused, they further agreed (μ=4.481, δ=.738) that green logistic policies were in place to ensure **efficiency in operational performance.**

The average score for all the firms exhibited high mean score (μ =4.457) and low variance in their standard deviation (δ = .504) relating to green logistics indicating that majority of the respondents agreed that their firms were using green logistics as a practice to achieve sustainable firm performance.

The findings is in concurrence to the study of Trivellas, Malindretos & Reklitis (2020) who investigated on implications of green logistic management on business and supply chain performance. The findings revealed that transportation and networking logistics and sharing of information influenced performance of the firm. Green packaging influenced social and financial performance. Green warehousing and logistic emission had no relationship between performance.

The results are concurrent to the results by Ahmed, Hui, Ahmed, Tarek & Mahmoud (2020) who avers that the concept of reverse logistics reduces wastage through recycling and reusability as well as ensuring end re-use of a product in order to enhance environmental performance. Also Alnoor, Eneizan, Makhamreh and Rahoma (2019) agrees with the study results who found that reverse logistics ensured sustainable manufacturing. This can be achieved through cost reduction associated with recycling, reconditioning, reproduction or disposal.

Similar results were also posted by Cullinane, Browne, Karlsson & Wang (2017) in relation to improvement in performance through digitalization. The results indicated a positive and significant relationship between online purchase of clothes in reverse logistics and organization performance.

4.5.4 Environmental Regulation

Environmental regulation is evaluated in this section using five indicators provided. A Likert scale of 1-5 was used to measure them. A score of 5 represented "strongly agree'' and 1 represented "strongly disagree". The central point of the scale was 3 representing "neither agree nor disagree". Low scores of less than 2.5 were associated with low levels of agreement while high scores greater than 2.5 were associated with high levels of agreement on the influence of environmental regulation on sustainable performance of multinational tea firms in Kenya. Descriptive results of the five variable indicators are summarized and presented in Table 4.8.

Table 4.8

Environmental regulation

Environmental regulation Indicators	N	Mini	Max	Mean	Std. Dev.
Our firm has appropriate green policies that ensure minimized environmental degradation	212	4.00	5.00	4.768	0.422
We have implemented green policies in our supply chain management	212	3.00	5.00	4.419	0.531
Our firm has environmental strategies that allow reforestation and afforestation of water catchment areas	212	4.00	5.00	4.754	0.431
Our firm discloses environmental strategies and policies to the public	212	4.00	5.00	4.684	0.466
Our Firm Disclose environmental audit to ensure that all factories, infrastructure and activities are certified and approved to be environmentally friendly	212	4.00	5.00	4.764	0.425
Aggregate Score				**4.678**	**.455**

On environmental regulation, the findings indicated that majority of the respondents strongly agreed ($\mu = 4.768$, $\delta = 0.422$) that their firms have appropriate green policies that ensures minimized environmental degradation. It also indicated that the respondents agreed ($\mu = 4.419$, $\delta = 0.531$) that their firms have implemented green policies in their supply chain management. The findings further showed that the respondents strongly agreed ($\mu = 4.754$, $\delta = 0.431$) their firms have environmental strategies that allow reforestation and afforestation of water catchment areas. On whether multinational tea firms discloses environmental strategies and policies to the public, majority of those polled ($\mu = 4.684$, $\mu = .466$) agreed that their firms do so.

Lastly, the findings ($\mu = 4.764$, $\delta = 0.425$) indicated that firms disclose environmental audit to ensure that all factories, infrastructure and activities are certified and approved to be environmentally friendly.

The aggregate mean ($\mu = 4.678$) and standard deviation ($\delta = .455$) indicated that most respondents were of the view that eenvironmental regulation as a green supply chain practice is key in developing policies that will help achieve sustainable firm performance.

The current study results is almost similar to that of Ramanathan, He, Black, Ghobadian, & Gallear (2017) who examined environmental regulation, innovation and performance of firms and found out that dynamic approach depending on resources and capabilities in the firm to respond to environmental regulation innovatively. The study results are also similar to that of Xing, Liu, Shen, & Wang (2020) who argues that environmental regulation is crucial, green supply chain practices that enable firms to use sustainable innovation and green dynamic capability to improve financial performance. Those firms that use dynamic approach in solving environmental regulation innovatively were proactive and better in environmental performance

4.5.5 Green Transformational Leadership

Descriptive statistics on green transformational leadership is provided in Table 4.9. A five point likert scale was used to measure seven green transformational leadership indicators where 5 represented "strongly agree" and 1 represented "strongly disagree". Low scores less than 2.5 were associated with low levels of sustainable firm performance and high scores greater than 2.5 were associated with high levels of green transformational leadership while 3 represented "neither agree nor disagree".

Table 4.9

Green Transformational Leadership Practices

Green Transformational Leadership Indicators	N	Min	Max	Mean	Std. Dev.
Our firm has leaders that are green mindfulness through developing green related policies	212	4.00	5.00	4.509	0.501
Our leaders have ensured that their employees pursued green strategies	212	4.00	5.00	4.386	0.488
We have green mindfulness culture to ensure organization are moving in the direction of green economy	212	4.00	5.00	4.641	0.480
The management have ensured that all employees in the firm are green self-efficacy	212	2.00	5.00	3.816	0.973
The top management inspire low management and employee in adoption of green strategies in our firm	212	3.00	5.00	4.245	0.572
The green creativity is rewarded by management to drive green supply chain practices	212	2.00	5.00	3.938	1.144
Aggregate Score				**4.256**	**.693**

The findings in table 4.9 revealed that the respondents strongly agreed ($\mu = 4.509$, $\delta = .501$) that the multinational tea firms have leaders that are green mindfulness charged with developing green related policies, it also discovered through the respondents who agreed ($\mu=4.386$, $\delta=.488$) that the leadership in their firms has ensured that their employees pursued green strategies. The respondents strongly agreed ($\mu=4.641$, $\delta=.480$) that firms have green mindfulness culture that ensured organizations are moving in the direction of green economy.

On whether there the management have ensured that all employees in their respective firms are green self-efficacy, majority of the respondents ($\mu = 3.816$, $\delta=.973$) were in agreement with that assertion.

The top management inspire low management and employee in adoption of green strategies in the multinational tea firms, this was according to the respondents (μ = 4.245, δ=.572) who concurred that the top management in every firm is indeed inspirational in ensuring green strategies are part and parcel of day to day practices. Lastly, the respondents agreed (μ = 3.938, δ =1.144) that the green creativity is rewarded by management to drive green supply chain practices.

The aggregate mean (μ =4.256) and standard deviation (δ =.693) indicated that majority of the respondents agreed that green transformational leadership which is key in driving green supply chain practices in the firms is a major resource which plays a big role in ensuring that multinational tea firms succeed in putting in place practices that will ultimately lead to sustainable performance.

The findings concur to that of Zhang, Xu & Wang, (2020) who discovered that green transformational leadership influences green creativity. The authors contend that participation in the creative process acts as a bridge for green creativity. It is also convergent to the study by Bakri & Abbas (2020) who pointed out that a tranformative leader should integrate green strategies in individual consideration, inspiration motivation, intellectual stimulation and idealized influence in order to achieve economic development. The study is also in concurrence to the study of Chen, Chang, & Lin (2014) who investigated the impact of green transformational leadership on environmental performance, using green self-efficacy and green mindfulness as mediators. The results showed that green transformational leadership had a favorable impact on green performance, green self-efficacy, and green mindfulness.

Further, the study findings concur to the results by Shah, Sukamani, &Kusi, (2020) who found out that green transformational leadership and sustainability of the firm was affected by green procurement and green creativity meadiators.

Green transformative leaders are associated with environmental sustainability as Widisatria & Nawangsari (2021) claims in their study of green transformative leadership and sustainability. Zhao & Huang (2022) adds that green transformative leader, green human resource and green innovation are important aspects to sustainable business performance.

4.5.6 Sustainable Performance of the Firm

Table 4.10 gives information of the mean and standard deviation for multinational tea firms in Kenya with regard to responses relating to sustainable firm performance. A five point Likert scale was used to measure seven sustainable firm performance indicators. It was ranging from 1 to 5. 5 represented “strongly agree" and 1 represented “strongly disagree". Low scores less than 2.5 were associated with low levels of sustainable firm performance and high scores greater than 2.5 were associated with high levels of sustainable firm performance while 3 represented “neither agree nor disagree”.

Table 4.10

Sustainable Performance of the Firm

Indicators of Sustainable Performance of the Firm	N	Min	Max	Mean	Std. Dev.
Our firm have improved environment through the use of renewable green product	212	4.00	5.00	4.627	0.484
There is improvement of trees and vegetation cover through continuous planting of trees and safeguarding ecosystem by our firm	212	4.00	5.00	4.405	0.492
We have improved in social ability and performance of employees	212	4.00	5.00	4.655	0.476
Our firm has reduced cost of operation through adoption of clean green energy	212	3.00	5.00	4.632	0.547
Our firm have improved efficiency of operation through ensuring high turn for raw material	212	4.00	5.00	4.801	0.399
We have reduced production cost improving profitability of the firm	212	3.00	5.00	4.646	0.526
Our firm have improved quality of products leading to high profitability	212	4.00	5.00	4.649	0.478
Aggregate Score				**4.630**	**0.486**

The findings on sustainable performance as an independent variable indicated that majority of the respondents strongly agreed on all the seven indicators; firms have improved environment through the use of renewable green product (μ=44.627, δ=.484); there is improvement of trees and vegetation cover through continuous planting of trees and safeguarding ecosystem by multinational tea firms (μ=4.405,

δ=1.492); there is improved social ability and performance of employees (μ=4.655, δ=.476) and firms have reduced their cost of operation through adoption of clean green energy (μ=4.632, δ=.547).

The results also showed that firms have improved their level of efficiency in operations through ensuring high turn for raw material (μ=4.801, δ=.399) at the same time reduced their production cost leading to improved profit margin firms (μ=4.646, δ=.526) and lastly the multinational tea firms have improved the quality of their products leading to high profitability (μ=4.649, δ=.478).

On average, there was a high mean scores of (μ =4.630) and low variance of (δ = .486) relating to sustainable firm performance indicating that the respondents from the three industry players strongly agreed that their firms were performing sustainably well based on the indicators used to test firm performance.

The findings concur to that by Shafique, Asghar & Rahman (2017) who examined the impact of green supply chain practices on performance. The findings showed that green supply chain management techniques were subject to institutional pressure and could make use of green innovation already in place to enhance both environmental and economic performance. Along with measuring environmental and economic performance.

4.7 Inferential Statistics

This study applied Pearson correlations and Multiple Regression analysis to determine if the study variables were linearly related.

4.7.1 Pearson Correlation Analysis

Correlation between variables is a measure of how well the variables are linearly related. The correlation coefficients results are between -1 and 1. A result of -1 means

that there is a perfect negative correlation between the two values, while a result of 1 means that there is a perfect positive correlation between the two variables. Result of 0 means that there is no correlation between the two variables (Gujarat, 2004).

Pearson correlation coefficient was used to examine correlation between eco-design, green logistics, green purchases, and environmental regulation on Sustainable performance. The analysis is shown in the table 4.11.

Table 4.11

Correlation Analysis

		X_1(ED)	X_2(GP	X_3(GL)	X_4(ER)	X_5(GTL)	Y(SP)
	Pearson Correlation	1					
X_1(ED)	Sig. (2-tailed)						
	N	212					
	Pearson Correlation	0.886**	1				
X_2(GP)	Sig. (2-tailed)	0.000					
	N	212	212				
	Pearson Correlation	0.611**	0.597**	1			
X_3(GL)	Sig. (2-tailed)	0.000	0.000				
	N	212	212	212			
	Pearson Correlation	-.221**	-.230**	-.182**	1		
X_4(ER)	Sig. (2-tailed)	0.001	0.001	0.008			
	N	212	212	212	212		
	Pearson Correlation	0.657**	0.762**	0.410**	-.131**	1	
X_5(GTL)	Sig. (2-tailed)	.000	.000	.000	.057		
	N	212	212	212	212	212	
	Pearson Correlation	.185**	.270**	.131**	.013	.335**	1
Y(SP)	Sig. (2-tailed)	.007	.000	.048	.853	.000	
	N	212	212	212	212	212	212

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

ED = Eco-Design, GP= Green purchasing, GL = Green Logistics, ER = Environmental **Regulation, GTL = Green Transformational Leadership, SP = Sustainable Performance**

As shown in table 4.11 there was a positive relationship between Eco-design and sustainable performance since it had a Pearson Correlation of ($r=0.185$, $p = 0.007$), Green logistics had a significant positive relationship with sustainable performance since it had a Pearson Correlation of ($r =0.270$, $p = 0.000$).

Green purchasing had a significant positive relationship with sustainable performance since it had a Pearson Correlation of ($r=0.131$, $p < 0.048$) and environmental regulation had non-significant relationship with sustainable performance since it had a Pearson Correlation of ($r=0.013$, $p < 0. 0.853$).

The research findings concur to Wakulele, Odock, Chepkulei & Kiswili, (2016) who did a study on the effect of Eco-design Practices on the Performance of Manufacturing Firms in Mombasa County, Kenya. The result findings indicate a positive significant relationship of raw material practice, manufacture and environmental cost saving. The study is also similar to that Mohammed (2012) who did a study on green supply chain management and performance of manufacturing firms in Mombasa, Kenya. The results indicated 0.6678 at 5% confidence interval implying that GSCM has a positive impact on most manufacturing firms in Mombasa.

The results are in concurrence to that of Kittisak, Puttisat & Sudawan (2019) who evaluated green supply chain practices in relation to performance as well as the moderating effect of total quality management in Vietenam. Green procurement, green logistic and legilation were used to examine green supply chain management on Thailand electronic industry. According to the results regition for green environment, green logistics and green purchasing had a positve significant effect on performance.

4.7.2 Analysis of Variances (ANOVA)

The findings in respect to the analysis of variances are as provided in Table 4.12.

Table 4.12

Analysis of Variances (ANOVA)

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	53.255	4	13.314	5.088	.001[b]
	Residual	541.632	207	2.617		
	Total	594.887	211			

a. Dependent Variable: Sustainable Performance

b. Predictors: (Constant), eco-design, green logistics, green purchases and environmental performance

In the study, the predictors are significant when Sig. (p value) $p < 0.05$. The findings in Table 4.12 show that p value was 0.001. Since the p values are less than 0.05 (confidence level), we can conclude that the influence of green supply chain practices on sustainable performance is significant. As $p < 0.05$ our predictors are significantly better than would be expected by chance. The regression line predicted by green supply chain practices explains a significant amount of the variance in sustainable performance. This is reported as follows: $F(5.088)$; $p < 0.05$, and therefore it can be concluded that the regression is statistically significant. This therefore means that the regression model obtained was fit and statistically significant and can be deemed fit for prediction purposes.

4.7.3 Multiple Regression Analysis

Regression analysis is the statistical technique that identifies the relationship between two or more quantitative variables: a dependent variable, whose value is to be

predicted, and an independent or explanatory variable (or variables), about which knowledge is available.

The technique is used to find the equation that represents the relationship between the variables. Multiple regressions provide an equation that predicts one variable from two or more independent variables (Bryman and Bell (2015).

Anderson et al. (2002), spelt out the importance of examining the significance of each independent variable in predicting the dependent variable. The unstandatized coefficient value of Beta was used to determine whether each of the individual independent variable was significant in the overall model. The researcher conducted a multiple regression analysis so as to test relationship between independent on dependent variables.

Table 4.13 presents the model summary of the regression.

Table 4.13

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.299a	0.090	0.072	1.61758

a. Predictors: (Constant), eco-design, green logistics, green purchases and environmental regulation.

In the Model Summary table, the R Square value indicates the amount of variation in the dependent variable that can be interpreted by the independent variables. Independent variables accounted for 9.0 percent of the variability in sustainable performance. The R-value (0.299) is the various coefficients for association between all the independent variables entered and the dependent variable.

The Adjusted R Square accounts for a bias that increases the number of variables. The Std. Estimate error is an indicator of the statistical accuracy.

The Beta Coefficients with respect to regression outputs are as presented in Table 4.14

Table 4.14

Beta Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	26.451	2.916		9.071	0.000
	Eco-design	0.069	0.041	0.243	1.647	0.003
	Green purchasing	0.223	0.064	0.509	3.505	0.001
	Green logistics	0.010	0.063	0.013	0.156	0.005
	Environmental Regulation	-0.066	0.096	-0.047	0.634	0.495

a. Dependent Variable: Sustainable performance

From the findings in table 4.14, the study found that holding eco-design, green purchases, Green logistics, and environmental regulation constant, sustainable performance will be 26.451. The study also found that a unit increase in eco-design will increase in sustainable performance by 0.069. Further it was established by the study that a unit increase in purchasing will lead to an increase in sustainable performance by 0.223, it was also found that a unit increase in green logistics will lead to an increase in sustainable performance by a factor of 0.010 and a unit increase in environmental will lead to an decrease in sustainable performance by a factor of 0.066. Therefore fixing on the Multiple Regression model, equation (3.6), gives the overall effect of eco-design practices, green purchasing, green logistics and

environmental regulations on sustainable performance of multinational tea firms in Kenya as,

$$Y = 26.451 + 0.069X_1 + 0.223X_2 + 0.010X_3 - 0.066X_4 + \varepsilon \text{----------} (4.1)$$

Where Y = Sustainable Performance, X_1 = Eco-design, X_2 = Green Purchasing, X_3 = Green Logistics and X_4 = Environmental Regulation

The findings could be attributed to the fact that in Kenya specifically, the environmental regulation enforcement level is low. The recent politics around multinational tea firms among other societal vices could have also contributed to the negative impact of environmental regulation on sustainable firm performance.

4.8 Test of Research Hypothesis

The study hypotheses were examined by utilizing regression analysis model to determine the nature of the relationship between dependent and independent constructs of the study. The researcher further conducted a multiple linear regression analysis to establish the relationship between Eco-design, Green purchasing, Green logistics, Environmental regulation and Green transformational leadership.

The study evaluated the r^2 change to test if there is significant change before introduction of green transformational leadership on the relationship between green supply chain practices and Sustainable performance of multinational firms. The study's hypotheses are discussed in the sections that follow

4.8.1 Eco-Design and Sustainable Performance of the Firm

The first objective was to determine the relationship between eco-design and sustainable performance of multinational tea firms in Kenya

Hypothesis Ho1, stated;

There is no significant relationship between eco-design and sustainable performance of multinational tea firms in Kenya

Table 4.15

Regression Analysis for Eco-Design and Sustainable Performance of Multinational Tea Firms

Variable	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	30.688	0.567		58.131	
Eco-Design	0.051	0.023	0.065	2.722	0.007
r =0.185					
r^2 =0.034					
F =7.411					

***p<0.05**

The regression analysis in table 4.15 indicates a weak linear relationship (r^2 = 0.034, F= 7.411; p=0.007), which indicates that 3.4% of the corresponding change in sustainable performance can be explained by eco-design with a large proportion of variation in sustainable firm performance (96.4%) was explained by other factors not captured by the study model.

The correlation between eco-design and sustainable firm performance was found to be positive and significant (r = 0.185, p=0.007) meaning there was a significant relationship between eco-design and sustainable performance. The results implies that whenever multinational tea firms in Kenya invested on eco-design, there was a significant rise in sustainable performance.

The results further showed that eco-design predicted sustainable performance (β1= .051, t= 2.722; p=0.007), this implies that a unit increase in eco-design in the

multinational tea firms in Kenya produced a 0.051 change in their sustainable performance.

$$Y = 30.688 + 0.051X_1 + \varepsilon \quad \text{----------} \quad (4.2)$$

Where Y = Sustainable Performance, X_1 = Ecological Design

The results indicate a statistically significant relationship between eco-design practices and sustainable performance of multinational tea firms in Kenya is therefore the null hypothesis is rejected.

Away from confirming the emphasis of eco-design literature in explaining sustainable performance in different industries, of particular interest is the finding that eco-design only account for 3.4% of sustainable firm performance in multinational tea firms in Kenya. This submits that sustainable performance in the industry may not necessarily be attributable to eco-design practices alone but could also be centered on how firms uniquely employ different green supply chain practices to develop sustainable strategies that will help firms realize performance.

The findings are in concurrence to those of Wakulele, Oclock, Chepkulei & Kiswili, (2016) who established that design for raw material practice would lead to cost saving; Monteiro, Silva, Ramos, Campilho and Fonseca (2019) assertion that eco-design package has reduced drastically environmental politant packaging and brought about global environmental biodiversity. Similarly, a study on needs, practices and concepts of sustainable design and manufacturing by Rosen & Kishawy (2012) found out that improved designing through technological improvement and development of tenable culture in companies would enhance eco-design.

The research findings on eco-design are also supported by empirical studies of; Mo manyi (2013) and Mohammed (2012) who affirmed that adopting green manufacturing practices were beneficial to firms; Babu (2013) who established that eco-design is one of the practices of GSCP; Aslam, Waseem & Khurram (2019) affirmation that corporate image was significantly shaped by customer cooperation, internal environment, green supply chain, inventory and ecofriendly activities and Thoo, Huam, Zuraidah & Siti (2015) through their study that documented that process design and green product were the leading predictor of performance.

Lastly, an empirical study by Borchardt, Wendt, Pereira & Sellitto (2011) revealed that that Green Efficient have significant, positive, and direct effect on the operational cost of selected fast-moving consumer goods companies thereby giving support to the findings that eco-design have an influence on firms sustainable performance.

4.8.2 Green Purchasing and Sustainable Performance of the Firm

The second objective of the study was to establish the relationship between green purchasing and sustainable performance of multinational tea firms in Kenya

Hypothesis Ho2, stated,

There is no significant relationship between green purchasing and sustainable performance of multinational tea firm in Kenya

The regression analysis on objective two on table 4.16 similarly indicated that the linear relationship between green purchasing and sustainable performance was weak (r^2 = 0.073, F= 16.578; p=0.000), indicating that 7.3% of the corresponding change in sustainable firm performance can be explained by green purchasing with a large

proportion of variation in sustainable firm performance (92.7%) was explained by other factors.

Further tests revealed that, the correlation between green purchasing and sustainable firm performance was found to be positive and significant (r = 0.270, p=0.000) meaning there was a significant relationship between green purchasing practices and sustainable performance. This signifies that whenever multinational tea firms in Kenya invested on green purchasing, there was a significant increase in sustainable performance.

Table 4.16

Regression Analysis for Green Purchasing and Sustainable Performance of Multinational Tea Firms

Variable	**Unstandardized Coefficients**		**Standardized Coefficients**	**T**	**Sig.**
	B	**Std. Error**	**Beta**		
(Constant)	28.872	.857		33.709	
Green Purchasing	0.119	0.029	0.125	4.072	0.000*
r =0.270					
r^2 =0.073					
F =16.578					

***p<0.05**

Green purchasing according to the findings predicted sustainable firm performance ($\beta 1 = .119$, t = 4.072; p=0.000), implying a unit increase in green purchasing practices in the multinational tea firms in Kenya increases sustainable performance.

$Y = 28.872 + 0.119 X_2 + \varepsilon$ ---------- (4.3)

Where Y = Sustainable Performance, X_2 = Green Purchasing

The findings therefore supports the hypothesis that there is a significant relationship between green purchasing practices and sustainable performance of multinational tea firms in Kenya and thus the null hypothesis rejected.

The results on green purchasing practices illustrates that sustainable firm performance in the multinational tea industry in Kenya may not necessarily be attributable to green purchasing but could on how firms in the industry employ their unique and innovative supply chain practices to enable then sustain their performance.

The findings are similar to those of Carter et al., (2000) who established that environmental purchasing activities have positive effects on firm performance. The findings are also supported by Lăzăroiu, et al., (2020) who posited that the use of green purchasing ensure low carbon footprint, low pollution and reduce climate leading to justifiable environment, Kittisak, Puttisat & Sudawan (2019) evaluation that green supply chain practices has a positive relationship with firm performance as it result in regition for green environment, green logistics and green purchasing . However, the findings contrasted those of Younis, Sundarakani & Vel (2015) who found out that green supply chain practices had no significant effect on performance as a whole but only had an impact on operational performance.

The findings are also supported by Lăzăroiu, et al., (2020) who posited that the use of green purchasing ensure low carbon footprint, low pollution and reduce climate leading to justifiable environment, Kittisak, Puttisat & Sudawan (2019) evaluation that green supply chain practices has a positive relationship with firm performance as it result in regition for green environment, green logistics and green purchasing . However, the findings contrasted those of Younis, Sundarakani & Vel (2015) who found out that green supply chain practices had no significant effect on performance as a whole but only had an impact on operational performance.

4.8.3 Green Logistics and Sustainable Performance of the Firm

The third objective of the study was to find out the relationship between green logistics and sustainable performance of multinational tea firms in Kenya

Hypothesis Ho1, stated;

There is no significant relationship between green logistics and sustainable performance of multinational tea firm in Kenya

Objective three regression analysis presented in table 4.17 indicated that there was a weak linear relationship between green purchasing and sustainable firm performance (r^2 = 0.017, F= 3.640; p=0.008), which means that a meagre 1.7% of the corresponding change in sustainable firm performance can be explained by green logistics leaving a larger proportion of variation in sustainable firm performance (98.3%) to be explained by other factors.

Table 4.17

Regression Analysis for Green Logistics and Sustainable Performance of Multinational Tea Firms

Variable	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	29.744	1.360		28.867	
Green Logistics	0.097	0.051	0.125	1.908	0.008*
r =0.131					
r^2 =0.017					
F =3.640					

***p<0.05**

Additional tests exposed that, correlation between green logistics and sustainable firm performance was positive and significant ($r = 0.131$, $p=0.008$) a connotation that there was a significant relationship between green logistics and sustainable performance. This implies that whenever multinational tea firms in Kenya invested on green purchasing practices, there was a slight significant increase in sustainable performance.

Green logistics according to the findings predicted sustainable firm performance ($\beta 1 = .097$, $t = 1.908$; $p=0.008$), suggesting a unit increase in green logistics in the multinational tea firms in Kenya produced a 0.097 variation in their sustainable performance. These findings implies that sustainable performance in the multinational tea industry in Kenya is least influenced by green logistics and therefore firms in the industry could consider putting more resources in those variables that are contributing more to sustainable firm performance.

$$Y = 29.744 + 0.097 X_3 + \varepsilon \quad \text{---------- (4.4)}$$

Where Y = Sustainable Performance, X_3 = Green Logistics

This findings therefore support the alternate hypothesis that there is a significant relationship between green logistics and sustainable firm performance of multinational tea firms in Kenya and thus the null hypothesis is rejected.

The findings are consistent with those of Trivellas et al., (2020) that revealed that transportation logistics and sharing of information influenced performance of the firm *while green packaging influenced social and financial performance. Similarrly,* Ahmed et al., (2020) in their empirical study demostrated that there was improvement of performance due to adoption of reverse logistics operation and processes such as green logistics.

The study finding are also in consistent in agreement with those of Nimawat & Namdev (2012) who established that GSCM had positive effect on organizational performance, they further noted that reverse logistics plays a role in product returns, source reduction, recycling, materials substitution, material reuse, waste disposal, repair, and remanufacturing.

The study concur to the study by Cullinane, Browne, Karlsson & Wang (2017) on reverse logistics in relation to improvement in performance through digitalization.

The results indicated that due to increase in online purchase of clothes there is increase in reverse logistics by 12.4% through return of orders to the retailers as well as improving costs. The results are also convergent to those of Alnoor, Eneizan, Makhamreh & Rahoma (2019) who investigated the effect of reverse logistics on manufacturing. Social, environmental and economical performance were found to have a positive effect on performance of manufacturing.

4.8.4 Environmental Regulation and Sustainable Performance of the Firm

Assessing the relationship between environmental regulation practices and sustainable performance of multinational tea firms in Kenya was the fourth objective of the study.

Hypothesis Ho1, stated;

There is no significant relationship between environmental regulation and sustainable performance of multinational tea firm in Kenya

Table 4.18 indicates the correlation for the relationship between environmental regulation as an independent variable and sustainable performance was positive and insignificant ($r = 0.013$, $p=853$).

This demonstrates that there was no significant relationship between environmental regulation and sustainable performance of multinational tea firms implying that whenever firms in the industry invested on environmental regulation there was a no improvement on their sustainable performance.

Table 4.18

Regression Analysis for environmental regulation and Sustainable Performance of Multinational Tea Firms

Variable	**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
	B	**Std. Error**	**Beta**		
(Constant)	32.751	2.274		14.403	
Environmental regulation	-0.018	0.097	-0.025	-0.185	0.853
r =0.013					
r^2 =0.000					
F =0.034					

***p<0.05**

The results further indicated that environmental regulation negatively predicted sustainable performance of multinational tea firms ($\beta 1 = -.018$, $t = -.185$; $p=0.853$), meaning a unit increase in resource regulation produced a -0.018 change in sustainable performance. The R squared value showed that environmental regulation had no impact on sustainable firm performance ($R^2 = 0.000$, $F=.034$; $p=853$), this implies that sustainable firm performance was not attributable to environmental regulation.

$$Y = 32.751 - 0.018X_4 + \varepsilon \quad \text{---------- (4.5)}$$

Where Y = Sustainable Performance, X_4 = Environmental Regulation

Therefore, the Hypothesis that there is a significant relationship between environmental regulation and sustainable firm performance is therefore rejected and the null hypothesis accepted.

The findings are inconsistent with those of Xing et al., (2020) study on the relationship between financial performance and environmental regulation in China whose findings showed that green dynamic capability and sustainability exploration innovation as well as green dynamic capability and green exploitation innovation were two different mediation paths through which environmental regulation had a significant impact. The results of the current study similarly did not find support from an environmental regulations study investigated by Borsatto et al., (2020) in relation to green innovation and financial performance which established that environmental regulations and size of the firm were found to have a significant positive impact on environmental investments. Padash et al., (2015) examined the development of the green strategy management framework they found out that the model helps manage the environment and reduce carbon emissions, which is appropriate for a green manufacturing strategy.

4.8.5 Regression Analysis for Green Transformational Leadership and Sustainable Performance of the Firm

Green Transformational Leadership refers to the behavior and understanding of leaders about the importance of actions to protect the environment and also influence the employees towards a greener cause (Begum et al., 2022). A transformational leader should be the one to take the initiative in ensuring that green supply chain

practices are not only put in place but practiced. Before introducing green transformational leadership as a moderator into the regression model, its effect on sustainable firm performance was first established to be significant as indicated in table 4.19.

The results further indicates that the regression analysis for green transformational leadership and sustainable performance of multinational tea firms. The correlation for the relationship between green transformational leadership as a moderating variable and sustainable performance was positive and significant ($r = 0.335$, $p=0.000$). This demonstrates that there was significant relationship between green transformational leadership and sustainable performance of multinational tea firms implying that whenever firms in the industry invested on green transformational leadership there was an improvement on their sustainable performance.

Table 4.19

Regression Analysis for Green Transformational Leadership and Sustainable Performance of Multinational Tea Firms

Variable	**Unstandardized Coefficients**		**Standardized Coefficients**	**T**	**Sig.**
	B	**Std. Error**	**Beta**		
(Constant)	26.915	1.055		25.508	.000
Green Transformational leadership	0.207	0.040	0.269	5.160	0.000
$r = 0.335$					
$r^2 = 0.113$					
$F = 26.621$					

***p<0.05**

Hypotheses Ho5, stated,

Green transformational leadership do not have a moderating effect on the relationship between green supply chain practices and sustainable firm performance of Multinational tea firms in Kenya.

The results further indicated that green transformational leadership predicted sustainable performance of multinational tea firms ($\beta 1 = .207$, $t = 5.16$; $p=0.000$), meaning a unit increase in green transformational leadership produced a 0.207 change in sustainable performance. The r squared value showed that green transformational leadership had a positive impact on sustainable firm performance ($r^2 = 0.113$, $F=26.621$; $p=0.000$), this indicates that sustainable firm performance was attributed to green transformational leadership. The findings on moderation are sonsistent with those of Bakri & Abbas (2020) who pointed out that a tranformative leader helps integrate green strategies in individual consideration, inspiration motivation, intellectual stimulation and idealized influence in order to achieve economic development. Similarly, Widisatria & Nawangsari (2021) in their study found out that green transformational leadership had a positive relationship with economic performance of corporation. Green human resource management has also be found to have mediating effect on the relationship between green transformational leadership and environmental biodiversity (Sun, Askary, & Meo, 2021) lending support to the findings of the current study.

The results are also similar to those of Kim et al., (2019) who established in their study that Green Transformational Leadership plays a significant positive role in firm performance. Equally, Roscoe et al. (2019) posited that Green Transformational Leadership plays a major role in improving firm performance. Rawashdeh et al., (2021) found Green Transformational Leadership positively and significantly

enhances the environment in the health sector of Jordan again giving support to the findings.

Table 4.20 presents the Moderated Multiple regression analysis of green transformational leadership as the moderating variable between green supply chain practices and sustainable performance of multinational tea firms. The value for Durbin-Watson (D=1.908) was established to be within the recommended range of 1.5-2.5 demonstrating that there was no autocorrelation detected. In step 1 the results indicated that the regression had a coefficient of 0.233 which shows a moderate significant and positive correlation between sustainable performance and green supply chain practices. Further, the coefficient of determination R squared of 0.054 shows that only 5.4 % of the variation in sustainable performance was accounted for by green supply chain practices, leaving 94.6% to be accounted for by factors not captured by the study model.

Table 4.20

Model Summary for Moderated Linear Regression Analysis of the Moderating Variable Green Transformational Leadership

Item	**Step 1**	**Step 2**	**Change after Moderation**
R	0.233	0.392	0.159**
R^2	0.054	0.153	0.099**
F- Value	12.007	12.566	0.559
β Constant	28.245	24.890	-3.355
β GSC Practices	-0.040	-0.023	-0.063
β GTL	-	0.362	0.362
Interaction (W*Z)	-	0.538	0.538

Decision Criterion for Moderation

Model 1	Model 2	Test	Conclusion
$\beta_1 = 0.040$	-	Necessary condition exist	There is overall significant relationship to moderate
($p = 0.000$)			
Significant at $p < 0.05$			
$\beta_1 = .040$		$\beta_{GIL} - \beta_{GSC} = .362 - .040 = .322$	There is presence of partial moderation
	$\beta_{GIL} = 0.362$		
($p = .000$)		Durbin-Watson - 1.908	Within the accepted range
	($p = 0.000$)		

Step 2 shows that regression had a coefficient of 0.392 indicating a fairly strong positive and significant correlation after moderation. Accordingly, the coefficient of determination R squared of 0.153 indicated that only 15.3% of the variation in sustainable performance is explained by the change in green supply chain practices and green transformational leadership with 84.7% unexplained.

The R squared value for the two models 1 and 2 were 0.054 and 0.153 respectively. The change in R squared between the two models was 0.099. The F change in model 1 was $F(0.559) = 12.566$, $P < 0.05$, suggesting that the model relationship was significant. The change in R squared suggests that green transformational leadership explained additional 9.9% of the variation in sustainable performance in model 2 which indicates that the explanatory power increased due to moderation and therefore the null hypothesis that green transformational leadership do not have a moderating effect on the relationship between green supply chain practices and sustainable performance in multinational tea firms in Kenya was rejected. This suggests that whenever multinational tea firms in Kenya invested in green transformational leadership there was a significant improvement in the relationship between green supply chain practices and their sustainable performance. However, the beta

coefficients for green supply chain practices in model 1 is 0.040 which changes to -0.023 in model 2, thereby suggesting that the influence of green supply chain practices on sustainable performance decreased by 0.063 units when green transformational leadership was introduced.

$Y = 28.245 - 0.040X_3 + \varepsilon$ ---------- (4.6)

Where Y = Sustainable Performance, X_3 = Green Supply Chain Practices

$Y = 24.890 + 0.362X + 0.538Z + \varepsilon$ ---------- (4.7)

Where Y = Sustainable Performance, X = Green Transformational Leadership and **Z = Moderator**

The beta coefficient for green transformational leadership in model 2 was significant at 0.362 and $p < 0.05$ which means that green transformational leadership significantly influenced the relationship between green supply chain practices and sustainable performance. The beta coefficients for the interaction term was 0.538 and was significant at $p < 0.05$, indicating that green transformational leadership moderated the relationship between green supply chain practices and sustainable performance of multinational tea firms in Kenya.

Investigations further revealed that the total effect and the direct effect $\beta_2 - \beta_1$ (362-.040 =.322) confirmed at 95% confidence level were significant indicating a partial moderation of green transformational leadership on the relationship between green supply chain practices and sustainable performance.

The introduction of the moderator on the study variables will have some effect on sustainable performance as explained below

The effect of Green Transformational Leadership on eco-design will be as shown on the equation.

$$Y = 30.688 + 0.051*0.538X_1 + \varepsilon \quad \text{---------- (4.8)}$$

$$Y = 30.688 + 0.0274X_1 + \varepsilon \quad \text{---------- (4.9)}$$

This implies that after moderation a unit increase in green transformational leadership in the multinational tea firms in Kenya increased sustainable performance by 0.0274 in their sustainable performance

The effect of Green Transformational Leadership on green purchase will be as shown on the equation.

$$Y = 28.872 + 0.119*0.538X_2 + \varepsilon \quad \text{---------- (4.10)}$$

$$Y = 28.872 + 0.640X_1 + \varepsilon \quad \text{---------- (4. 11)}$$

This implies that after moderation a unit increase in Green Transformational Leadership in the multinational tea firms in Kenya produced an increase by 0.64 in their sustainable performance

On the third objective on the influence of green logistics on sustainable performance the regression after moderation of Green Transformational Leadership will be;

$$Y = 29.744 + 0.097*0.538X_2 + \varepsilon \quad \text{---------- (4.12)}$$

$$Y = 29.744 + 0.052X_1 + \varepsilon \quad \text{---------- (4.13)}$$

This implies that after moderation a unit increase in Green Transformational Leadership in the multinational tea firms in Kenya increases by 0.052 in their **sustainable performance**

The third objective was to determine the influence of environmental regulation on sustainable performance.

The regression after moderation of Green Transformational Leadership will be;

$Y = 32.751 - 0.018*0.538X_4 + \varepsilon$ ---------- (4.14)

$Y = 30.688 - 0.009684X_4 + \varepsilon$ ---------- (4.15)

This implies that after moderation a unit increase Green Transformational Leadership in the multinational tea firms in Kenya produced a reduction of 0.009684 in their sustainable performance.

Therefore, this study concludes that green transformational leadership significantly moderates the relationship between green supply chain practices and sustainable performance of multinational tea firms in Kenya.

Green tranformational leadership was examined by Shah, Sukamani, & Kusi, (2020) and his findings that green transformational leadership, green procurement and green creativity had positive significant effect on performance of the firm are consistent with the results of the currents study.

The findings by Zhang, Xu, & Wang (2020) who in their investigation of green transformational leadership and green creativity indicated that green innovation strategy had moderating role as boundary spanner path linking creative process

engaement and green transformational leadership give credence to this study. Chen, Chang, & Lin (2014) in their study showed that green transformational leadership had a favorable impact on green performance, green self-efficacy, and green mindfulness thereby suppoting the findings. Lastly, the outcomes are also in line with those of Widisatria & Nawangsari in (2021) who affirmed that organizational citizen behavior for the environment and green transformational leadership had a positive, significant impact on corporate performance.

The study results were also concurrent to that of Kim et al., (2019) who carried out a study on green transformational leadership and firms' performance and found a positive relationship between green transformational leadership and the performance of the hotel industry. The study's findings showed that green transformational leadership plays a significant positive role in firm performance. Roscoe et al. (2019) also examined the nexus between green transformational leadership and firm performance. The findings show that green transformational leadership plays a major role in improving firm performance. Rawashdeh et al., (2021) found green transformational leadership positively and significantly enhances the environment in the health sector of Jordan.

The study also is supported by the findings by Chen, Chang, & Lin (2014) investigated the impact of green transformational leadership on environmental performance, using green self-efficacy and green mindfulness as mediators. The moderating effects of green self-efficacy and green mindfulness on green transformational leadership and green performance were investigated using a structure equation modeling method. The results showed that green transformational leadership had a favorable impact on green performance, green self-efficacy, and green

mindfulness. Green performance and green transformational leadership were partially mediated by green self-efficacy and green mindfulness.

4.9 Summary of Results of Tests of Hypotheses

The summary of tests of hypotheses is presented on Table 4.21

Table 4.21

Summary of Results of Tests of Hypotheses

Hypothesis	Results	β and P **values**	Conclusion
H01: There is no significant relationship between eco-design practices and sustainable performance of multinational tea firm in Kenya.	Positive Significant relationship between eco-design practices and sustainable performance of multinational tea firm in Kenya.	β= 0.051, P=0.002	Rejected null hypothesis
H02: There is no significant relationship between green purchasing practices and sustainable performance of multinational tea firm in Kenya.	Positive Significant relationship between green purchasing practices and sustainable performance of multinational tea firm in Kwnya	β= 0.119, P=0.000	Rejected null hypothesis
H03: There is no significant relationship between green logistics practices and sustainable performance of multinational tea firm in Kenya.	Positive Significant relationship between green logistics practices and sustainable performance of multinational tea firm in	β= 0.097, P=0.008	Rejected null hypothesis

	Kenya.		
H04: There is no significant relationship between environmental regulation practices and sustainable performance of multinational tea firm in Kenya.	There is insignificant relationship between environmental regulation practices and sustainable performance of multinational tea firm in Kenya.	β= -0.018, P=0.853	Accepted null hypothesis
H05: Green transformational leadership has no significant moderating effect on the relationship between green supply chain practices and sustainable performance of multinational tea firms in Kenya.	Positive Significant moderating effect on the relationship between green supply chain practices and sustainable performance of multinational tea firms in Kenya.	β= 0.207, **P=0.000**	Rejected null hypothesis

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The chapter presents the summary of the study findings, conclusions, contribution to the body of knowledge and recommendations for further research. The general objective of the research was to analyze the relationship between green supply chain practices and sustainable performance of multinational tea firms in Kenya. Specifically the study aimed to determine the relationship between; eco-design and sustainable firm performance; green purchasing and sustainable firm performance; green logistics and sustainable firm performance; environmental regulation and sustainable firm performance and finally establish the moderating effect of green transformational leadership on the relationship between green supply chain practices and sustainable firm performance; in multinational tea firms in Kenya.

5.2 Summary of the Findings

This study sought to investigate the relationship between green supply chain practices, transformational leadership and sustainable performance of multinational tea firms in Kenya. This section summarizes the research findings of the study on the basis of formulated research objectives.

5.2.1 Eco-Design and Sustainable Performance of Multinational Tea Firm in Kenya

The first objective sought to determine the relationship between eco-design and sustainable performance of multinational tea firm in Kenya.

It was established that there was a significant relationship between eco-design and sustainable performance of multinational tea firms in Kenya implying that whenever Multinational tea firms invested on eco-design as a green supply chain practice there was adequate improvement on their sustainable performance.

5.2.2 Green Purchasing and Sustainable Performance of Multinational Tea Firm in Kenya

The second objective wanted to establish the relationship between green purchasing and sustainable performance of multinational tea firms in Kenya. It was established that there was a significant relationship between green purchasing practices and sustainable performance. Green purchasing according to the findings predicted sustainable firm performance implying a unit increase in green purchasing practices in the multinational tea firms in Kenya produced a change in their sustainable performance.

5.2.3 Green Logistics and Sustainable Performance of Multinational Tea Firm in Kenya

The third objective investigated the level of relationship between green logistics and sustainable performance of multinational tea firms in Kenya. The findings confirmed that there existed a positive and significant relationship between green logistics and sustainable performance of multinational tea firms in Kenya. Therefore, whenever multinational tea firms spent resources on green logistics as a green supply chain practice, there was a slight improvement on their sustainable performance.

5.2.4 Environmental Regulation and Sustainable Performance of Multinational Tea Firm in Kenya

The fourth objective assessed the relationship between environmental regulation and sustainable performance of multinational tea firms in Kenya. It was established that there was no significant relationship between environmental regulation and sustainable performance of multinational tea firms implying that whenever firms in the industry invested on environmental regulation there was a no improvement on their sustainable performance. This points that whenever multinational tea firms in Kenya invested in environmental regulation there was no improvement on their sustainable performance.

5.2.5 Effect of Green Transformational Leadership on the Relationship Between Green Supply Chain Practices and Sustainable Performance of Multinational Tea Firm in Kenya.

The final objective was to determine the moderating effect of green transformational leadership on the relationship between green supply chain practices and sustainable performance of multinational tea firm in Kenya. It was established that there was a significant relationship that sustainable firm performance was attributed to green transformational leadership. The findings showed that the explanatory power increased due to moderation suggesting that whenever multinational tea firms in Kenya invested in green transformational leadership there was a significant improvement in the relationship between green supply chain practices and their sustainable performance

5.3 Conclusions

Following the research findings of the study, the following conclusions were made as per the objectives of the study.

5.3.1 Eco-design and Sustainable Performance of Multinational Tea Firm in Kenya

The study concluded that eco-design as a green procurement practice contributes to a minimal variation in sustainable performance of multinational tea firms in Kenya and is unlikely to be responsible for any success if pursued alone. For ecological design to minimize environmental destruction it must address all the processes involved such as procurement of eco materials to manufacturing green products within a supply chain.

5.3.2 Green Purchasing and Sustainable Performance of Multinational Tea Firm in Kenya

It was also concluded that green purchasing had a significant impact on sustainable performance of multinational tea firms in Kenya. Just like eco-design practice, green purchasing alone may not deliver much to the multinational tea firms and should therefore be applied with other green supply chain practice to realize more returns. Therefore, selecting the right suppliers is one of the important tasks of green purchasing which directly reduces purchasing risk and maximizes overall value to the firm.

5.3.3 Green Logistics and Sustainable Performance of Multinational Tea Firm in Kenya

Similarly, the study concluded that there was a positive and significant relationship between green logistics and sustainable performance of multinational tea firms in Kenya.

Therefore, whenever multinational tea firms spent resources on green logistics as a green supply chain practice, there was a slight improvement on their sustainable performance. Green logistics as a practice of green supply chain is a form of environmental maintainance since it impacts on mode selection, air and noise emissions and packaging reduction.

5.3.4 Environmental Regulation and Sustainable Performance of Multinational Tea Firm in Kenya

On environmental regulation, the study concluded that there was no significant impact on sustainable performance of multinational tea firms in Kenya. This means that

multinational tea firms in Kenya could not benefit in their effort to use existing environmental regulations. This could be attributed to political and social factors in their areas of operation.

5.3.5 Effect of Green Transformational Leadership on the Relationship Between Green Supply Chain Practices and Sustainable Performance of Multinational Tea Firms in Kenya.

On the moderating effect of green transformational leadership, this study concludes that green transformational leadership significantly moderates the relationship between green supply chain practices and sustainable performance of multinational tea firms in Kenya. Multinational tea firms' investment on green transformational leadership would bear fruits since leadership would take the initiative in ensuring green supply chain practices are put in place.

5.4 Recommendations

Based on the conclusion of objective on that there was significant relationship between eco-design and sustainable performance of multinational tea firms in Kenya, the study recommends that firms in the industry in Kenya should invest in eco-design practices since they have a significant effect on sustainable performance.

On the conclusion of objective that there was a significant relationship between green purchasing and sustainable performance of multinational tea firms in Kenya, the study recommends that multinational tea firms in Kenya should put resources in not only the development green purchasing techniques but also on the operationalization of the same. Arising from the conclusion of objective three that there was a positive

and significant relationship between green logistics and sustainable performance of multinational tea firms in Kenya, it is recommended that multinational tea firms should invest their resources on green logistic practices to ensure that there was enhanced sustainable performance arising from the benefits of having the green logistics incorporated in both their inbound and outbound supply logistics.

On the conclusion of objective four that there was no significant impact of environmental regulation on sustainable performance of multinational tea firms in Kenya, the study recommends that multinational tea firms in Kenya should find reasons why this is the case. They could also use different methods to enforce these regulations since they are supposed help prevent environmental degradation thereby sustaining their performance as firms. Finally on the conclusion that green transformational leadership significantly moderates the relationship between green supply chain practices and sustainable performance of multinational tea firms in Kenya. The study recommends that multinational tea firms should consider having a green transformational leader in place who will be charged with ensuring green procurement practices are operationalized.

5.5 Suggestions for Further Research

Future research should put emphasis on ways in which firms could gain more from existing green supply chain practices since as they are now, these practices yield minimum impact on sustainable performance. Secondly, other moderating variables besides the green transformational leadership need to be included in future studies.

Since this study was limited to the use of questionnaire as data collection tool, more methods such as interview schedule, focus group discussions should be incorporated

in future studies to help verify on the information provided. It should be taken into account that a five-point Likert scale was used to compile data, where the possible responses depended mostly on human perceptions and could have been subjected to biasness and errors.

This study should be extended to confirm and further define the findings, not only for Multinational tea firms in Kenya but also for other firms in Kenya as well as in developing countries. Studies on the same area should take into consideration the government's willingness to implement policy changes for that will enable firms implement green supply chain practices without suffering from political negativity.

The findings could be used to regulate other firms whose manufacturing and processing practices could be harmful to the environment. The study finally recommends further research on other green supply chain practices and strategies that are helpful to firms in environmental conservation.

REFERENCES

Abbott, M, & McKinney, J. (2013). Understanding and applying research design. UK: John Wiley & Sons.

Aeknarajindawat, N, & Jermsittiparsert, K. (2019). The mediating impact of green self-efficacy and green mindfulness in the relationship between green shared *vision and green creativity among the manufacturing firms in Thai sports* Industry. Summer Conferences of Sports Science (pp. 14(5), S2263-S2275). Baghdad, Iraq: Baghdad Science Institute.

Ahmed, A., Hui, C., Ahmed, E., Tarek, M., & Mahmoud, H. (2020). The impact of *reverse logistics on environmental sustainability performance. International* Journal of Advance in Science Engineering and Technology, 8(2), 18-27.

Ahmed, M., Zehou, S., Raza, S. A., Qureshi, M. A., & Yousufi, S. Q. (2020). Impact of CSR and environmental triggers on employee green behavior: The *mediating effect of employee well-being. Corporate Social Responsibility and* Environmental Management, 27(5), 2225-2239.

Aital, P., & Vijai, P. (2016). 'Green' Supply Chain Management: Resource Allocation *Strategies for Sustainable Operations. In Strategic Management of Sustainable* Manufacturing Operations (pp. 1-23). IGI Global.

Ali, I., Afshinb, S., Poureshgh, Y., Azari, A., Rashtbari, Y., Feizizadeh, A., & Fazlzadeh, M. (2020). Green preparation of activated carbon from pomegranate peel coated with zero-valent iron nanoparticles (nZVI) and *isotherm and kinetic studies of amoxicillin removal in water. Environmental* Science and Pollution Research, 27, 36732-36743.

Ali, I., Afshinb, S., Poureshgh, Y., Azari, A., Rashtbari, Y., Feizizadeh, A., & Fazlzadeh, M. (2020). Green preparation of activated carbon from pomegranate peel coated with zero-valent iron nanoparticles (nZVI) and *isotherm and kinetic studies of amoxicillin removal in water. Environmental* Science and Pollution Research, 27, 36732-36743.

Alnoor, A., Eneizan, B., Makhamreh, H., & Rahoma, I. (2019). The Effect of Reverse *Logistics on Sustainable Manufacturing. International Journal of Academic* Research in Accounting, Finance and Management Sciences, 9(1), 71-79.

Antwi, B., Agyapong, D., & Owusu, D. (2022). Green supply chain practices and *sustainable performance of mining firms: Evidence from a developing* country. Cleaner Logistics and Supply Chain, 4(2022), 1-8

Asiamah, N., Mensah, H., & Oteng-Abayie, E. (2017). General, Target, and *Accessible Population: De mystifying the Concepts for Effective Sampling.* The Quantitative Report, 22(6), 1607-1621.

Aslam, H., Waseem, M., & Khurram, M. (2019). Impact of Green Supply Chain Management Practices on Corporate Image: Mediating role of Green Communications. Pakistan Journal of Commerce and Social Sciences, 13(3). 581-598.

Babbie, E. (2015). Observing ourselves: Essays in social research. Waveland Press.

Bakri, N., & Abbas, S. (2020). The Role of Transformational Leadership in *Promoting Sustainability among Property Development Companies in* Malaysia. International Journal of Organizational Leadership, 9, 123-137.

Baron, R. M., Kenny, D. A. (1986). The moderator–mediator variable distinction in *social psychological research: Conceptual, strategic, and statistical* considerations. Journal of personality and social psychology, 51(6), 1173.

Baron, R., & Kenny, D. (1986). The moderator-mediator variable distinction in social *psychological research: Conceptual, strategic and statistical considerations.* Journal of Personality and Social Psychology, 51, 1173-1182.

Begum, S., Ashfaq, M., Xia, E., & Awan, U. (2022). Does green transformational leadership lead to green innovation? The role of green thinking and creative process engagement. Business Strategy and the Environment, 31(1), 580-597.

Bett, S. (2013). Strategy Alignment with Value Chain for Sustainable Growth in *Technology related Industries. International Journal of Innovative Research & Development*, 2(10), 158-162.

Bett, S. K. (2013). Strategy alignment with value chain for sustainable growth in technology related industries.

Borchardt, M., Wendt, M. H., Pereira, G. M., & Sellitto, M. A. (2011). Redesign of a component based on ecodesign practices: environmental impact and cost reduction achievements. Journal of cleaner production, 19(1), 49-57.

Borsatto, J., Bazani, C., & Amui, L. (2020). Environmental Regulations, Green Innovation and Performance: An Analysis of Industrial Sector Companies from Developed Countries and Emerging Countries. Brazilian Business Review, 17, 560-578.

Bowen, S., Witkiewitz, K., Dillworth, T. M., Chawla, N., Simpson, T. L., Ostafin, B. D., & Marlatt, G. A. (2006). Mindfulness meditation and substance use in an incarcerated population. Psychology of addictive behaviors, 20(3), 343.

Bryman, A., & Bell, W (2015). Research Methodology: Methods and Techniques 3rd Edition. India: New Delhi.

Caldera, H. T. S., Desha, C., & Dawes, L. (2019). Evaluating the enablers and barriers *for successful implementation of sustainable business practice in 'lean' SMEs.* Journal of cleaner production, 218, 575-590.

Carter, C. R., Kale, R., & Grimm, C. M. (2000). Environmental purchasing and firm *performance: an empirical investigation. Transportation Research Part E:* Logistics and Transportation Review, 36(3), 219-228.

Charhai.com(2014). Tea, Kenya tea retrieved from http:// www. Charhai.com

Chen, Y. S., & Chang, C. H. (2013). Greenwash and green trust: The mediation *effects of green consumer confusion and green perceived risk. Journal of* business ethics, 114, 489-500.

Chen, Y., Chang, C., & Lin, Y. (2014). Green trasformational leadership and green *performance: The mediation effects of green mindfulness and green self-*efficacy. Sustainability, 6, 6604-6621.

Collins, R. (2011). Modernist-positivism and the problem of institutional autonomy in international law. In International organizations and the idea of autonomy (pp. 22-47). Routledge.

Cooper, B. A., & Schindler Rising, S. (2011). A randomized clinical trial of group prenatal care in two military settings. Military medicine, 176(10), 1169-1177.

Coşkun, A., Ağaoğlu, G., & Kutluk, F. (2017). Reverse Logistics, Its Relation with *Cost and Sustainability, Its Inclusion in Curriculum Journal of Educational* and Instructional Studies in the World, 7(4), 96-106.

Creswell, W, & Creswell, D (2017). Research Design: Qualitative, Quantitative and Mixed Methods Approaches. UK: Sage Publications.

Cullinane, S., Browne, M., Karlsson, E., & Wang, Y. (2017). Improving sustainability *through digitalisation in reverse logistics. In C. Jahn, R. Wolfgang, & M. Christian, Digitization in Maritime and Sustainable Logistics: City Logistics,* Port Logistics and Sustainable Supply Chain Management in the Digital Age (pp. pp. 185-196). Berlin: epubli GmbH.

Dauvergne, P. (2022). Is artificial intelligence greening global supply chains? *Exposing the political economy of environmental costs. Review of* International Political Economy, 29(3), 696-718

Dimaggio, P., & Powell, W. (1983). The iron cage revisited-institutional isomorphism and collective rationality in organizational fields. American Sociological Review, 48(2), 147-160.

Ditlev-Simonsen, C. (2022). A Guide to Sustainable Corporate Responsibility: From Theory to Action. USA: Springer Nature.

Du, Y., & Yan, M. (2022). Green transformational leadership and employees' taking charge behavior: The mediating role of personal initiative and the moderating *role of green organizational identity. International journal of environmental* research and public health, 19(7), 4172.

Du, Y., & Yan, M. (2022). Green transformational leadership and employees' taking charge behavior: The mediating role of personal initiative and the moderating *role of green organizational identity. International journal of environmental* research and public health, 19(7), 4172.

Dubey, R, Bag, S., Ali, S., & Venkatesh, V. (2013). Green purchasing is key to superior performance: An empirical study. nt. J. Procurement Management, 6(2), 187-210.

El-Baz, J., & Iddik, S. (2022). Green supply chain management and organizational *culture: a bibliometric analysis based on Scopus data (2001-2020).* International Journal of Organizational Analysis, 30(1), 156-179.

Elmagrhi, M, Ntim, C., Elamer, A., & Zhang, Q. (2018). A Study of Environmental Policies and Regulations, Governance Structures and Environmental

Performance: The Role of Female Directors. Business Strategy and the Environment, 1-31.

El Tayeb, T. K., Zailani, S., & Jayaraman, K. (2010). The examination on the drivers *for green purchasing adoption among EMS 14001 certified companies in* Malaysia. Journal of Manufacturing Technology Management, 21(2), 206-225.

Gajendrum, N. (2017). Green Supply Chain Management Benefits Challenges and *Other Related Concepts. International Journal of Applied Science Engineering* & Management, 3(8), 1-6.

Gamboa-Bernal, J., Morento-Mantilla, C., & Orjuela-Castro, J. (2020). The Sustainable Supply Chain: Concepts, Optimization and Simulation Models and Trends. Revista Ingenieria, 25(3), 355-377.

Garai, A., Mondai, B., & Roy, T. (2018). Customer Satisfaction and Environmental Concern based Multiple Objective Optimization Model for Sustainable Supply *Chain in Real Life: An Intuitionistic Fuzzy T-Set Approach. International* Journal of Mathematical Archive, 9(1), 1-36.

Garg, S., & Dhar, R. L. (2014). Effects of stress, LMX and perceived organizational *support on service quality: Mediating effects of organizational commitment.* Journal of Hospitality and Tourism Management, 21, 64-75.

Garza, F. (2013). A Framework for Strategic Sustainability in Organization: A Three Pronged Approach. Journal of Comparative International Management, 16(1), 23-26.

Gotschol, A., De Giovanni, P., & Vinzi, V. E. (2014). Is environmental management an economically sustainable business?. Journal of environmental management, 144, 73-82.

Grimm, K., & Widaman, K. (2012). Construct Validity. NY: Prestige Hall.

Gujarati, D. (2003). Basic Econometrics. 4th ed. New York: McGraw Hill, pp. 638-640.

Gunasekaran, A., & Spalanzani, A. (2012). Sustainability of manufacturing and *services: Investigations for research and applications. International journal of* production economics, 140(1), 35-47.

Hair, J. (2014). Multivariate Data Analysis. Harlow England: Pearson Education Limited.

Hall, C. M. (2010). Changing paradigms and global change: From sustainable to steady-state tourism. Tourism Recreation Research, 35(2), 131-143.

Hasan, H. F. A., Ilias, A., Rahman, R. A., & Razak, M. Z. A. (2008). Service quality *and student satisfaction: A case study at private higher education institutions.* International business research, 1(3), 163-175.

Husted, B. W. (2013). Global environmental and social strategy. Global Strategy Journal, 3(2), 195-197.

Iles, A. (2019). Repairing the Broken Earth: NK Jemisin on race and environment in transitions. Elementa: Science of the Anthropocene, 7.

Ingari, B. K. (2018). Influence of outsourced public service provider's quality dimensions on performance of Nairobi City County (Doctoral dissertation, JKUAT-COHRED).

Islam, S., Karia, N., Fauzi, F., & Soliman, M. (2017). A review on green supply chain *aspects and practices. Management and Marketing, Challenges for Knowledge* Society, 12(1), 12-36.

Ismatov, A. (2015). The sustainability implications of" product take-back clause" insupplier/retailer interface.

Jänicke, M. (2008). Ecological modernisation: new perspectives. Journal of Cleaner Production, 16(5), 557-565.

Jasne J., Sidhu, R., Awasthi, A., Chauhan, S., & Goyal, S. (2017). A DEMATEL based approach for investigating barriers in green supply chain management in Canadian manufacturing firms. International Journal of Production Research, 56(1-2), 312-332.

Jasneet M. S., Tseng, M. L., Karia, N., & Lee, C. H. (2018). Assessing green supply *chain practices in Bangladesh using fuzzy importance and performance* approach. Resources, Conservation and Recycling, 131, 134-145.

Jensen, J., Balslev Munksgaard, K., & Stentoft Arlbjørn, J. (2013). Chasing value offerings through green supply chain innovation. European Business Review, 25(2), 124-146.

Jia, C. S., Zeng, R., Peng, X. L., Zhang, L. H., & Zhao, Y. L. (2018). Entropy of gaseous phosphorus dimer. Chemical Engineering Science, 190, 1-4.

Jia, F., Zuluaga-Cardona, L., Bailey, A., & Rueda, X. (2018). Sustainable supply *chain management in developing countries: An analysis of the literature.* Journal of cleaner production, 189, 263-278.

Kalpande, S., & Toke, L. (2021). Assessment of green supply chain management practices, performance, pressure and barriers amongst Indian manufacturer to *achieve sustainable development. International Journal of Productivity and* Performance Management, 70(8), 2237-2257.

Kaltiainen, J., & Hakanen, J. (2022). Fostering task and adaptive performance through *employee well-being: The role of servant leadership. BRQ Business Research* Quarterly, 25(1), 28-43.

Kaur, J., Sidhu, R, Awasthi, A, Chauhan, S., & Goyal, S. (2018). A DEMATEL based approach for investigating barriers in green supply chain management in Canadian manufacturing firms. International Journal of Production Research, 56(1-2), 312-332.

Kebenei, P. (2016). Effects of green supply chain management on organizational productivity: A survey of textile industries in Eldoret. Kenya: Unpublished Kisii University.

Kenya National Bureau of Statistics. (2021). Economic Survey 2021. Nairobi, Kenya: KNBS.

Khan, S. A. R, & Dong, Q. (2017). The impact of green supply chain on enterprise *performance: In the perspective of China. Journal of Advanced Manufacturing* Systems, 16(03), 263-273.

Kittisak, J., Puttisat, N, & Sudawan, S. (2019). Green Supply Chain Practices and Sustainable Performance: Moderating Role of Total Quality Managment Practices in Electronic Industry of Thailand. Int. J. Sup. Chain. Mgt, 8(3), 33-46

Kouhizadeh, M., & Sarkis, J. (2018). Blockchain practices, potentials, and perspectives in greening supply chains. Sustainability, 10(10), 3652.

Kumar, A., Jain, V., & Kumar, S. (2014). A comprehensive environment friendly approach for supplier selection. Omega, 42(1), 109-123.

Laosirihongthong, T., Adebanjo, D., & Choon Tan, K. (2013). Green supply chain management practices and performance. Industrial Management & Data Systems, 113(8), 1088-1109.

Lăzăroiu, G., Ionescu, L., Uță, C., Hurloiu, I., Andronie, M., & Dijmărescu, I. (2020). Environmentally Responsible Behavior and Sustainability Policy Adoption in Green Public Procurement. Sustainability, 12, 1-12.

Li, W., Bhutto, T. A., Xuhui, W., Maitlo, Q., Zafar, A. U., & Bhutto, N. A. (2020). Unlocking employees' green creativity: The effects of green transformational *leadership, green intrinsic, and extrinsic motivation. Journal of Cleaner* Production, 255, 120229.

Luthra, S., Garg, D., & Haleem, A. (2016). The impacts of critical success factors for implementing green supply chain management towards sustainability: an *empirical investigation of Indian automobile industry. Journal of cleaner* production, 121, 142-158.

Mahmood, F., Chen, R., Sudarsky, S., Yu, D., & Durr, N. J. (2018). Deep learning with cinematic rendering: fine-tuning deep neural networks using photorealistic medical images. Physics in Medicine & Biology, 63(18), 185012.

Marasuriya, D. (2018). A Systematic Review of Literature on Theories Available on *Sustainable Supply Chain Management. International Journal of Engineering* Research and Management, 5(9), 1-5

Maruf, H. (2013). Sustainable Supply Chain Management Practices and Operational Performance. American Journal of Industrial and Business Management, 3, 42-48.

Masuku, M., & Sing, A. (2014). Sampling Techniques & determination of Sample *Size in Applied Statistics Research: An Overview. International Journal of* Economics, Commerce and Management, 2(11), 342-356.

Mashkova, Y. (2021, September 09). Green Logistics for Greener Supply Chain Management. Retrieved from Track-POD: https://www.track-pod.com

Min, H., & Galle, W. P. (2001). Green purchasing practices of US firms. International journal of operations & production management, 21(9), 1222-1238.

Mittal, S., & Dhar, R. L. (2016). Effect of green transformational leadership on green creativity: A study of tourist hotels. Tourism Management, 57, 118-127.

Mohamad, M., Sulaiman, N., Sern, L., & Salleh, K. (2015). Measuring the validity and reliability of research instruments. Procedia-Social and Behavioral Sciences, 204, 164-171.

Mohammed, R. L., Echeverry, A., Stinson, C. M., Green, M., Bonilla, T. D., Hartz, A. & Esiobu, N. (2012). Survival trends of Staphylococcus aureus, Pseudomonas *aeruginosa, and Clostridium perfringens in a sandy South Florida beach.* Marine Pollution Bulletin, 64(6), 1201-1209.

Mol, A., & Spaargaren, G. (1993). Environment, modernity and the risk-society: the apocalyptic horizon of environmental reform. International Sociology, 8(4), 431-459.

Momanyi, B. N. (2013). Adoption of green manufacturing practices by food processing firms in Mombasa County, Kenya.

Monroy, L., Mulinge, W., & Wetwer, M. (2013). Analysis of incentives and disincentives for tea in Kenya. Rome: Technical Notes Series, MAFAP, FAO.

Monteiro, J., Silva, F. J. G., Ramos, S. F., Campilho, R. D. S. G., & Fonseca, A. M. *(2019). Eco-design and sustainability in packaging: A survey. Procedia* Manufacturing, 38, 1741-1749.

Monteiro, J., Silva, F., Ramos, S., Campilho, R., & Fonseca, A. (2019). Eco-Design and Sustainability in Packaging: A Survey. Procedia Manufacturing, 38, 1741-1749.

Mugenda, O. M., & Mugenda, A. G. (2012). Research methods: Quantitative & qualitative approaches (Vol. 2, No. 2). Nairobi: Acts press.

Muigai, R. G. (2016). Effect of capital structure on financial distress of non-financial companies listed in Nairobi Securities Exchange (Doctoral dissertation, COHRED, Finance, JKUAT).

Muema, B. O., Nyaoga, R. B., Matwere, R. B., & Nyambega, E. (2014). Green supply chain management and environmental performance among tea processing *firms in Kericho County-Kenya. International Journal of Economics, Finance* and Management Sciences, 2(5), 270-276.

Mumma, B. O., Nyaoga, R. B., Matwere, R. B., & Nyambega, E. (2014). Green supply chain management and environmental performance among tea processing *firms in Kericho County-Kenya. International Journal of Economics, Finance* and Management Sciences, 2(5), 270-276.

Mumma, B., Nyaoga, R., Matwere, R., & Nyambega, E. (2014). Green supply chain management and environmental performance among tea processing firms in *Kericho County-Kenya. International Journal of Economics, Finance and* Management Sciences, 2(5); 270-276.

Murphy, J., & Gouldson, A. (2000). Environmental policy and industrial innovation: integrating environment and economy through ecological modernisation. Geoforum, 31(1), 33-44

Naibei, S. C. (2015). Influence of peace building strategies on ethnic cohesion among communities in mount Elgon sub-county, Kenya (Doctoral dissertation, University of Nairobi).

Nureen, N., Liu, D., Irfan, M., Malik, M., & Awan, U. (2023). Nexuses among green supply chain management, green human capital, managerial environmental *knowledge, and firm performance: evidence from a developing country.* Sustainability, 15(6), 5597.

Ojo, E., Mbohwa, C., & Akinlabi, E. (2013). Green Supply Chain Management in Developing Countries. South Africa: Unpublished University of Johannesburg.

Olaore, R. A., & Adebisi, N. T. (2013). Accounting, purchasing and supply chain management interface. IOSR Journal of Business and Management, 11(2), 80-84.

Omonge, W (2012). Green supply chain management practices and competitiveness of commercial banks in Kenya. Nairobi, Kenya: University of Nairobi Dissertation.

Onu, P., & Mbohwa, C. (2018, September 27th). Green Supply Chain Management *and Sustainable Industrial Practice: Bridging the Gap. International* Conference on Industrial Engineering and Operations Management, pp. 787-792.

Padash, A, Bidhendi, N H, & Ardestani, M (2015). Green Strategy Management *Framework Towards Sustainable Development. Bulgarism Chemical* Communications, 47, 259-268.

Park, C Y. (2015). Financial inclusion, poverty, and income inequality in developing Asia. Asian Development Bank Economics Working Paper Series, (426).

Parmigiani, A, Klassen, R, & Russo, M (2011). Efficiency meets accountability: *Performance implications of supply chain configuration, controll and* capabilities. Journal of Operations Management, 29(3), 212-223.

Porter, M (1985). Competitive Advantage: Creating and Sustaining Superior Performance. USA: New York Press.

Porter, M (2004). Competitive Advantage: Creating and Sustaining Superior Performance. USA: New York Press.

Prado, M L. (2018). Advances in financial machine learning. John Wiley & Sons.

Qorri, A, Mujkić, Z, Gashi, S, & Kraslawski, A (2018). Green Supply Chain *Management Practices and Company Performance: A Meta-analysis approach.* Procedia Manufacturing, 17, 317-325.

Rajan, A., Meena Kumari, M., & Philip, D. (2014). Shape tailored green synthesis and *catalytic properties of gold nanocrystals*. *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy*, 118, 793-799.

Ramanathan, R., He, Q., Black, A., Ghobadian, A., & Gallear, D. (2017). Environmental regulations, innovation and firm performance: A revisit of the Porter hypothesis. Journal of Cleaner Production, 155, 79-92.

Rao, P. H. (2014). Measuring environmental performance across a green supply chain: a managerial overview of environmental indicators. Vikalpa, 39(1), 57-74.

Rath, R. C. (2013). An impact of green marketing on practices of supply chain *management in Asia: Emerging economic opportunities and challenges*. International Journal of Supply Chain Management, 2(1).

Rawashdeh, A. M., Almasarweh, M. S., Alhyasat, E. B., & Al-Rawashdeh, F. (2021). Examining the effect of transformational leadership to organizational *performance through quality innovation: A Developing Country Perspective*. International Journal for Quality Research, 15(1).

Rehman, S. U., Kraus, S., Shah, S. A., Khanin, D., & Mahto, R. V. (2021). Analyzing the relationship between green innovation and environmental performance in large manufacturing firms. Technological Forecasting and Social Change, 163, 120481.

Robertson, J., & Barling, J. (2017). Toward a New Measure of Organizational Environmental Citizenship Behavior. Journal of Business Research, 75, 57-66.

Roscoe, S., Subramanian, N., Jabbour, C. J., & Chong, T. (2019). Green human resource management and the enablers of green organisational culture:

Enhancing a firm's environmental performance for sustainable development. Business Strategy and the Environment, 28(5), 737-749.

Rosen, M., & Kishawy, H. (2012). Sustainable Manufacturing and Design: Concepts, Practices and Needs. Sustainability, 4, 154-174.

Rostamzadeh, R., Govindan, K., Esmaeili, A., & Sabaghi, M. (2015). Application of *fuzzy VIKOR for evaluation of green supply chain management practices.* Ecological Indicators, 49, 188-203.

Saeed, A., Oman, S., Rasheed, F., Waseem, M., & Tabash, M. (2021). Green human resource management and environmental performance: The role of green supply chain management practices. Emerald Insight, 1-19.

Sahar, D., Afifudin, M., & Indah, A. (2020). Review of Green Supply Chain *Management in Manufacturing: A Case Study. IOP Conf. Series: Earth and* Environmental Science (pp. 1-6). India: IOP Publishing Ltd.

Salas-Vallina, A., Alegre, J., & Guerrero, R. F. (2018). Happiness at work in *knowledge-intensive contexts: Opening the research agenda. European* research on management and business economics, 24(3), 149-159.

Sar, K., Dong, Q., Wei, S., Khalid, Z., & Yu, Z. (2017). Environmental Logistics Performance Indicators Affecting Per Capita Income and Sectorial Growth: *Evidence from a Panel of Selected Global Ranked Logistics Countries.* Environmental Science and Pollution Research, 24, 1518-1531.

Sarantakos, S. (2005). Varieties of social research. In Social research (pp. 31-71). Palgrave, London.

Sari, K., & Yanginlar, G. (2014). The development of green logistics for *implementation sustainable development strategy in companies. Procedia* Social and Behavioral Sciences, 151, 302-309.

Sarkar, S. (2012). The role of information and communication technology (ICT) in higher education for the 21st century. Science, 1(1), 30-41.

Sarkis, J., Zhu, Q., & Lai, K. (2011). An organizational theoretic review of green *supply chain management literature. International Journal of Production* Economics, 130(1), 1-15.

Saunders, M., Lewis, P. H. I. L. I. P., & Thornhill, A. D. R. I. A. N. (2012). Research methods. Business Students 4th edition Pearson Education Limited, England, 6(3), 1-268.

Sekaran, U., & Bougie, R. (2016). Research methods for business: A skill building approach. john wiley &sons.

Seuring, S., & Müller, M. (2008). From a literature review to a conceptual framework for sustainable supply chain management. Journal of Cleaner Production, 16(15), 1699-1710.

Shafique, M., Asghar, M., & Rahman, H. (2017). The impact of green supply chain management practices on performance: Moderating role of institutional *pressure with mediating effect of green innovation. Business, Management* and Education, 15(1), 91-108.

Shah, A., Sukamani, Y., & Kusi, M. (2020). How green transformational leadership influences sustainability? Mediating effects of green creativity and green procurement. Journal on Innovation and Sustainability, 11(4), 70-87.

Shahzad, M., Qu, Y., Zafar, A., & Appolloni, A. (2021). Does the interaction between the knowledge management process and sustainable development practices boost corporate green innovation? Business Strategy and the Environment, 30(8), 4206-4222.

Sharique, M., Asghar, M., & Rahman, H. (2017). The Impact of Green Supply Chain Management Practices on Performance: Moderating Role of Institutional *Pressure with Mediating effect of green Innovation. Business, Management* and Education, 15(1), 91-108.

Singh, S., Del-Giudice, M., Chierici, R., & Graziano, D. (2020). Green Innovation and Environmental Performance: The role of green transformational *leadership and green human resource management. Technology Forecasting* and Social Change, 150, 119-125.

Sousa Jabbour, A., Vazquez-Brust, D., Jabbour, C., & Latan, H. (2017). Green supply chain practices and environmental performance in Brazil: Survey, Case Studies and Implication for B2B. Industrial Marketing Management, 66, 13-28.

Srour, C., Kheir-El-Din, A., & Samir, Y. (2020). The Effect of Green *Transformational Leadership on Organizational Citizenship Behavior in* Egypt. Academic Journal of Interdisciplinary Studies, 9(5), 1-16.

Sun, X., Askary, A., & Meo, M. (2021). Green transformational leadership and environmental performacne in small and medium enterprises. Economic Research, 1-20.

Sun, Y., & Razzaq, A. (2022). Composite fiscal decentralisation and green innovation: Imperative strategy for institutional reforms and sustainable development in OECD countries. Sustainable Development, 30(5), 944-957.

Taber, K. (2017). The use of Cronbach's alpha when developing and reporting research instruments in Scient Education. Research in Science Education, 1-24.

Tachizawa, E., Gimenez, C., & Sierra, V. (2015). Green supply chain management *approaches: Drivers and performance implications. International Journal of* Operations & Production Management, 35(11), 1546-1566.

Taherdoost, H. (2016). Validity and Reliability of the Research Instrument: How to *Test the Validation of a Questionnaire/ Survey in a Research. SSRN Electronic* Journal, 5(3): 28-36.

Tea Directorate (2019). Ecofriendly control approaches for Polyphagotarsonemus *latus (Acari: Tarsonemidae) on tea (Camellia sinensis L.). International* Journal of Acarology, 45(1-2), 79-89.

Teixeira, A., Jabbour, C., De-Sousa, K., Latan, H., & De-Oliveira, J. (2016). Green *training and green supply chain management: Evidence from firms. Journal of* Cleaner Production, 116, 170-176.

Testa, F., & Iraldo, F. (2010). Shadows and lights of gscm (green supply chain management): Determinants and effects of these practices based on a multi-national study. Journal of Cleaner Production, 18(10-11), 953-962.

Thamsatitdej, P., Boon-itt, S., Samaranayake, P., & Wannakarn, M. (2017). Eco-design practices towards sustainable supply chain management: interpretive

structural modelling (ISM). International Journal of Sustainable Engineering, 10(2), 1-2.

Thoo, C., Huam, T., Zuraidah, S., & Siti, Z. (2015). Green Supply Chain Management Practices Sustainability Performance. Advabce Science Letters, 10, 1-5.

Trivellas, P., Malindretos, G., & Reklitis, P. (2020). Implications of Green Logistics Management on Sustainable Business Supply Chain Performance: Evidence from a Survey in the Greek Agri-Food Sector. Sustainability, 12, 1-29.

Tuan, L. T. (2022). Promoting employee green behavior in the Chinese and Vietnamese hospitality contexts: the roles of green human resource *management practices and responsible leadership. International Journal of* Hospitality Management, 105, 103253.

University of Louisville. (2021, January 12). Procurement Services. Retrieved from University of Louisville Website: https://louisville.edu

Vacar, A (2019). Logistics and Supply Chain Management: An Overview. Studies in Business and Economics, 209-215.

Vachon, S., & Klassen, R. (2016). "Extending green practices across the supply chain: *The impact of upstream and downstream integration". International Journal of* Operations & Production Management, 26(7), 795-821.

Victoria, I. (2016). The Road Ahead: How an efficient, fair and sustainable pricing regime can help tackle congestion.

Vuitton, D. A., McManus, D. P., Rogan, M. T., Romig, T., Gottstein, B., Naidich, A., & da Silva, A. M. (2020). International consensus on terminology to be used in the field of echinococcoses. Parasite, 27.

Wambaya, A. K., Cketch, J., Namusonge, G., & Sakwa, M. (2018). Effect of reverse logistics on procurement performance among state corporations in Kenya (A case of Kenya Medical Supplies Authority-KEMSA). J Bus Manag, 20(1), 87.

Wanyoike, E. N., Owuor, G., Lagat, J., & Wanjiru, E. (2015). Determinants of Pastoral Communities' Participation in Community Based Eco-Tourism *Enterprises as Livelihood Diversification Strategy. Journal of Economics and* Sustainable Development, 6(6), 222-1700.

Weale, A. (1992). The new politics of pollution. Journal of Public Policy, 12, 296-297.

Widisatria, D., & Nawangsari, L. (2021). The influence of green transformational leadership and motivation to sustainable corporate performance with organizational citizenship behavior for the environment as a mediating: Case *study at PT Karya Mandiri Sukes Sentosa. European Journal of Business and* Management Research, 6(3), 118-123.

Wisner, B., Gaillard, J. C., & Kelman, I. (Eds.). (2012). Handbook of hazards and disaster risk reduction and management. Routledge.

Wu, D. (2008). Supply chain risk, simulation, and vendor selection. International journal of production economics, 114(2), 646-655.

Wyer Jr, R. S., & Xu, A. J. (2010). The role of behavioural mind-sets in goal-directed *activity: Conceptual underpinnings and empirical evidence. Journal of* Consumer Psychology, 20(2), 107-125.

Xie, Y., Zhao, Y., Chen, Y., & Allen, C. (2022). Green construction supply chain management: Integrating governmental intervention and public–private

partnerships through ecological modernisation. Journal of Cleaner Production, 331, 129986.

Xing, X., Liu, T., Shen, L., & Wang, J. (2020). Linking Environmental Regulation and Financial Performance: The Mediating Role of Green Dynamic Capability and Sustainable Innovation. Sustainability, 12, 1-22.

Yang, C., & Sheu, C. (2011). The effects of environmental regulations on green supply chains. African Journal of Business Management, 5(26), 10601-10614.

Yong, T., Zhang, X., Bie, N., Zhang, H., Zhang, X., Li, F., & Yang, X. (2019). Tumor *exosome-based nanoparticles are efficient drug carriers for chemotherapy.* Nature communications, 10(1), 3838.

Younis, H., Sundarakani, B., & Vel, P. (2015). The impact of implementing green supply chain management practices on corporate performance. Emerald Insight, 217-245.

Younis, H., Sundarakani, B., & Vel, P. (2016). The impact of implementing green *supply chain management practices on corporate performance.* Competitiveness Review, 26(3), 216-245.

Zafar, A., Nisar, Q., Shoukat, M., & Ikram, M. (2017). Green Transformational Leadership and Green Performance: The mediating role of Green Mindfulness *and Green Self-efficacy. Green Transformational Leadership and Green* Performance: The mediating role of Green Mindfulness and Green Self-efficacy, 9(2), 1059-1066.

Zhang, F., & Zhu, L. (2019). Enhancing corporate sustainable development: *Stakeholder pressures, organizational learning, and green innovation.* Business Strategy and the Environment, 28(6), 1012-1026.

Zhang, W., Sun, B., & Xu, F. (2020). Promoting Green Product Development Performance via Leader Green Transformationality and Employee Green Self-*Efficacy: The Moderating Role of Environmental Regulation. International* Journal of Environmental Research and Public Health, 17(6678), 1-17.

Zhang, W., Xu, F., & Wang, X. (2020). How green transformational leadership affects green creativity: Creative process engagement as intermediary bond and green innovation strategy as boundary spanner. Sustainability, 12(3841), 1-17.

Zhao, W., & Huang, L. (2022). The impact of green transformational leadership, green HRM, green innovation and organizational support on the sustainable business performance: Evidence from China. Economic Research, 1-22.

Zhou, S., Zhang, D., Lyu, C., & Zhang, H. (2018). Does seeing "mind acts upon mind" affect green psychological climate and green product development performance? The role of matching between green transformational leadership and individual green values. Sustainability, 10(9), 3206.

Zhu, Q., & Sarkis, J. (2007). The moderating effects of institutional pressures on *emergent green supply chain practices and performance. International Journal* of Production Research, 45(18-19), 4333-4355.

APPENDICES

APPENDIX I: INTRODUCTION LETTER

Rebby Chepkoech

University of Kabianga,

P. O Box 2030 – 20200,

Kericho, Kenya.

Dear Respondent,

Re: Collection of Data

I am Rebby Chepkoech a student at University of Kabianga pursuing a PhD in Business administration (Procurement Management). I am conducting research in **partial fulfillment of my course requirements on RELATIONSHIP BETWEEN GREEN SUPPLY CHAIN PRACTICES, GREEN TRANSFORMATIONAL LEADERSHIP AND SUSTAINABLE PERFORMANCE OF** MULTINATIONAL TEA FIRMS IN KENYA. I request your esteem participation in answering the questions in the questionnaire attached. The information will be kept confidential for the scholarly purpose only. Where a copy will be availed to respondents upon request. I will high appreciate your contribution.

Thank in advance,

REBBY CHEPKOECH

PHD/BSA/006/20

APPENDIX II: QUESTIONNAIRE

The questionnaire entails information pertaining to green supply chain practices, green transformational leadership and performance of multinational tea companies. This information will assist in pointing out the move in ensuring performance in tea farming in Kenya while ensuring that climate is kept in check.

BIO-DATA

Name of multinational company: [ ] Ekaterra, [ ] James Finlays, [ ] George Williamson

County: [ ] Bomet, [ ] Kericho

SECTION A: GENERAL INFORMATION

1. What is your level of management?
   - o Operational level [ ]
   - o Middle level [ ]
   - o Top level [ ]
2. Highest level of education?
   - o Secondary Level [ ]
   - o Tertiary Level [ ]
   - o Undergraduate Level [ ]
   - o Masters Level [ ]
   - o PHD Level [ ]
3. What length of time have you worked the multinational tea company?
   - o Less than 1 year [ ]
   - o 1 – 5. years [ ]
   - o 5 – 10 years [ ]
   - o Over 10 years [ ]

SECTION B: Green Supply Chain Practices

Eco-Design

Green logistics was examined using a rating scale with agreeability levels where: 5 - Strongly Agree; 4 - Agree; 3 - Neither Agree nor Disagree; 2 - Disagree; 1 - Strongly Disagree.

CODE	**Eco-Design**	5	4	3	2	1
ED1	The firm has developed green packaging for tea product that are biodegradable and reusable					
ED2	Re-usable tea handling product have been developed to reduce cost.					
ED3	We have developed eco-design product that reduce waste.					
ED4	We have developed dissolvable tea product to reduce environmental degradation.					
ED5	Our firm has ensured resource saving is achieved.					
ED6	We ensure that waste products are reusable to ensure zero wastage of resources.					
ED7	We have differentiated product that ensure product development.					

Green Purchasing

Green purchasing was examined using a rating scale with agreeability levels where: 5 - Strongly Agree; 4 - Agree; 3 - Neither Agree nor Disagree; 2 - Disagree; 1 - Strongly Disagree.

CODE	**Green Purchasing**	5	4	3	2	1
GP1	Our procurement department purchases recyclable inventory to reduce waste.					
GP2	Our firm purchases reusable stationary, instruments and tools.					
GP3	We make purchases that uses green technology to ensure environmental conservation.					
GP4	The purchasing department develops plans that are environmental friendly.					
GP5	The firm purchases inventory, machinery and vehicle with low carbon emission.					
GP6	Our firm purchases green inventory considering environmental conservation.					
GP7	Green purchasing policies are in place to ensure green supply chain practices.					

Green Logistics

Green logistics was examined using a rating scale with agreeability levels where: 5 - Strongly Agree; 4 - Agree; 3 - Neither Agree nor Disagree; 2 - Disagree; 1 - Strongly Disagree.

. CODE	Green Logistics	5	4	3	2	1
GL1	We have developed transportation technology that ensure low carbon foot print and wastage of resources.					
GL2	Our firm ensures turnaround routing of tea leaves are reduced to increase operation.					
GL3	The firm has efficient routing of tea product to both international and local market.					
GL4	Our firm has ensured that outbound logistics are managed to reduce wastage.					
GL5	We have reduced wastage of tea along the supply chain.					
GL6	We have reverse logistics to ensure farming equipment are reused.					
GL7	Green logistics policies are in place to ensure efficiency in operational performance.					

Environmental regulation

Environmental regulation was examined using a rating scale with agreeability levels where: 5 - Strongly Agree; 4 - Agree; 3 - Neither Agree nor Disagree; 2 - Disagree; 1 - Strongly Disagree.

CODE	Environmental Regulation	5	4	3	2	1
EL1	Our firm has appropriate green policies that ensure minimized environmental degradation.					
EL2	We have implemented green policies in our supply chain management.					
EL3	Our firm has laid procedure in waste disposal management to improve environment performance.					
EL4	Our firm have environmental strategies that allow reforestation and afforestation of water catchment areas.					
EL5	We have developed and implemented green strategies that take care of environmental management.					
EL6	Our firm discloses environmental strategies and policies to the public.					
EL7	Our firm disclose environmental audits to ensure that all factories, infrastructure and activities are certified and approved to be environmentally friendly.					

SECTION C: Green Transformational Leadership

Green transformational leadership was examined using a rating scale with agreeability levels where: 5 - Strongly Agree; 4 - Agree; 3 - Neither Agree nor Disagree; 2 - Disagree; 1 - Strongly Disagree.

CODE	Green Transformational Leadership	5	4	3	2	1
GTL1	Our firm have leaders who are green mindful and develop green related policies.					
GTL2	Our leaders have ensured that their followers pursue green strategies.					
GTL3	We have green mindful culture to ensure the organization is moving in the direction of green economy.					
GTL4	The management has ensured that all employee in our firm are green self-efficient.					
GTL5	The management has ensured that all employees are trained on green supply chain practices to ensure green self-efficacy.					
GTL6	The top management inspire low level management and employee in adoption of green strategies in our firm					
GTL7	Green creativity is rewarded by management to drive green supply chain practices.					

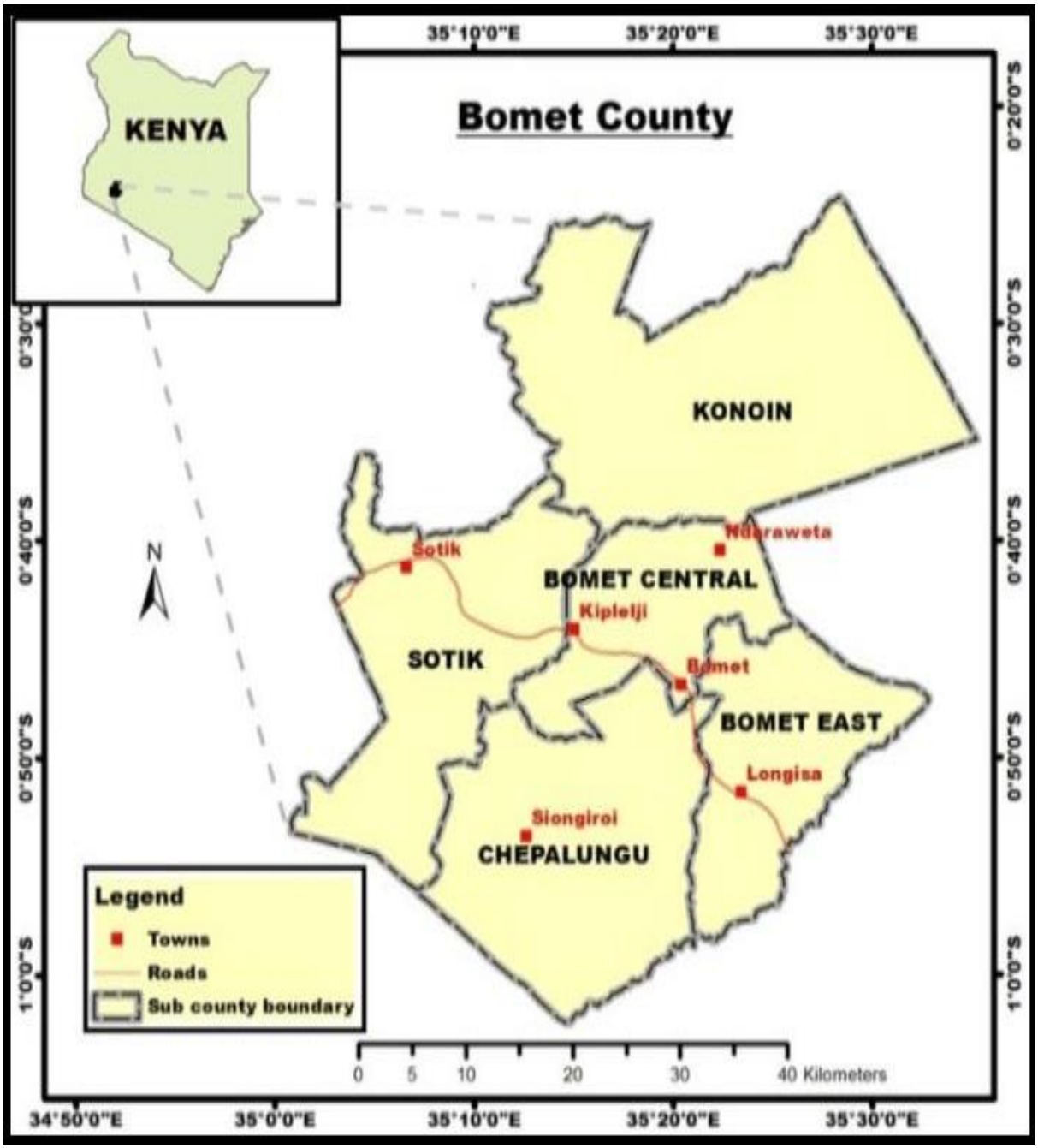
SECTION D: Performance of the Firms

Performance of the firms was examined using a rating scale with agreeability levels where: 5 - Strongly Agree; 4 - Agree; 3 - Neither Agree nor Disagree; 2 - Disagree; 1 - Strongly Disagree.

CODE	Performance of the Firm	5	4	3	2	1
PF1	Our firm has improved environment through the use renewable green products.					
PF2	There is improvement of trees and vegetation cover through continuous planting of trees and safeguarding the ecosystem by our firm					
PF3	We have improved in social ability and performance of employees.					
PF4	Our firm has reduced cost of operation through adoption of clean green energy.					
PF5	Our firm has improved efficiency of operation through ensuring high turnaround for raw material.					
PF6	We have reduced production cost improving profitability of the firm.					
PF7	Our firm has improved quality of products leading to high profitability.					

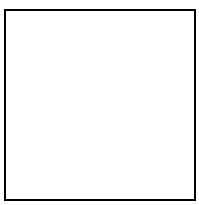
Thank You for Your Cooperation

APPENDIX III: MAP OF BOMET COUNTY



APPENDIX IV: MAP OF KERICHO COUNTY

APPENDIX V: NACOSTI PERMIT



APPENDI X VI: CLEARANCE LETTER

UNIVERSITY OF KABIANGA
ISO 9001:2015 CERTIFIED
OFFICE OF THE DIRECTOR, BOARD OF GRADUATE STUDIES

REF: PHD/BSA/006/20 **DATE: 8TH AUGUST, 2023**

Rebby Chepkoech,
MMHT Department,
University of Kabianga,
P.O Box 2030- 20200,
KERICHO.

Dear Ms. Chepkoech,

RE: CLEARANCE TO COMMENCE FIELD WORK/DATA COLLECTION

I am pleased to inform you that the Board of Graduate Studies has considered and approved your PhD research proposal entitled **"Relationship between Green Supply Chain Practices, Green Transformational Leadership and Sustainable Performance of Multinational, Tea Firms in Kenya".** Subsequently the Board has also approved the following supervisors for appointments.

1. Dr. Pauline Keitany, PhD
2. Dr. Alfred Bett, PhD

You may now proceed to commence field work/data collection on condition that you obtain a research permit from NACOSTI and /or an ethical review permit from a relevant ethics review board.

You are also required to publish two (2) articles in a peer reviewed journal, with all your supervisors, before your oral defense of thesis and to submit through your supervisors, and HoD, progress reports every three months, to the Director, Board of Graduate Studies.

Please note that it is the policy of the University that you complete your studies within three years from the date of registration. Do not hesitate to consult this office in case of any difficulties encountered in the course of your studies.

I wish you all the best in your research and hope that your study will yield original contribution for the betterment of humanity.

Yours Sincerely,

08 AUG 2023

Dr. Ronald K. Rop
DIRECTOR, BOARD OF GRADUATE STUDIES.

RKR/hk

cc 1. Dean, SBE
2. HOD, MMHT
3. Supervisors

REPUBLIC OF KENYA

MINISTRY OF EDUCATION
State Department for Basic Education

Email:cdekerichocounty@gmail.com
When Replying Please Quote:

County Education Office
P.O BOX 149
KERICHO

Ref: No. KER/C/ED/RC/VOL.111/2/89

19th September, 2023

TO WHOM IT MAY CONCERN.

RE: RESEARCH AUTHORIZATION: MS REBBY CHEPKOECH LICENCE NO.NACOSTI/P/23/28702.

I refer to the Director NACOSTI Letter Ref: No.278707 dated 23rd August 2023 granting the student above authority to conduct research in Kericho County. Her area of study is titled "***RELATIONSHIP BETWEEN GREEN SUPPLY CHAIN PRACTICES, GREEN TRANSFORMATIONAL LEADERSHIP AND SUSTAINABLE PERFORMANCE OF MULTINATIONAL, TEA FIRMS IN KENYA***" for the period ending 23rd August 2024.

This is to request your office to accord her the necessary support during the research period.

Thank you.

FOR COUNTY DIRECTOR OF EDUCATION
KERICHO COUNTY
19 SEP 2023
P.O. BOX 149 – 20200,
KERICHO.

JULIUS A. NGONESHI
COUNTY DIRECTOR OF EDUCATION
KERICHO COUNTY.