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**Stakeholders' Pressure, Gender Diversity, and Voluntary  
Environmental Management Systems as Drivers of Corporate  
Environmental Performance of Firms in Kenya**



**Doctor of Philosophy**

**2020**

**Stakeholders' Pressure, Gender Diversity, and Voluntary  
Environmental Management Systems as Drivers of Corporate  
Environmental Performance of Firms in Kenya**

**Edward Mbucho Mungai**

**Submitted in total fulfilment of the requirements for the Degree of  
Doctor of Philosophy in Business and Management at Strathmore  
University**

**Strathmore University Business School**

**Nairobi, Kenya**



**September, 2020**

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Edward Mbucho Mungai



September 20<sup>th</sup>, 2020

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## ABSTRACT

Firms around the globe are among the largest users of natural resources and consequently the key sources of waste, which makes it increasingly important to better their environmental management. Corporate environmental performance is a multidimensional construct that measures key performance indicators within the firm that relate to the environment, energy efficiency, emissions, waste and resource management. The debate on what motivates firms to enhance corporate environmental performance has been raging on without succinct conclusions. Extant scholarship has greatly leaned towards the developed West, developing East with little attention on the African context. To fill the void, this study examines if stakeholders, voluntary environmental management systems, gender diversity on board and top management team influence corporate environmental performance.

Using a sample size of 852 firms in Kenya, the postulations were tested through regression analysis; simple probit, instrumental variable probit and bivariate probit models. Based on the stakeholder theory postulations that contend that firm's strategic agenda is informed by 'parties of interest', this study finds coercive pressure to positively influence corporate environmental performance. In addition, in view of organizational behaviour as influenced by other institutions and as argued by the institutional theory, this study finds the adoption of ISO 1400 to better a firm's environmental performance. Lastly, grounded on upper echelon theory of organizational outcomes as a reflection of the managers and the executive, this study finds women executives to be positively associated with better corporate performance.

This study is of interest to policy makers in advancing the global debate of implementing gender quotas within the corporate level. The study is informative for the company management in constituting talent pools critical for firm's strategic positioning necessary in a dynamic business world of evolving stakeholder interests. The study findings also form a compelling case for the adoption of voluntary environmental management systems among firms in developing countries as a complementary to the existing command and control approach on environmental

management. Theoretically, this study finds evidence of intervening variables as opposed to the rational choice theory in defining the organizational behaviour. Despite confirming that leader attributes such as gender diversity influence organizational outcomes, the study found out the relationship may be influenced by external factors that weakens the direct relationship.

The study, however, is not without limitations. The study did not determine the minimum number of managers or executives that influenced firm decisions aimed at better corporate environmental performance. Further studies may explore regions with different economic and legislative structures as the current study is limited within the Kenyan context.

**Key words:** *gender diversity; voluntary environmental management systems; environmental sustainability practices; environmental performance; stakeholder pressure, top management team; board of directors*



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## DEFINITION ON KEY TERMS

<b>Board of Directors:</b>	a team of executives elected by a corporation's shareholders to represent the shareholders' interests and ensure that the company's management acts on their behalf
<b>Climate Change:</b>	the change in climatic patterns caused by higher levels of greenhouse gases in the atmosphere due to human activities
<b>Coercive Isomorphism:</b>	change from formal pressures exerted on organizations by other organizations upon which they are dependent, such as the legal, regulatory system within which organizations function
<b>Corporate Environmental Performance:</b>	a score on exercise and practices of companies undertaking environment-friendly green activities
<b>Corporate Environmental Responsibility:</b>	a firm's engagement in voluntary activities with the intention to reduce environmental externalities
<b>Corporate Leadership:</b>	board of directors and the top management team
<b>Corporate Social Performance:</b>	the outcomes of businesses' relationships with people in terms of the deliberate actions of businesses toward them as well as the unintended externalities of business activity

**Corporate Social Responsibility:** the company's initiatives that benefit the society and corporations, by considering factors such as the economy, education, environment, health, local activity and government

**Developing Economies:** countries with lower standards of living and are less industrialized but with high economic growth

**Energy Efficiency:** the portion of total energy input to machine or system that is consumed in useful work and not wasted as useless heat or otherwise

**Environmental Certification:** firm ratification with an environmental program

**Environmental Management:** a systematic approach to ways for saving water, energy, and materials, and reducing negative environmental impacts

**Environmental Management Practices:** approaches used by firms to reduce environmental impacts in their day-to-day operations

**Environmental Management Systems:** a framework of procedures, responsibilities, and processes required to prevent adverse environmental, economic, and social impacts and allows for continuous improvement

**Environmental Performance:** measurable results of an environmental management system related to the control of its environmental aspects

**Environmental Performance Indicators:** different parameters describing potential of activities, products or services on the environment

**Environmental Self-Regulation:** voluntary actions designed to improve the environment

**Environmental Sustainability:** responsible interaction with the environment to avoid depletion or degradation of natural resources and allow for long-term environmental quality

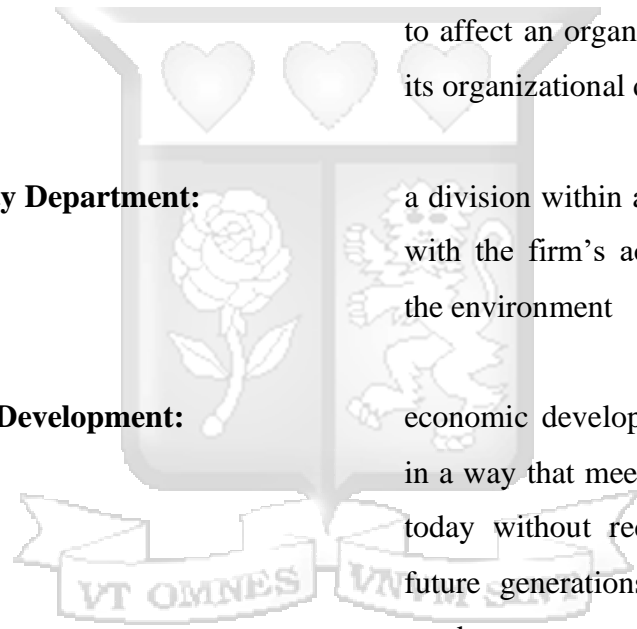
**Gender Diversity:** equal representation of either women or men at the work place

**Isomorphism:** constraining process that forces an organization to resemble other organizations that face the same set of environmental conditions

**Mimetic Isomorphism:** firms adopting referenced behaviours of other organizations, industries or countries and modelling themselves on such behaviours

**Normative Isomorphism:** compliance to best practices demands from professionalization

<b>Pollution:</b>	residual discharges to the air, water or soil after an industrial application
<b>Resource Management:</b>	efficient use of energy, raw materials and water in an organization
<b>Stakeholder:</b>	an individual or group of people who are affected by the activities- policies and decisions- of the firm
<b>Stakeholder Pressure:</b>	the ability and capacity of stakeholders to affect an organization by influencing its organizational decisions
<b>Sustainability Department:</b>	a division within an organization tasked with the firm's activities in relation to the environment
<b>Sustainable Development:</b>	economic development using resources in a way that meets the needs of people today without reducing the ability of future generations to meet their own needs
<b>Top Management Team:</b>	top managers led by an organization's chief executive officer, and who are responsible for the day to day operations of a firm
<b>Voluntary Environmental Programs:</b>	programs that firms participating are expected to produce positive environmental externalities as public goods beyond the legal expectations



**Waste Management:**

waste collection, handling, processing, storage and transport from where it is produced to where it is finally disposed



## LIST OF ACRONYMS AND ABBREVIATIONS

BOD	–	Board of Directors
CEP	–	Corporate Environmental Performance
CER	–	Corporate Environmental Responsibility
CFA	–	Confirmatory Factor Analysis
CFP	–	Corporate Financial Performance
CSP	–	Corporate Social Performance
CSR	–	Corporate Social Responsibility
EHS	–	Environment Health and Safety
EMPs	–	Environmental Management Practices
EMS	–	Environmental Management Systems
EP	–	Environmental Performance
EPS	–	Earnings Per Share
GDB	–	Gender Diverse Boards
IP	–	Institutional Pressure
ISO	–	International Organization for Standardization
KAM	–	Kenya Association of Manufacturers
KNCCI	–	Kenya National Chamber of Commerce and Industry
KLD	–	Kinder, Lydenberg, Domini
MNE	–	Multinational Enterprises
OECD	–	Organisation for Economic Co-operation and Development
OLS	–	Ordinary Least Squares
R&D	–	Research and Development
UET	–	Upper Echelons Theory
SME	–	Small and Medium Enterprises
TMT	–	Top Management Team

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# CHAPTER ONE: INTRODUCTION

## 1.1 Introduction

Sustainability in the corporate world is an approach that aims at creating long-term stakeholder value. This approach involves implementation of a business strategy that focuses on people, planet and profit commonly referred to as the 3P. Over the past few decades, corporations have entered an age of accountability, where they are increasingly being held responsible for their actions, those of their suppliers, consumers and even the communities where they are situated. In this age of accountability, businesses are being forced to respond to environmental, social, and economic changes in the world around them. As for people, the organization is expected to take measures to ensure that its operations benefit both its employees and the community within which it conducts its business. Also, organizations are expected to avoid activities that may cause degradation to the environment, as well as look for ways to reduce the impact of its activities on the environment or even better the environment. In terms of profit, the organization is required to deliver economic gains to the shareholders while at the same time focusing on the environmental and social impacts of their activities.

From the 3Ps above, the planet has particularly received considerable attention because businesses have been cited as the biggest contributors of environmental degradation. Even more interestingly, businesses have been cited as a significant channel of bringing transformation to sustainable products as well as processes hence impacting on the environment even more positively (Hall, 2010). Notably, the last ten years have witnessed intense debate on environmental matters within the corporate world, especially concerning the myriad environmental opportunities as well as the risks facing the corporate world (Epstein & Buhovac, 2014). Undoubtedly, the world is increasingly witnessing cycles of drought, heat stress and floods, which have inexorably affected people's lives and livelihoods, interfered with the business cycles and impacted investment decisions, stakeholder interactions, and government regulations. Far-reaching effects are also being felt on ecosystems and the population (Handmer et al., 2012).

In the past, environmental management practices of firms and how these affect the financial performance of the organization have elicited significant interest among researchers and practitioners (Christmann, 2000; Darnall et al., 2008; Fujii et al., 2013; Jackson & Singh, 2015; Trumpp & Guenther, 2015; O'Donohue & Torugsa, 2016). According to Rebs et al. (2018), there has been increased attention on the part of both primary and secondary stakeholders seeking tangible actions from businesses in order to mitigate the negative impact of their operations on the environment throughout the supply chain. The current attention by stakeholders is part of growing global concern on the need for environmentally-conscious economic development.

The Conference of Parties' 21<sup>st</sup> summit in Paris in 2015 (COP 21) set the stage for combating climate change and adapting to its effects. The new treaty required more than 195 countries to work towards environmental conservation and to ensure the same is maintained in the foreseeable future (Rogelj et al., 2016). In that summit, different countries gave pledges that were to serve as targets moving forward. A majority of the more than 195 countries that attended the summit made pledges that are constantly tracked. Among the targets set by countries include reduction in emissions, installation of renewable sources of energy, improving energy efficiency, reducing dependence on fossil fuels, increasing carbon storage in the forestry sector and land use, among other pledges. Kenya pledged to reduce emission by 30% by the year 2030 relative to a then scenario of 143 Mt of carbon dioxide.

To ensure businesses align with the objectives of the COP 21 of lowering the human activities contribution to climate change, it is critically important for them to use natural resources in a sustainable manner. Since businesses are key players in development, they constitute major contributors to environmental degradation and are therefore expected to play a leading role in instituting measures to mitigate their environmental impact whilst achieving the reduction in global warming envisaged by COP 21.

Researchers, scholars, and policy makers lack a consensus on an agreed definition of Corporate Environmental Performance (CEP), which is largely attributed to component disputes and its underlying dimensions. However, the United States Department of Agriculture (USDA, 2019) defines CEP as the measurable outcomes

of an organization's ability to meet pre-defined environmental objectives and targets set. For the purposes of this study, environmental management encompassed all efforts undertaken by a firm to minimize the negative environmental impact caused by their activities and products and services throughout their life cycle (Klassen & Mclaughlin, 1996).

Corporate Environmental Responsibility (CER) has recently gained recognition as a vital component of Corporate Social Responsibility (CSR) amidst intense global debates with respect to climate-change specific issues such as global warming, systematic dilapidation of soil, and erosion of biodiversity (Gunningham, 2009). CER-related studies are generally categorized into two parts:

- Those whose emphasis is placed on CER's overarching impact on enterprises as well as its stakeholders; and
- Those that remain concentrated on its constituents

In the first classification, several explications have been put forward considering the heightened prominence acquired by CER in the recent past. Stakeholders encompass government, media, consumers, shareholders, and all those that are known to shape firms' decisions relating to environmental management. As a case in point, pollution is typically viewed as production inefficiency; that is why its reduction may help lower overall cost which implies a mutually beneficial scenario for both a firm and its associated stakeholders. Equally, consumers are increasingly expressing their willingness to pay higher prices for "green" products, what has come to be known as 'green consumerism'. Consequently, companies that are keen to keep pace with evolving customer needs are responding proactively to the latter's demands.

The proactiveness of businesses is also evidenced in their palpably altered stance to avoid conflicting with political systems in a reactive manner. For this reason, they are adopting approaches like implementing voluntary environmental initiatives and broadening their range of stakeholders. Furthermore, new evidence suggests that involvement in CER and improved CEP may possibly facilitate access to finance at competitive rates by attracting new investors, thereby enhancing firm's economic performance (Wahba, 2008). In a similar vein, CEP serves to improve the strategic position of a company by projecting their reputation as an "environmentally

responsible” organization (Heikkurinen, 2010). From the standpoint of stakeholders, the firm’s management would do well to maintain a high level of CEP throughout the lifecycle of their services and products. Against this backdrop, the current study aimed at examining and extrapolating on the key factors that provide an impetus to CEP of Kenya-based companies.

This study focused on specific CEP parameters as derived from extant literature, which included resources management, energy efficiency, compliance and certification, and waste management (Dieste et al., 2019). Basically, CEP measures the impact of a business’s products, operations, and facilities on the environment. This call for reduction in energy use through energy efficiency mechanisms, waste management, resources productivity maximization and use of certification to ensure optimization of environmental management processes within the firm. To identify the level of CEP in firms, a survey method was used, and questionnaires administered to senior management team members who were conversant with the environmental performance of the firm to ensure the right information was collected. The respondents were expected to indicate using a 4-point scale (1 = Not at all 2 = To a small extent 3 = To a moderate extent 4 = To a great extent) the extent to which they were performing on each of the above measure of CEP.

According to Reeves et al. (2008) theories provide researchers with different “lenses” from which they analyse specific issues, including social problems. In some instances, there arises the need to examine more than one theory to exhaust a phenomenon from a research perspective. One such area is the environmental management space which presents complicated socio-economic issues. In this case, a multi-theoretical perspective is better placed to offer rich insight, than a single theory (Deegan, 2006). Different environmental studies have used various theories to explain different phenomenon. Such theories include: the firm’s theory, stakeholder theory, institutional theory, legitimacy theory and Upper Echelons Theory (UET) (Campbell, 2007; Céspedes-Lorente et al., 2003; Cormier et al., 2005; Islam & Deegan, 2008; Lopez-Gamero et al., 2009; Martin & Hadley, 2008; McWilliams & Siegel, 2001; Wangombe, 2015). This study will focus on three theories to explore the drivers of environmental performance in companies. The study will be anchored on the neo-institutional theory (DiMaggio & Powell, 1983), and supported by the

stakeholder theory (Freeman, 1984) and the upper echelons theory (Hambrick & Mason, 1984).

## **1.2 Background of the study**

### ***1.2.1 Overview of Corporate Environmental Performance in Developing Economies***

Most of the studies carried out on CEP have narrowed their focus on developed economies where there is a relatively high environmental support culture. As a result, their generalizability is limited due to geographical, institutional and economic differences. Debates have abounded (both in academia and amongst corporates) on the extent to which developed countries have contributed to the current environmental crisis (Clapp, 2014). Arguably, developed countries have accumulated wealth over time and have the financial capacity as well as scientific know-how to address many environmental challenges, unlike their barely industrial counterparts. Emerging trends however indicate that organizational stakeholders are increasingly demanding that companies operate in a manner that is socially and environmentally responsible, which is much felt in developed countries (Mahmood et al., 2019). The move has seen companies taking proactive steps towards a more sustainable mode of operations (Reif & Rexhauser, 2015). Resultantly, most of the firms have (whether through a legal mandate or voluntarily) provided a framework that outlines their environmental objectives and targets.

Compared to developed contexts where environmental agenda has featured prominently in many national programmes since the 1992 Stockholm Environmental Conference, the situation is quite different in developing countries. Developing countries are known to respond much more slowly to heightened concerns about issues of CER and studies on the subject are still scarce (Abu-Hejleh et al., 2000). This is because CER is viewed as a phenomenon of the developed; hence, it is still in its infancy in developing countries. It is likely that most of the organizations are striving to maximize shareholders' wealth and pay little attention to their ecosystem and the environment (Belal, 2001).

### ***1.2.2 Overview of Corporate Environmental Performance in Kenya***

Kenya has witnessed progressive economic growth over the past few years. Consequently, it has been categorized as a middle-income country, a strong indicator of economic performance. Kenya's economy grew by 5.7 per cent in 2018 and has been projected to rise to 6.0 per cent by 2020 (World Bank Group, 2019). However, economic performance alone without environmental considerations is not sustainable, which in turn underscores the need to shift Kenya's brown development pathway to a greener one. Kenyan economy is heavily reliant on natural resources and hence sensitive to the changing environment and ecosystems. This poses a threat to the future of the economy, thereby making it vulnerable to environmental vulnerabilities, and hence justifying the need to implement more environmental sustainability measures across the economic sectors.

One of the ways to mitigate such vulnerabilities is to jumpstart and implement the strategic interventions as stipulated by the low carbon and resource efficiency initiatives (National Environment Management Authority, 2016; Green Economy Strategy and Implementation Plan, GoK, 2015). In order to achieve better environmental management, Dheeraj and Vishal (2012) proposed that there was a drastic need to change the ways of consumption and production both at the corporate and individual level. With better environmental management, there will be traction in economic development coupled with reduced poverty levels. Additionally, as is the case in developing economies, CEP has not been well established; therefore, this concept needs to be made an integral part of every decision in organizations in private as well as public sectors.

As there is heightened interest on CEP in emerging markets, there is need to look into the effect of institutional pressure and how this affects a company's decision to embrace environmental management practices. Gender dimensions within the top management and the board of companies will be assessed to evaluate how it affects the environmental sustainability strategy of a firm. The efficacy of the Voluntary Environmental Management Systems (VEMS) is also an area of study that this thesis explored. The VEMS that were considered are ISO 14001 and the United Nation Global Compact (UNGC).

Kenya is endowed with natural resources but faces many challenges in their management. Environmentally, Kenya was ranked lowly at 130 of the 180 countries, which suggests that there is a compelling need to improve the country's scorecard on environmental matters. The poor Environmental Performance (EP) extends to many other Sub-Saharan Africa countries, with all of them ranking in the last quarter of the environmental ranking. Notably, small and large businesses have made significant contributions to environmental problems in Kenya. For instance, liquid and solid wastes generated by industries are disposed-off mostly into water bodies or open drainage systems. This implies that they are either poorly treated or untreated due to limited availability of wastewater treatment plants (Pierre et al., 2016).

### ***1.2.3 Introduction to the drivers of Environmental Performance***

Environmental Performance (EP) refers to the measurement metric that is used to weigh or quantify the environmental effect magnitude caused by anthropogenic activities. In close reference to EP, the main goal of a company is to maximize the firm value. The success of a company in increasing the firm value relies on factors beyond the performance of the firm. Successful companies are those that can satisfy the demand of various stakeholders. Among these stakeholders are the employees, the community and in this case, the environment. The environment is regarded as a stakeholder because it is a factor that determines production. Natural resources should therefore not be excessively exploited without any conservation efforts. Environmental degradation by companies has a serious negative impact on the environment. It results in climate change, global warming, natural disasters as well as soil, air and water pollutions. These negative impacts on the environment are the price that the community pays because of negligent activities by companies (Utomo et al., 2020). The link between firm value and the impact of company negligent activities points at the essence of Corporate Environmental Performance.

Environmental performance by firms is driven by several factors. According to Agan et al. (2013) some firms are driven into Environmental Performance by expected benefits. Environmental Performance offers a number of benefits including financial profitability in the medium - and long-term, improved reputation and image, government incentives, as well as reaping from the green products market that is willing to pay slightly more (Manrique & Martí-Ballester, 2017) . Other motivators

of environmental performance of companies are the knowledge and skill within an individual organization. Knowledge and skill encompass the ideas on how to achieve better environmental performance. Organizations that have better knowledge and skill will take advantage of existing opportunities in environmental performance (Li et al., 2019).

Another driver of environmental performance is pressure from competitors. In a competitive market, firms will try to outdo each other on aspects of Environmental Performance. In such a case, as firms seek to outdo each other, they will achieve better EP. Environmental capabilities as well as external environmental strategy boost EP. According to Bae (2017), firms with superior environmental capabilities are in a better position to promote cooperative environmental improvement among its departments including suppliers and distributors. In addition, external environmental strategy has a positive impact on environmental performance.

Drivers of Environmental Performance, as indicated in the preceding paragraphs, are wide-ranging. These drivers may be firm-specific like knowledge and skill, institutional, to economy-wide or even global. Against a backdrop of lack of incentives to invest in environmental management practices because of lax environmental responsiveness among the society, pervasive gender inequalities and weak environmental regulations in developing countries in the management of organizations, this current study focuses on three drivers of environmental performance- stakeholders' pressure, gender diversity, and voluntary environmental management systems as discussed below.

#### *1.2.3.1 Stakeholders' Pressure and Corporate Environmental Performance*

Corporate management should necessarily look beyond the shareholders as the only stakeholders in a business. The latter call is under the stakeholder theory to consider the needs of other stakeholders while making decision at the firm level (Freeman, 1984; Ruf et al., 2001). According to Morsing and Schultz (2006), a company's ability to create sustainable wealth is an indicator of how well the firm is managing its stakeholders. Thus, addressing stakeholder demands beyond the direct contractual partners of private firms has become an increasingly relevant topic for both managers and public officials involved in policy making.

Recently, various stakeholders have increasingly been expressing their concerns on the need to manage the environment and to find an avenue for firms to mutually improve their legitimacy to the society and fulfil the expectations of stakeholders. The interest towards improvement in CEP is motivated by a growing recognition of environmental and sustainability challenges driven by stakeholder pressures, as supported by the empirical finding (Henriques & Sadorsky, 1996; Krajnc & Glavic, 2005; Qi et al., 2010; Qi, et al., 2014). In this regard, stakeholder theory can help classify stakeholder pressures as originating from either within or beyond the firm boundaries, and primarily emanating from three sources: government, society and the industry at large (Darnall, 2009; González-benito, 2004; Rueda-Manzanares et al., 2008).

Government includes governmental bodies such the environment protection agencies, the law-making bodies in the country such as the national parliament and government law enforcement agencies. Society, on the other hand, includes the community served and neighbouring the company, media, non-governmental and civil society organizations, and environmental interest groups. The third source of stakeholders' pressure is as result of the industry, and comprised of, employees, major competitors, suppliers, shareholders and industry associations.

Another perspective to the stakeholders' influence is to look at the stakeholders from the level of the firm's dependence on those stakeholders. This results in having those primary stakeholders who the company is heavily dependent on and hence determining its survival. These may include the likes of governments, employees, stock owners, as well as the communities serviced by the company. Primary stakeholders have a heavy influence on the company's EP. Stakeholders that are not directly engaged and do not hold the key to a firm's survival – secondary stakeholders – would include interest groups and media. Buysse and Verbeke (2003) argued that stakeholders' pressures have an effect on the behaviour of firms towards the natural environment. However, this is not conclusive owing to the paucity of empirical evidence supporting the assertion. More fundamentally, even when such pressures exist and are seen to assume significance, there are varying responses from the company's perspective on the environmental practices.

Naturally, corporates are more oriented towards increasing the value for the shareholders within existing legal and moral boundaries. At the height of the industrial revolution and its devastating concomitant effects on the environment ranging from global warming, massive greenhouse gases emissions, and generation and lack of proper management of toxic wastes, stakeholders' interest in matters CEP began to take effect. Today, organizations in most developed economies have responded positively and are increasingly improving in environmental management initiatives. According to some scholars, corporations that look to operate in a manner that is socially responsible build a reputation (Bani-Khalid, Kouhy, & Hassan, 2016).

Focusing on the stakeholder pressures, firms are subject to substantial forces from different stakeholders on different subjects, including the issues of environmental management. Wagner and Schaltegger (2004) reported that firms that are concerned about extraneous pressures on environmental matters tend to incorporate them into their strategies, thus leading to improved economic performance. Hence, companies must respond to external pressures as a way of mitigating conflict with the stakeholder and gaining competitive advantage. Zhu and Sarkis (2007) posited that when companies do not sense external pressure from stakeholders to manage their environmental footprint, they tend not to engage in sound environmental management practices. Additionally, Kassinis and Vafeas (2006) as well as Sarkis et al. (2010) found that there is a positive linkage between CEP and external pressures both at the firm level and at the plant level. Furthermore, Darnall et al. (2005) opined that adopting environmental management system will lead to improved environmental outcomes.

Analogously, Dahlmann et al. (2008) expounded on the stakeholder pressures by concluding that costs and risks reduction as well as compliance are the key motivators for firms based out of United Kingdom to embrace environmental regulations to make improvements in environmental outcomes. Unanimously, the studies have underscored the need to conduct further studies on environmental external pressures, especially in developing economies and decipher how this influences environmental behaviours and to what extent. It is notable that while several studies have proved that external pressures, organizational culture, norms and values add to the betterment of environmental outcomes of organizations, a gap still

exists on how well these variables influence uptake of environmental initiatives in the context of developing economies. This necessitates a research study involving a case study of Kenyan firms, and whose findings can be used for generalization of other countries with a similar economic trajectory.

In this study, the stakeholders' pressure is explored from the perspective of how it influences CEP of a firm. CEP in this case is measured using energy efficiency and resources management as the proxies. In this regard, the stakeholders' pressure comes from five major stakeholders as postulated by the stakeholders' theory including government and government agencies, major customers, competitors, employees and community groups. The stakeholder effect to the firm's behaviour will be interpreted from the neo-institutional theory isomorphism concepts ranging from the coercive, mimetic and normative pressures.

#### *1.2.3.2 Gender Diversity and Corporate Environmental Performance*

Lately, the debate on the issue of gender diversity has intensified. In order to incorporate these issues, organizations need to take concrete steps such as promoting collaborative culture, greater industry exposure for women employees (considered as a minority in workplaces) and ensuring equal pay for equal work among genders. Moreover, equal representation should be ensured at board of directors ('board') and management levels (Singh, 2018). The subject of Top Management Teams (TMTs) and board gender diversity is increasingly eliciting the interest of researchers and policy makers.

Women presence in the upper echelons of corporates is seen to have significant repercussions on the CEP. The resulting benefits of better CEP are economic gains and the signalling effect for broadening the range of expertise/ experience and human capital in the firms, which, in turn, leads to better reputation of the firm (Adams & Ferreira, 2009). A focus on firms with well-defined corporate social responsibilities and characterized by more independent directors with equitable gender representatives tends to result in proactive and superior environmental and social performance (Shaukat et al., 2015). McKinsey Global Institute (2015) estimated that complete gender parity at the workplace could increase global output by over 25%. As the debate about the CEP intensifies, academicians have now begun to examine

the manner in which gender-wise composition of corporate leadership is affecting corporate strategies towards environmental management.

Significant amount of research has focused on Chief Executive Officers (CEOs) and their roles mainly due to the fact that they are entrusted with the responsibility for development and implementation of the company's strategies, including the environmental ones (Waldman & Siegel, 2008). According to Papadakis and Barwise (2002) companies' decisions are made through the involvement of more decision makers other than the CEO. For this reason, the Top-Management Team (TMT) and the board are becoming evenly more important with regard to decision making. While considering the criticality of TMT and the board in developing and implementing the environmental strategy, strategy researchers are increasingly focusing on the demographic characteristics of TMT as well as the board in relation to the environmental responsibility of firms (Post et al., 2011; Walls et al., 2012).

Mackenzie (2007) postulated that when there exists gender diversity within board and management team as well as when both are composed of individuals with external exposure and technical skills, decision making is strengthened. Correspondingly, Corkery and Taylor (2012) opined that equal representation on the management and board encourages ethical behaviour and decreases fraud. Similarly, Ramus (2001) stated that organizational culture, norms, and values encourage innovation, which then encourages environmental improvement. However, not many studies have examined the manner in which gender diverse boards (GDBs) and management teams would impact firms' environmental performance, particularly in emerging economies (Emmanuel et al., 2018), a gap that this study seeks to fill.

This study will be rooted on the upper echelon's theory, where TMT characteristics such as gender, education level, age and other personal characteristics are thought to influence the process of decision making. The study will specifically look into the issue of gender diversity on Board and TMT in relation to CEP in developing countries. In general, women are more likely to show their support to the cause of environmental sustainability, which also includes responsible environmental practices, as compared to men (Hunter et al., 2004; Zahran et al., 2012). Even in politics, Mohai and Kershner (2002) have concluded that in comparison to their male

counterparts, women are more sensitive to environmental matters and are more likely to pass motions that support the environment. Similarly, while considering the relationship between environmental responsiveness and gender composition, Webb (2004) found greater alignment in diverse boards to environmental proactivity. In a similar vein, Walls et al. (2012) examined diversity in company's governance and concluded that the EP of diverse boards was observed to be better. This study uses dummy variable depending on the existence of women in boards and TMT of firms. In addition, the study looks into the years of experience of women in Board and TMT as well as explore how they affect the CEP of the firm.

### *1.2.3.3 Voluntary Environmental Management Systems and Corporate Environmental Performance*

According to Seifert (2018), Environmental Management Systems (EMS) are part of the general management system of a firm. EMS as a tool consists of a procedure that is used in planning and organizing environmental actions and decisions in a firm. EMS helps organizations achieve their environmental goals through evaluation, consistent review, and improvement of their environmental performance. Consistent review and evaluation helps identify areas of improvement in the implementation of the environmental performance of an organization. Notably, EMS neither dictates nor indicates the level of environmental performance that must be reached. On the contrary, each organization has its EMS tailored to fit its own targets and objectives.

Organizations are known to invest in EMS for various internal and external benefits (Hillary, 2004). The benefits are inclusive of increased organizational and management efficiency (Biondi et al., 2000; Iraldo et al., 2009), increased legal compliance, improved economic performance (Darnall et al., 2008; Martín-de Castro et al., 2016), better corporate performance (Melnik et al., 2003), and heightened competitiveness (Giménez et al., 2003).

Recently, firms in developed and developing countries alike have increasingly implemented VEMS, thus leading to keener interest from academics, and triggering a growing number of studies (research projects, dissertations, evaluations, doctoral theses, journal articles etc.) on the variegated effects of VEMS. Despite the academic clamor, most studies have examined the direct economic costs and benefits of EMS

(Fonseca & Domingues, 2018; Singh et al., 2015; Mazzi et al., 2016). Therefore, regardless of the growth of literature on EMS, empirical evidence on the efficacy of EMS on the environment remains relatively sparse. It is notable that these studies have yielded mixed results on the linkage between environmental performance and EMS. For instance, some scholars claim that since organizations can achieve savings without cutting down on pollution, economic benefits are not necessarily an effective metric to determine environmental performance (Hertin et al., 2008). Various reasons are put forth to account for this inconsistency, including the lack of environmental performance data as well as the measures of environmental performance.

Reporting on the environmental footprint is not a must in most countries; therefore, firms prefer not to engage in reporting, especially when it relates to quantitative data. Some VEMS, for instance, ISO 14001 and the United Nation Global Compact (UNGC), do not require firms to reveal information on environmental information. Also, despite the activities of organizations such as the Global Reporting Initiative (GRI), there continues to be lack of a common and consistent way of reporting on environmental matters. Comparability is another challenge in the sense that in many instances, the data is provided, but not in a comparable manner across sites, firms, countries or even regions, as well as across different VEMS. At the same time, only a few nations are found to witness the contribution of public emission registers, such as the Netherlands, the United States, and the United Kingdom. In addition, the quality and usability of the data recorded in these registers varies.

Waste Management is a major public health and environmental concern in many developing countries. In many part of Africa, the situation is deplorable, more so in large urban areas where public service departments are unable to carry out tjeir work as expected. Institutions charged with the responsibility of providing waste management services have found it increasingly challenging to play their role (UNEP, 2011). The current study will focus on Kenya, a country that intends to increase the contribution of manufacturing sector to the Gross Domestic Product (GDP) from 8% to 15% in 2022. This will necessarily result in the consumption of a significant amount of natural resources while at the same time resulting in substantial amount of waste (Government of Kenya, 2018).

In Nairobi, less than half of the daily waste generated and collected is improperly disposed. Kenya's waste management is largely associated with low waste collection, pollution from uncontrolled dumping of waste, inefficient public services, unregulated and uncoordinated private sector and lack of key waste management infrastructure. Notably, industrial growth and development have contributed to increased migration to urban regions, better standards of living as well as digital progress, which have in turn been the source of increased waste generation. To be able to manage waste and other environmental related issues, the government of Kenya has issued various laws to govern environmental matters. These laws and regulation are included as appendix 2

Based on the above, this study aims at exploring the efficacy of the VEMS as a way of managing waste management in firms in Kenya. UNGC and ISO14001, being the most popular VEMS in developing countries will be used to assess how well firms which are participating in the UNGC sustainable principles as well as being certified as ISO14001 are managing wastewater management and solid waste management. Due to stakeholders' pressure, firms are engaging with better waste management for competitiveness.

### **1.3 Problem Definition**

Stakeholder pressures as well as corporate environmental strategies are important topics of corporate sustainability. Previous studies have largely been limited by sample size. These studies have failed to establish the groups of stakeholder pressures that drive environmental strategy. Recent studies however indicate that internal pressure yielded the best results in terms of environmental strategies. In addition, empirical results indicate that stakeholder pressure is likely to have a bigger impact on the corporate environmental strategy in developed countries and that on ease of changing environmental strategies manufacturing firms lag as compared to non-manufacturing firms (Wang et al., 2020). This current study seeks to explore the relationship between stakeholder pressures and corporate environmental performance in developing countries with special emphasis on Kenya

Prior work has mainly focused on the impact of ownership structure on corporate environmental performance. Also, previous studies have tackled gender diversity of

board members and its impact on corporate environmental performance in developed countries. Cordeiro et al. (2020) investigated the potentially crucial relationship between ownership control and board diversity and its impact on corporate environmental performance. The study hypothesizes that a majority family as well as dual-class owners tend to choose women directors with the aim of advancing their interests for environmental corporate responsibility. The study also links these two majority ownership types to board gender diversity and show how the two contribute to positive corporate environmental performance. Jiang et al. (2020) on the other hand focuses on the relationship among knowledge creation, market orientation and environmental performance. The study also tackles the moderating effects of implementation of environmental management systems. This study focuses on the shortcomings of the two studies above by exploring how gender diversity in board and top management teams influences environmental management system (EMS) in developing countries.

In the past decade, a great deal of literature has gone into demonstrating that corporate environmental strategies and practices are influenced by both institutional and stakeholder pressures (Delmas & Toffel, 2010; Majid et al., 2020). Institutional pressures have a direct impact on firms to develop environmentally friendly business strategies. As a result, institutional pressure improves the environmental performance of companies. Majid et al. (2020) has recently focused on the effect of institutional pressure on environmental performance. This current study explores how voluntary environmental management systems influences corporate environmental performance of Kenyan firms. This study offers both empirical evidence to validate past findings by other researchers and insight on how voluntary management systems influence corporate environmental performance.

#### **1.4 Research Objective**

This study aims to investigate stakeholders' pressure, gender diversity, and voluntary Environmental management systems as drivers of corporate environmental performance of firms in Kenya.

#### 1.4.1 *Specific Objectives*

- i. To determine the influences of stakeholders' pressure on corporate environmental performance in Kenya
- ii. To establish the relationship between gender diversity in board and top management teams and environmental management system (EMS) in Kenya
- iii. To determine how voluntary environmental management systems influence corporate environmental performance of Kenyan firms.

#### 1.5 Research Questions and Hypotheses

Objective i:

- i. **Hypothesis 1a:** There is a significant and positive correlation between coercive isomorphic pressure and energy efficiency
- ii. **Hypothesis 1b:** There is a significant and positive correlation between mimetic isomorphic pressure and energy efficiency
- iii. **Hypothesis 1c:** There is a significant and positive correlation between normative isomorphic pressure and energy efficiency
- iv. **Hypothesis 1d:** There is a significant and positive correlation between coercive isomorphic pressure and resource management
- v. **Hypothesis 1e:** There is significant and positive relationship between mimetic isomorphic pressure and resource management
- vi. **Hypothesis 1f:** There is significant and positive relationship between normative isomorphic pressure and resource management

**Objective ii:**

- vii. **Hypothesis 2a:** Board gender diversity positively affects the likelihood of ISO 14001 adoption
- viii. **Hypothesis 2b:** TMT gender diversity positively affects the likelihood of ISO 14001 adoption
- ix. **Hypothesis 2c:** Both TMT and Board gender diversity positively affect the likelihood of ISO 14001 adoption
- x. **Hypothesis 2d:** Higher average years of experience of women in TMTs as well as on boards increases the likelihood of adopting ISO 14001

### **Objective iii:**

- xi. **Hypothesis 3a:** Firms accredited with UNGC have more effective waste management practices.
- xii. **Hypothesis 3b:** Firms certified with ISO 14001 have more effective waste management practices

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

This study targeted small, medium, and large companies. It was limited to Nairobi, Machakos and Kiambu counties because these three counties represent about 80% of the country's population of companies and hence acted as a good sample representation of companies in Kenya. A total of 1,566 companies were contacted as at 30<sup>th</sup> June 2019 and represented fourteen sectors that included Building, Mining and Construction; Electrical and Electronics; Chemical, Energy, Food and Beverages, Metal and Allied; Leather & Footwear; Automotive, Paper and Board, Pharmaceutical & Medical Equipment; Plastic and Rubber, Business Services – Financial Services, Consultancy, Textiles and Apparel, Timber, Wood and Furniture; and Agriculture & Forestry. As many as 1180 companies responded to the questionnaire that accounted for 58% of the response rate. Eventually, after data cleaning and elimination of micro enterprises - companies with less than 10 employees, a total of 852 responses were used for this study.

This study advances the growing body of knowledge on CEP and examines the manner in which it is related to gender composition at both the TMT and the board. The study aims to make a three-fold contribution to the growing body of knowledge on CEP and gender diversity. Firstly, the study examines the impact of board and TMT gender composition on EP in comprising of as many as 852 companies in Kenya and from diversified sectors. This study also makes an improvement to a study conducted by Post et al. (2011) which only considered 78 firms belonging to only two sectors. Secondly, within the board and TMT, the study uses two different aspects of gender diversity, that is, the percentage of women on TMT and Board as well as the number of years of experience (on average). Thirdly, the study looks at a specific element of corporate sustainability, which is environmental sustainability.

This marks a departure from the majority of other studies that have only examined sustainability from a broader perspective. The research study targeted respondents in senior positions and those with knowledge on issues of environment and sustainability. The respondents were assumed to comprehensively understand the nuances of an organization and possess the discretion of information disclosure. The field work for this study was conducted from March to June 2019.

## **1.7 Significance of the Study**

This study paid close attention to developments in environmental issues and the continued recognition of the role of the environment in corporate sustainability. To be specific the study dwelt on the three debates including: the role of stakeholders' pressure on CEP; the influence of gender diversity on CEP and drive towards self-environmental regulation through the adoption of voluntary programs and the efficacy of the voluntary programs in managing firms' environmental performance.

### ***1.7.1 Significance to policy makers and practitioners***

This study will prove resourceful to firm stakeholders. The study will specifically help shareholders, company management and potential investors understand the relationship between environmental conservation and profitability. In addition, results of this study will be important in providing knowledge that will contribute to designing collaborative measures on matters of CEP to achieve optimal resources management, energy efficiency, waste management, environmental compliance, and certification within firms in developing countries.

Also, decision makers and policy makers would use the study findings to formulate decisions and policies that would encourage environmental sustainability within companies. The study will also be of help to stakeholders in the environment and business spaces such as environmental conservationist, sustainability experts, and business managers. It will be useful in making and shaping relevant decisions relating to environmental issues. Additionally, this study theorizes and compares firm characteristics along with their concomitant effects on CEP. This aspect of the study could inform executives about the significance of environmental management with reference to the specific characteristic of their firms.

This study will be of great importance to professional, government and regulatory bodies such as National Environmental Management Authority (NEMA) and Water Resource Authority (WRA). NEMA has been on the lookout for the defaulters of environmental regulations and penalizing defaulters. These regulatory bodies alongside Kenyan consumers have been impelling businesses to adopt greener production and consumption regimes to safeguard the livelihoods of future generations. In addition, Kenya being a signatory to the Paris Agreement has introduced a Climate Change Act, which is a way of regulating climate change in Kenya and has some direct consequences on the private sector in Kenya.

### ***1.7.2 Significance of the study to researchers***

The findings of the current study will be a good source of useful and accurate information for future researchers. The research gaps identified in the findings of this research will also form a good basis for future research areas, future researchers will benefit from critiquing this current study and even filling gaps that may arise from this study. Also, this current study cites and criticizes numerous academic materials; it acts as an affirmation of all these academic sources and challenges future academicians to better their work. In addition, this current study highlights the gaps by earlier studies and attempts to cover them.

### ***1.7.3 Significance of the study to the theories***

This study is theoretically significant to the literature on environmental management. This study explores the different drivers of corporate environmental performance with special attention to stakeholders' pressure, board gender diversity and voluntary environmental management systems. In reference to stakeholders' pressure, this study differs from prior research that posited that external stakeholders exert more pressure on firms. Instead, it is evident that employees influence the management more than any other group of stakeholders (Ramanathan et al., 2014). Of interest, employees, unlike any other stakeholders, influenced resource management and energy efficiency.

This study therefore contributes to the stakeholders' theory by calling out the need to minimize stakeholder marginalization (Bondy & Charles, 2018). In addition, this study focuses on the relationship between stakeholders' pressure and the adoption of

environmental management practices by organizations. The study highlights the need for organizations to engage different stakeholders through providing better working environment, environmental preservation, adherence to rules and regulations and management of the major customers as well as relations with competitors to adopt environmental management practices.

The contribution of this study to the literature on voluntary environmental management systems is immense. This study finds that organizations that adopt voluntary environmental systems perform relatively better on corporate environmental performance than those that do not. Also, the study informs how voluntary environmental management systems (VEMS) impact on organizational behaviour and overall performance. Through its analysis on VEMS, this study will shape how management and government approach issues related to VEMS.

The current study also contributes to the theoretical argument of upper echelon theory. It highlights the impact of firm leadership on corporate performance. Notably, the study links firm leadership to board gender diversity and therefore the impact of board gender diversity on corporate performance. This study notes that organizations with women on the board and in TMTs are more likely to have a sustainability department. Also, firms with a sustainability department are more likely to adopt ISO 14001. Therefore, this study contributes to the literature linking presence of women in boards and TMTs to adoption of ISO 14001.

This study also contributes to the debate revolving around sustainable production, resource management, energy efficiency and proper waste management. To be specific, this research pays close attention to adoption of ISO 14001 and UNGC which are viewed as environmental management actions focused on improving energy and water management, while mitigating environmental impacts from waste. In addition, while previous work has not clearly outlined the measures of environmental performance used in assessing the effectiveness of voluntary programs such as ISO 14001, this current study has provided more clarity. As such, this current study gives a clear perspective on the role of ISO 14001 and UNGC as voluntary strategies from a waste management approach.

## **1.8 Outline of the Research**

This thesis is made up of six chapters, which are organised as follows: the first chapter focusses on the introduction to the study, the background of the study, the aims and objectives as well as the research questions to be answered, the scope and the significance of the study.

Chapter two is the literature review chapter, which first discusses the theoretical frameworks of the study then review of literature. The three theories adopted (neo-institutional theory, stakeholder theory and upper echelon theory) anchor the arguments and provide rationale the rationale for any identified patterns of corporate environmental performance and the drivers of CEP in firms. The chapter also focusses on literature relevant to the study objectives, and the development of hypotheses for the study. This has been done with the aim of bringing to light what has been studied so far as the topic is concerned, as well as emerging gaps. The chapter discusses the nature and extent of environmental management practices.

Chapter three focusses on the methodology of the study. In the chapter, research philosophies, the population, sample and sampling procedure are explained discussed in line with the study objectives. Data collection tool together with ethical consideration for the research are also discussed in chapter three.

Chapter four focuses on the results and analysis of the survey questionnaire. From the responses obtained from the respondents, the study analysed the nature and extent of specific drivers of firms' environmental performance. Using the data collected, regression analysis is carried out to test the relationships between the CEP and the various drivers of CEP within firms. The chapter, in addition, contains the results of robustness tests as well as the considerations for endogeneity.

Chapter five focusses on the discussion of findings. In the chapter, the results obtained from chapter four are discussed in light of past literature. Hence, similar and contrasting literature is presented and compared with results from the study.

Chapter six concludes the thesis summarising the main result, implication of the study and contributions. The chapter also provides the limitations of the study and provides suggestions for future research.



## **CHAPTER TWO: LITERATURE REVIEW**

### **2.1 Introduction**

The second chapter of this thesis provides literature review and structures the sections as follows: Section 2.2 encompasses theoretical literature review, whereas Section 2.3 focuses on empirical literature review. Section 2.4 provides the conceptual framework of the study.

### **2.2 Theoretical Literature Review**

Environmental management practices and performance, their influence on the company's competitiveness and barriers to their adoption and implementation have been studied, explained and analysed from various theoretical perspectives. The anchoring of the research on a particular theory is determined by the researcher's background, values, ideologies and hypotheses being tested. Theory helps identify various nuances to be covered under a given study and ensures that the research under consideration is guided in the right direction.

According to Reeves et al. (2008), theories provide researchers with different "lenses" from which they analyse specific issues, including social problems. Theory is viewed as an analytical framework through which data is analysed to provide insights to the researcher. In some instances, there arises the need to examine more than one theory to exhaust a phenomenon from a research perspective. This normally happens when complications arise on issues involving social dimensions. One such area is the environmental management practices that present complicated socio-economic issues. In this case a multi-theoretical perspective is better placed to offer rich insight than single theory (Deegan, 2006).

From the literature reviewed, various theories have been used to study the subject of environmental performance within firms. These theories include agency theory, legitimacy theory, resource-based view (RBV), slack resources theory, resource dependency theory and transaction cost theory. In regard to this study, institutional theory (DiMaggio & Powell, 1983), stakeholder theory (Freeman, 1984) and upper echelon theory (Hambrick & Mason, 1984) has been used to determine and explain

different phenomena being asserted as per the study. Despite the inherent ontological, epistemological, methodological and practical issues that arise with the combination of theories, it is of great value in advancing the scope of policy studies. In this study, three theories are used complementarily to produce the three research insights which are later used to explain the empirical outcome of the drivers of corporate environmental performance among firms in Kenya.

First, the study conceptualizes the firms as organizations whose environmental responsibility - formal structures and processes - is influenced by the surrounding, an insight expounded by neo-institutional theory. Secondly, the study defines the organizational surroundings as that composed by parties with interest - part of which are environmental concerns - to the organization by invoking the stakeholder theory. Lastly, the latter two insights of modelled organizational behaviour by parties of interest, are connected to the organizational outcomes through the decision-making process among influential actors within the organization. This last part is better explained by the upper-echelon theory.

This study is about the drivers of CEP in firms and it has been widely acknowledged that adoption of environmental practices by firms of all sizes are driven by the institutional conditions (Amaeshi et al., 2016b; Campbell, 2007; Hammann et al., 2009; Sarkis et al., 2010) and the stakeholder pressure (Yu & Ramanathan, 2014). Generally, those organizations that are faced with more stakeholder pressure are likely to have better CEP. This therefore concludes that the presence of strong and effective institutions coupled with stakeholder demand for environmental sustainability have led to significant environmental management practices to be achieved. Upper echelons theory is used to understand the relationship between the TMT and Board characteristic and the CEP of a firm.

### ***2.2.1 Neo-Institutional Theory***

New Institutionalism or neo-institutionalism emerged as part of institutional theory (i.e. a systematic study of organizational behaviour) in the late 1970s through to the early 1980s. Institutional theorists assert that the institutional environment can strongly influence the development of formal structures in an organization, often more profoundly than market pressures (Alvesson & Spicer, 2019). Neo-

institutionalism emerged as a critique of rational choice institutionalism which posits that institutions, organizations and organizational behaviour arise from, and are influenced by rational deliberations solely for considerations of economic costs and benefits.

Notably, rational choice institutionalism is based on the rational choice theory, which assumes actors to be rational, thereby modelling their social and economic behaviour accordingly (Shepsle, 2008). Rational actors make rational choices, i.e. given options available, they would choose to achieve outcomes that are in their best interest. Two dominant views of institutions characterize the rationalist tradition: the stimuli and the reaction. However, recent approaches of neo-institutionalism contend that institutional behaviour is not predictable by considering an observable stimuli and subsequent reaction as put forward by rational choice theory. Rather, there are mediating variables within the intricacies of stimulus and response. Tolman postulated that behaviour is founded on beliefs, attitudes and dynamic conditions that are focused towards achieving a goal (Ziafar & Namaziandost, 2019). According to behaviourism, behaviour is cognitive, holistic and purposive.

Proponents of neo-institutionalism posit that since individual organizations operate in their respective institutional environments, organizational behaviour is shaped in response to institutional pressure within these specific environments (Scott, 2008). Organizations seek to legitimize their actions by infusing and institutionalizing practices, norms and regulations from their environment into their day-to-day activities (Shahab et al., 2018; Torchia et al., 2011). For example, an act performed by a person occupying a certain office, for example a CEO of an organization, is usually highly objectified and exteriorized; it is seen as being non-personal to the actor and affecting several actors in the organization and beyond. Therefore, it can be inferred that such an act carried out by an authority can be institutionalized to a higher or lesser degree (Dimaggio & Powell, 1983). The more pervasive the extent of institutionalization, the greater the generational uniformity, cultural persistence, and resistance to change of cultural understanding.

A different perspective could be to consider two approaches to explain the emergence of institutions, namely: 'environment as institution' and 'organization as

institution'. The former refers to the institutional framework in which an organization operates. Its emergence was attributed to its normative pressures, including state legislation and the ensuing rationalizations of the individual organization. Meanwhile, the latter did not emerge on account of state processes and regulations, but from the limitation of other similar organizations and from within the organization itself. For this study, 'environment as institution' approach becomes apparent in command and control of environmental regulations and 'institution as organization' approach in the emergence of VEMS.

Zucker (1987) developed three defining principles for the 'organization as institution' approach: institutional elements emerge mainly from organization-level processes; when these institutional elements are formalized, the emergent organizational structures tend to be highly institutionalized and usually give rise to new institutionalization; subsequently, the resulting institutionalization enhances stability, thereby creating routines that enhance organizational performance except in scenarios when more efficient alternatives are ignored. Institutionalization subjects the organization to isomorphic change and enhances the organization's prospects of survival.

According to DiMaggio and Powell (1983), isomorphic change could take either of two courses: institutional isomorphism or competitive isomorphism. The former ascribes changes in organizational behaviour to Darwinist self-selection and adaptation amongst firms as they compete for essential and limited resources, whereas populations have unlimited capacity to expand. The study suggests competitive isomorphism is applicable for fields where there is free and open competition. DiMaggio and Powell (1983) opined that institutional isomorphism occurs when rational actors make their organizations ever more similar as they try to change and structure them. Their study isolates three mechanisms by which homogenization through institutional isomorphic change takes place, as explained next.

The first mechanism is that of coercive isomorphism, which denotes changes caused by subjecting organizations to formal and informal pressures either by organizations upon which they are dependent on and/or by cultural expectations within their

society and environment. Coercive pressure denotes an organization's tendency to act in a certain way due to experiencing institutionalized pressures arising from authorities (DiMaggio & Powell, 1983). Evidently, such coercive pressures are exerted by the powerful agency that impels organizations to comply with certain behaviours that lead to legitimacy and subsequent benefits (Edward et al., 2009).

These pressures emanate from social sanctions and can be applied if organizations do not act in socially legitimate ways. The major source of coercive pressure is the law, and also the knowledge that the organization will get recognized if they operate in an acceptable way. Coercive pressures bring about conscious obedience of organizations to respond to values, norms, and institutional requirements as part of their operations. Exploring coercive pressure will facilitate the understanding of influence levels on the organization in integrating environmental practices.

The second mechanism of mimetic isomorphism involves a situation where an organization in a certain field experiences uncertainty with regard to its own activities (such as innovation). Organizations tend to operate based on how other organizations function within their own environment, in a legitimate manner. This is attributed to the fact that finding an optimal solution for organizations sometimes proves difficult. To that end, replicating what others do is one way of tackling this predicament (DiMaggio & Powell, 1983). It occurs when organizations face cognitive uncertainty which confines them to contradictory institutionalized rules or myths. In such situations, organizations find it necessary to adopt mimetic behaviour by imitating others.

Due to the heterogeneity of companies, environmental sensitive industries may impede the effectiveness of a firm's legitimacy-enhancement effort and hence, mimetic behaviour (Aerts & Cornier, 2009). How the mimetic pressure influence decisions on environmental behaviour is important for this study. According to DiMaggio and Powell (1983), mimetic pressure is attributed to nebulous organization objectives which are poorly understood, ambiguities in the environment, or in situations where a clear course of action is unavailable. Since the concept of CEP is still in its nascent stages, it becomes important to investigate how mimetic pressure compels or influences an organization's decisions to adopt environmental behaviour.

The third mechanism assumes that although professionals may differ from one organization to another, they reveal great resemblance to their counterparts in other organizations. The passage of normative pressure takes place via norms that are accepted, including those derived from educational institutions that impact students not only via formal education, but also through the association of individuals with professional alliances. This refers to that pressure that comes from people and leads the organizations to adhere to their demands. Normative pressures exist as a result of professionalism within the organization. Looking at the professionalism of the organization, DiMaggio and Powell (1983) alluded to professionalism being perceived by stakeholders premised on individuals' involvement with universities, professional training institutions, trade magazines, seminars, and workshops. Therefore, normative pressures influence organizational norms amongst not only professional managers, but also those that work for them (DiMaggio & Powell, 1983).

Institutional theory has been faulted to pit a rational choice institutional model (where the structure of behaviour of individuals and organizations reflect utility-maximizing deliberations) as opposed to the neo-institutionalist model (where an overly-socialized individual, organization or group of organizations is presumed to accept and follow norms unquestioningly, either through coercion or the need to legitimize their activities within their specific field). These institutional models are not to be viewed as contradictory, but as indicative of a continuum of the process of decision making on appropriate activities and behaviour. At the same time, it may be difficult, or even impossible, to know the real intentions of an actor, thus making it problematic to distinguish purposive actions from other actions or communications that affect institutional structures.

This study makes use of institutional theory for the reason that institutions transcend fields, individual organizations, and groups of organizations. Simultaneously, institutional theory is the most invoked approach in organizational studies today (Lammers & Garcia, 2017). However, different scholars have identified several limitations of institutional theory. The complexity of this theory arises from the fact that it covers all kinds of fields (ecology, sociology, economics, history, political

science, etc.) and organizations (whether public or private), which can be seen as a shortcoming (Greenwood et al., 2014). Terms and concepts used in institutional theory can prove difficult to specify and operationalize in an unambiguous manner, particularly with reference institutions in a particular field, in this case, in the novel environmental sustainability space.

Furthermore, scholars of institutions belong to different schools of institutional theory, although this could be considered a plus point that has catalysed lively debate on institutions (Mohamed, 2017). According to some scholars, institutional theory has thrust aside sociological theorizing (Hinings & Greenwood, 2002) from which it emerged and paid more attention to global governance. Other scholars argue that there has been little examination of the manner in which class or collective interests and power dynamics interact with the process of institutionalization (Greenwood, 2002; Lawrence et al., 2011;) and that it is sometimes difficult to distinguish institutionalization from cultural developments. Some others caution that institutional theory is just one way, and not the only one, to explain the adoption of VEMS by firms (Lammers & Garcia, 2017).

With regard to both adoption and effectiveness of environmental management practices amongst enterprises, this study surmises that rational choice institutionalism and the three mechanisms of isomorphic change in neo-institutionalism come into play in distinct but interconnected ways. Command and control environmental regulations can be related to coercive isomorphism, whereas VEMS can be associated with mimetic and normative isomorphism.

Corporates could adopt VEMS not only as a response to pressure from stakeholders, but also to maximize their economic benefits (Darnall et al., 2008; Martín-de Castro, 2016). They could also engage in better waste management and resources management to improve their environmental outcomes for legitimacy purposes as well as improving their competitiveness. This could have a two-fold effect of improving the quality of the environment in their surroundings besides bolstering the bottom-lines of their enterprises. Through environmental management practices, corporates could also aim to become exemplars of environmental responsibility in their respective industry or sector to win over clients and consumers who are willing

to pay a premium for their environmental-friendly commodities – hence strategic competitiveness (Giménez Leal et al., 2003; Wahba, 2008).

### ***2.2.2 Upper Echelons Theory (UET)***

A fundamental concern in management theory is accounting for different organizational outcomes. Organizations in comparable market conditions with similar characteristics may differ in performances. Little is understood on the mediating factor between women presence on board and TMT and the organizational outcomes. This study draws from organizational behaviour and strategic management literature proposed by Hambrick and Mason (1984). It postulates that firm performance is a function of top teams (Adams & Ferreira, 2009). Hambrick (2007) argued that upper echelons background characteristics influence strategic decisions of the organization. Identities such as age, leadership style, functional track, career experience education, and socioeconomic roots influence management decisions by defining manager's field vision, selective perception, and interpretation (Hambrick, 2007). Upper echelon theory, which observes "an organization as a reflection of its top managers," provides a theoretical link between gender diversity and managerial characteristics with firm outcomes.

Organizational decisions are made within the scope of managerial perception, strategic choice, interpretation of selective perception, value, cognitive base, and limited field of vision. One's cognitive base is formed by experiences within and outside the organization that define how one gains and processes knowledge in a given situation (Hiebl, 2013). Values are the principles for ordering alternatives according to personal preferences and work together with cognitive base (Hiebl, 2013). The individual personality is static and relatively stable and determines how a leader responds to organizational information. A leader does not focus on every aspect but only areas of attention, forming a limited vision that is inspired by values. Selective perspective encompasses picking out issues that are important from within their vision. Finally, the situation is interpreted based on the leader's scope of cognitive base and personal values that creates a basis for strategic choice.

In determining a leader's behaviour, observable managerial characteristics that show up in an administrative situation are considered. The characteristics of upper echelon

theory are viewed as the determinants of strategic choices that transcend into organizational outcomes. Hambrick and Mason (1984) proposed two moderators in the earlier model: managerial discretion and executive job demands. Hambrick defined managerial discretion as the latitude of action privileged to managers in making strategic decisions. Managerial characteristics are a better predictor of the organizational outcomes with higher managerial discretion as compared to lower discretion. Executive job demands are interpreted to be the levels of challenge that top managers face. Executive directors with higher levels of organizational challenges have constrained time to make decisions; most tend to their personal background.

Therefore, managerial characteristics portray a high correlation with organizational outcomes. Lower levels of challenges allow executives to make accurate decisions that are less reliant on personal characteristics. Hence a weak relationship between echelon characteristics and organizational outcomes exists. It is appropriate to conclude that, strategic choice is a continuous process that happens in a sequence of steps and is reflective of managers' attributes.

According to UET, the traits of individuals in the TMT, including personalities, values and past experiences, have an effect on how they make strategic and organizational decisions (Hambrick & Mason, 1984). Top executives' characteristics and experiences affect how they interpret strategic environment and hence influence their strategic choices, which in turn influences organizational actions and outcomes.

Various studies have underscored the linkage between the traits associated with the UET and organizational performance. For example, evidence suggests that firms' internationalization has a correlation with job-related gender diversity in the context of TMT (Lee & Park, 2006). In a similar manner, linkage has been drawn between diversity in terms of age, education, and tenure, and corporate strategy alterations (Wiersema & Bantel, 1992), organizational innovation (Camelo-Ordaz et al., 2005), information use (Dahlin et al., 2005), and organizational performance (Dwyer et al., 2003).

According to Hambrick (2007), executive' experiences, personalities, as well as values have a strong impact on their cognitive processes, for example in pursuing and examining information. This, in turn, influences choices. Since extant literature relating to upper echelons theory has largely utilized observable traits like race and gender for cognitive frames (as proxies), it has been postulated that the unique values, experience, and skill sets brought in by women also have an impact on the mechanism of decision making. Many researchers have highlighted the effect of diversity (in the context of TMT) on firm performance.

Meanwhile, a significant portion of studies have also assessed the linkage between women on corporate boards or in the upper echelons, with outcomes of corporate social responsibility (CSR) (Bear et al., 2010; Boulouta 2013; Fernandez-Feijoo et al., 2012). Notably, Fernandez-Feijoo et al. (2012) opined that it would be realistic to expect any positive impact on female directors on CSR only when a fixed number of female directors are involved in a board, so that they can make their presence felt.

An organization's board of directors makes decisions on behalf of the shareholders, and as a result the women directors present do influence the strategic decision making (Nielsen & Huse, 2010). Several research findings agree that the presence of women on corporate boards makes a positive qualitative contribution to both strategy and corporate social responsibility (Bilimoria, 2000). This fact is attributed to women being more oriented toward social issues than men, and therefore aiming to create corporate organizations that are more socially responsible (Burgess & Tharenou, 2002). Women on boards bring different professional experiences that are non-traditional (Singh et al., 2014). Therefore, they provide varied perspectives on boards and create a relationship within the organization that is open to communication, thus facilitating the satisfaction of stakeholders' needs and addressing CSR concerns.

Ibrahim and Angelidis (2011) described women as outside directors in an organization. Outside directors are non-executives employed from outside the organization to sit on the board due to their specialist expertise, experience, and previous industry contacts, as well as to contribute by having independent views (Burgess & Tharenou, 2002). Women have greater social responsiveness and express genuine concern about some facets of corporate social performance (CSP) (Ibrahim

& Angelidis, 2011). Women on boards confront different structural forces that constrain or motivate them, thus influencing their actions and roles. However, in relation to issues regarding CSR, such as environmental certification, women directors tend to adopt stereotypical female behaviour that is caring, socially sensitive, and empathetic, which in return promotes firms' social outcomes (Boulouta, 2012).

Corporate boards are the organizational decision makers and resource allocators, while the TMTs select and implement strategic decisions. This involves formulating and implementing goals and initiatives formulated by the board and the owners of the company (Hyvri, 2016). To execute this role, management considers the resources available to the firm and assesses the environment – internal and external – that the organization competes in (Nag, Hambrick & Chen, 2007). To have a classic approach to adopting a competitive strategy, gender-diversified TMTs and Boards are crucial (Nag et al., 2007).

Management-based feminist theory holds that women probe situations and settle on strategies that are different from those that men would choose. General management literature argues that the appropriate leadership style can translate into better outcomes (Hyväri, 2016). TMTs and boards that include women lead via effective communication and governance functions (OECD, 2007). This, in turn, implies that there is a high likelihood that sustainable environmental initiatives will be adopted. A great deal of scholarship has been focused on understanding the role played mostly by the board and top management teams in organizations.

On a similar premise, this study uses upper echelon theory to divulge on the relationship between gender diversity and corporate environmental performance. Corporates around the world could consider board gender diversity to achieve better results in terms of environmental performance. Since corporate boards make decisions and allocate resources in the organization, more gender diverse boards could allocate more resources to environmental conservation activities such as waste management. Decisions that favour environmental management activities could improve the environmental outcomes of the said companies and in turn lead to economic and financial benefits. Board gender diversity could impact positively on

the reputation and the image of an organization, different stakeholders including investors, lenders, suppliers among others are likely to depend on this reputation in their interaction with the said organizations. These benefits will in the long run prove to be beneficial to the organizations.

### **2.2.3 Stakeholders Theory**

Stakeholder theory has been extensively utilised in environmental management literature, with relation to justifying socio-environmental management practices and disclosures by corporate entities. Stakeholder theory began being more prominent among scholars after the publication of Freeman's book "Strategic Management: A Stakeholder Approach", which was released in 1984. According to Freeman (1984), the meaning of the term 'stakeholder' (which means any group or person who can be affected by the attainment of organizational objectives) goes far beyond organizational boundaries and includes those that an organization has a formal contractual obligation with (Buisse & Verbeke 2003; Céspedes-Lorente et al. 2003; Horisch et al., 2014). Thus, it is important that relationship(s) that may exist between an organization's behaviour and its impact on the stakeholders is recognized and identified.

Stakeholders may be categorized in a number of ways, for example as primary and secondary, internal and external, non-owners as well as owners, and resource providers or dependents of the firm. In addition, it also includes those that are in a voluntary or in an involuntary association with a company. However, the most common classification in the environmental sustainability literature is based on two categories: primary and secondary stakeholders. The first category refers to those who possess crucial resources that an organization needs in order to survive. They possess the ability to influence the economic situation of the firm (shareholders, customers, managers, creditors, employees, regulatory stakeholders, suppliers and community stakeholders) (Sarkis et al., 2010).

Secondary stakeholders have the ability to affect the economic conditions of an organization by influencing other stakeholders. Since they do not directly engage with an organization, its survival does not depend on them (environmentalist groups, NGOs, media and consumer advocacy groups). Typically, firms are not obligated to

meet outside stakeholders' needs; however, they can initiate measures that may lead to undesired ramifications for the company (Céspedes- Lorente et al., 2003; Eesley & Lenox, 2006; Madueño et al. 2016).

An organization's success hinges on the manner in which it conducts its affairs with stakeholders because, even though stakeholders may not be in opposition to them, managerial discretion could be limited by their actions. The day-to-day running of the firm may result in externalities which may affect parties internal or external to the organization (Freeman, 1984). As a result, organizations could be pressured by stakeholders to reduce negative externalities (Sarkis et al., 2010). To that end, an organization should deal with its stakeholders in the best possible manner. According to them, it will be appropriate to use attributes of urgency, legitimacy, as well as power to identify and address the needs of salient stakeholders so as to safeguard the organization's survival. This is because an organization's sustenance requires the support of stakeholders and the approval of its operational activities.

Effective stakeholder engagement, based on stakeholders' theory, therefore guarantees that the firm's social legitimacy is not only established, but also entrenched (Campbell, 2007). However, Eesley and Lenox (2006) observed that salience ought to be considered in terms of the probability of the stakeholder request being dealt with, by the firm, and that legitimacy, power and urgency are actually the products of the stakeholder request. Eesley and Lenox opined that the power of the firm moderates that of the stakeholder and that besides the legitimacy of stakeholders, urgency of the stakeholder request is similarly important. This then suggests that the request urgency assumes more significance than the stakeholder group urgency. The foregoing authors used environmental protection action by secondary stakeholders in America to confirm that the request made by stakeholder groups with greater power as compared to the target firm's power was likely to be met as well, more so when the request was more legitimate.

The management of stakeholder relationships is therefore a key strategy for dealing with a given firm. Based on resource dependency theory, four strategies are available to stakeholders, even though resource relationship between stakeholders and the firm. The strategies are: direct and indirect withholding; and direct and indirect

usage. This is attributed to the fact that the resource needs of a firm provide opportunities for others to exercise control over the firm. Generally, from the way in which resources can get into an organization, implies that such a firm can be controlled by others in two ways: by assessing the obtainability of the resources to an organization, as well as if the firm has the freedom to utilize resources in the manner it desires. As a result, those in charge of provision of resources may manipulate or control the firm either by withholding resources or directing their usage.

Two pathways of control emerge: direct control – which involves the stakeholder manipulating the flow of resources within an organization either through usage or withholding. Contrastingly, with indirect control, the stakeholder operates via a third party to orchestrate resources flow to the firm by withholding or restricting resource usage. In all instances, stakeholders are aimed at changing a firm's irresponsible socio-economic or environmental behaviour.

The stakeholder therefore has the options of four strategies in the preceding discussion, when the two means of control of resources (withholding and usage) are combined with the two pathways (direct and indirect) and this is however dependent on the resource relationship. The stakeholder may opt for direct withholding should there be a marked stakeholder power in the relationship and provided there are more costs of any action chargeable to the firm. For case where low levels of interdependence exist, the indirect withholding strategy may be opted for to affect the steps taken by the firms. Indirect usage strategy operates when where the relationship is characterised by abilities of the organization. Even then, in case of high interdependence levels in the resource's relationship, the direct usage strategy is applied characterized by negotiations owing to the fact that any action will be costly to either party.

This confirms the observation that influential stakeholders can affect the extent of environmental management practices of a firm by directly withholding input resources from the firm. In such instances, the likelihood of organizations measuring up to the environmental practices expected by the stakeholder is high as it may affect organizational performance. Hammann et al. (2009), however observed in an effort to answer to the environmental expectations of such influential stakeholders, the firm

is more predisposed to generate value for its business. This is attributed to the fact that meeting the legitimate, urgent and powerful stakeholders' desire guarantees that the objective of making maximum profit for the firm is achieved since the interests of stakeholders are managed. According to Reed et al. (2009), it is important to understand stakeholder relationships from resource dependence perspective, as this will guides business managers strategically work with relevant stakeholders as the business strives to attain its objectives.

The stakeholder theory is important to business managers since it helps them decide on the relationship type they desire their network of stakeholders. Additionally, it is impossible to distinguish ethics from the realm of economics in the business environment (Darnall et al., 2009; Freeman, 1984). It is also crucial, especially for managers, to anticipate how stakeholders' influence may affect organizational performance. This sets the stage for strategic planning of the organization in line with expected course of action.

Stakeholder theory examined in extant literature is based on instrumental power descriptive accuracy and normative validity. Despite different part of the theory being interrelated, they pose diverse consequences, and are founded on disparate arguments and evidence. Descriptive accuracy is often to elucidate the nature of the firm, firm evolution and stakeholder salience, levels of environmental commitment, as well as importance of management perception of stakeholder groups (Buysse & Verbeke, 2003; Jawahar & McLaughlin, 2001). Instrumental as well as descriptive power work together on many occasions, and this is with the aim of creating any possible connection or the lack thereof between handling of stakeholders and economic objectives of the organization. Generally, scholars in this regards have argued that effective management of stakeholders results in enhanced organizational performance as compared to rivals (Jamali 2008; Margolis & Walsh, 2001). Thus, based on stakeholders' theory, the organization is viewed as wealth creation instrument, with environmental management acting as a strategic economic tool that enhances the achievement of profits by organizations.

The championing of the profitability objectives greatly takes into consideration the interest of all those who have a unique stake in a given firm (Garriga & Mele, 2004).

Studies carried out on firms' environmental management practices and financial performance have suggested positive correlation between the two variables (Ann et al., 2006; Yu & Ramanathan, 2016). Normative validity guides the interpretation of corporate functions such as identifying philosophical or moral guidelines for the firm's operations. According to normative validity theory, ethical focus requirement strengthens the business and societal relationship. Even then, it appears that there are no established principles for organizational management to follow. Consequently, it is crucial that an assessment of the operational environment and response to social demands is made, as this allows the organization more social acceptance, legitimacy and prestige. To this end, the response of a firm's management is likely to change with time and industry, driven by the aim of achieving acceptance from society (Garriga & Mele, 2004).

What makes the stakeholder theory stand out above rival theories is because the modern and pluralistic form of property rights offers support for stakeholder theory in comparison to other theories. Also, as the theory is justified by descriptive, instrumental and normative approaches, it serves a unique purpose. The descriptive approach explains the relationship between the theory's foundational concepts juxtaposed with observed reality. Instrumental justification focusses on the available evidence linking stakeholder managements to organizational performance. Finally, normative justification focusses on basic concepts touching on social contracts and individual or group rights.

According to Deegan (2006), there are two branches of the stakeholder theory: ethical or normative (prescriptive) and managerial (descriptive) branches. The theory justifies the firm-stakeholder relationship based on the normative principle of fairness (Deegan & Samkin, 2010). Consequently, the organization should never, at any given time, violate the minimum rights of stakeholders and should constantly work towards meeting this minimum right irrespective of stakeholder(s)' powers. The theory therefore argues for the principle of equal treatment in the firm-stakeholder relationship but cautions against the firm acting in ways that might give one undue advantage over another.

The theory argues for the need for environmental management and disclosure being viewed from the lens of moral responsibility of the organization, thus making this a responsibility-driven, rather than survival or demand-driven (Deegan, 2006). Therefore, organizations best showcase higher managerial responsibility as far as stakeholders are involved, when they involve them (stakeholders) in consultation and participation in management decision making. Contrastingly, the managerial branch suggests that there exists an interdependence relationship between the organization and its stakeholders in relation to resources and management interest which should be aimed at organizational survival. The main task for a given firm's management, therefore, is identifying stakeholder group, their salience, as well as develop workable strategies that best answer influential stakeholders and which ensures organizational existence. Therefore, the extent of significance attached to stakeholder group by the firm will largely depend on how powerfully the management perceives the stakeholder(s), as this has an effect on their strategic response to their needs (Eesley & Lenox, 2006).

In the stakeholder theory, specifically the managerial branch, managers have a role in ensuring that stakeholders promote and give consent to their organizations through socio-environmental management and disclosures. The usefulness of this is due to the fact that the theory underscores the need for the organization to go beyond the traditional objective of profit maximization and address other stakeholders' concerns. It is not possible to satisfy stakeholders without a consideration of what other stakeholders might desire (Jamali, 2008).

Environmental management, from the stakeholder perspective and in line with scholarly arguments, results in organizations gaining legitimacy, economic benefit, reduction of stakeholder pressure and help in developing a response to environmental stakeholders' strategies of influencing firms' environmental activities (Céspedes-Lorente et al., 2003; Sen & Cowley, 2013). Stakeholder has been thought to catalyze reactive as well as proactive environmental engagement while protecting investments of the organization against environmental liabilities (Betts et al., 2015; Sarkis et al., 2010).

The theory is not without criticism, however. According to Jensen (2002), although stakeholder theory suggests that managers come up with decisions that is inclusive- i.e. considering the interests of all stakeholders, those who advocate for the theory have not provide the manner in which the necessary trade-offs are to be made amongst the various competing interests. To Jensen, this constrains the managers from making purposeful decisions. Further, stakeholder theory does not provide for ways of keeping scores, thereby making it almost impossible to keep managers accountable for their actions. The theory therefore appeals to managers and directors owing to perceived self-interest.

Another challenge with stakeholder theory is its inability to clearly delimit organizational boundaries with clearly defined levels. This consequently confuses stakeholders within a firm's immediate environment with those in the larger business context. Stakeholder theory, according to Fassin (2009) is therefore inadequate in addressing the firm's environmental contexts. The theory was unable to facilitate a better understanding of the nature and the underlying complexity of internal and external stakeholders' linkages. More connections, such as a stakeholder being an employee, stockholder (internal stakeholders) and the same actor belonging to the professional organization, environmentalist or community group (external) may affect and impact on the firm.

Positioning the organization at the centre of stakeholder theory to some extent contributes to the foregoing failure, and has also led to non-analysis of these linkages because the firm is not involved or is at the centre. The theory's emphasis on the organization and/or management is crucial as far as organizational technique and strategy are concerned, but not realistic or adequate in explaining firms' societal behaviour. Stakeholders' theory has been criticised for its over-simplification of the relationship between an organization and its stakeholders. Elucidating the theory as narcissistic, it is contended that the study aims to minimize conflict whereas in reality, conflict is usually necessary for the growth and development of individuals and corporations alike.

Another critique of the theory is in its assumption of the social contract between society and businesses (implicit) particularly with regard to the morality argument

that apart from legality, businesses can be constrained morally because businesses are society's creation. In any given society, there exists a social contract for organizations called minimalist morality of modern capitalism (moral obligations to obey the law, honour contracts and agreements and respect the rights (including property rights) of others. Therefore, the attention given by stakeholder theory towards the interest of all stakeholders does not hold water in the social contract of modern capitalism which assumes production of value, voluntary transaction and the rights of individuals to take legal action where harm has been caused.

Lastly, through the managerial perspective, a stakeholder's legitimacy is defined and as such the urgency of meeting the stakeholder needs is defined. Consequently, much of the attention has been assigned to stakeholders who 'really count' in terms of their power to influence either directly or indirectly (Bondy & Charles, 2018). According to feminists, powerful stakeholders portray characteristics that are typically found in men to disproportionately influence social relations to their advantage. An attribute regarded as 'hegemonic masculinity' and stakeholders explicating these attributes such as being competitive and rational are relatively able to sway organizations strategic action (Derry, 2012).

Stakeholders with less power are affected by firm actions and to some extent the firm benefits but they do not have the ability to influence organizational decisions. These are marginal stakeholders, who struggle to voice their concerns and mostly tend to rely on either the benevolence of the firm management, alliances or the advocacy of other salient stakeholders. To integrate the idea of marginalized stakeholders, the current assumptions by the stakeholder theory need further rethinking. Nonetheless, stakeholder theory has proved to be an incredible tool in understanding why, how and with who the organizations interact in relation to corporate environmental performance.

In light of the above, this study infers that both normative and managerial branches of stakeholder theory are useful in divulging the influences of stakeholders' pressure on corporate environmental performance. Corporates could achieve better environmental performance owing to the pressure from the stakeholders. Stakeholders' pressure pushing corporates to act could be coercive, mimetic or

normative. Responding to these pressures positively could lead to better performance both environmentally, socially and economically. Coercive pressure known to rise from major customers and regulators could help secure the financial status of an organization by maintaining these major customers while at the same time adhering to different regulations. Responding positively to mimetic pressure could lead to improved competitiveness as firms keep up with the efforts of their competitors and peers. Also, corporations that respond positively to normative pressure that is linked to the knowledge, skill and talent within its workforce is likely to enjoy lower employee turnover, better retention of skills and even better outcome in terms of environmental performance.

### **2.3 Empirical Literature Review**

This section explores and reviews the existing environmental management literature relating to stakeholders' pressure, gender diversity and voluntary environmental management systems which forms the three objectives of this study. Further, the study proxies for VEMs (the United Nations Global Compact and ISO 14001) are discussed. The purpose of the review is to develop and identify consistency and gaps in the existing literature providing the basis of hypothesis development for this study. The review of existing literature focuses on all available studies from developed and developing countries and for both SMEs and large companies. This holistic approach is to help put the study in perspective and demonstrate the relevance of the environmental performance in firms.

#### ***2.3.1 Stakeholder pressure and Corporate Environmental Performance***

Stakeholders' pressure and corporate environmental performance continue to be very important topics in relation to corporate sustainability. Corporate environmental performance is a measure of the strategies applied to mitigate the impact of businesses on the natural environment. Notably, the natural environment is involved in the production process as a factor of production. Some environmental policies that relate to businesses include reduction in waste reduction in energy consumption, introduction of clean energy, improving efficiency of processes and introducing environmental management systems (Walls et al., 2011). The need for corporate environmental performance cannot be stressed enough. A report from UNEP (2011) revealed that the global manufacturing sector consumed 35 per cent of the world's

overall electricity consumption, while its contribution to global CO<sub>2</sub> emissions is 20 per cent.

As indicated above, there is need for corporate environmental performance in companies. Many studies have been conducted on stakeholders' pressures and corporate environmental performance. The studies however do not reach a consensus on which group of stakeholders mainly drive corporate environmental performance. Wang et al., (2020) divided stakeholder pressure into four major groups: coercive, internal, social pressure and market. The study went ahead to explore the relationship between the different stakeholder pressures and environmental performance through meta-analysis. From the study, the researchers proved that internal pressure was the main driver of environmental performance.

Zhu and Sarkis (2007), on the other hand, holds that regulatory (coercive) and market (normative) pressures induce companies to augment environmental performance, more so when they are pressurized to embrace green and environmentally friendly purchasing practices. The results from these studies give a practical implication that indeed a green industry transition in the corporate world is strongly needed. This is particularly key for firms in polluting industries that should implement environmental strategies.

According to Dubey et al., (2014), firms are under institutional pressures which coercive, normative and mimetic pressures from various stakeholders including customers and the government, which require them to implement best practices in relation to environmental performance. Dubey et al' study encompassed Indian rubber companies as well as 3,500 Medium, Small and Micro Enterprises (MSMEs), accounting for over 30 per cent of the nation's energy consumption as a result of obsolete technology and minimal oversight. The research was aimed at evaluating the efforts of India's rubber producing firms to adopting GSCM practices. It linked organization leadership and green practices like Total Quality Management (TQM) and Supplier Relationship Management (SRM) with environmental performance (EP). Podsakoff et al. (2003) concurred with Dubey et al. (2014) that firms indeed benefit from TQM and SRM integration in green supply chain networks under the

influence of leadership. As such, institutional pressures have a positive influence on firms' environmental performance.

According to Zhu et al. (2005), Chinese manufacturers have, from the onset of the new millennium, experienced immense pressure to adopt green supply chain management (GSCM) practices. These pressures are known to be largely from, first, the market (normative) pressures which is in the form of downstream customer or consumer pressure, (especially pressure from international consumers that exceeded local requirements). Second is the regulatory (coercive) pressure because of an expanded corpus of environmental laws from the government including the Cleaner Production Promotion Laws. The third source of pressure is from the competition in the form of mimetic pressure where firms were greatly influenced to adopt environmental management initiatives by what other firms including their competitors were doing, as opposed to their own experiences or by legal or regulatory coercive pressures (Zhu & Sarkis, 2007).

Although studies differ on which group of stakeholders drive corporate environmental performance, they all concur on the need for corporate environmental performance. Studies revolving around corporate environmental performance emphasize on the need for companies to reduce products' environmental impact. Johansson (2002) for instance, observed that eco-design aims at minimizing product's environmental impact throughout its life cycle. This means that organizations that observe eco-design will ensure they design their products in such a way that they conserve the environment right from extraction of raw materials, to manufacturing the product, to using the product and even to beyond using the product- disposal. Reduction of product's environmental impact is key to attaining environmental performance. The study highlights the need for integrating product reusability and recyclability into the design of the product.

To further support the foregoing view, Canning and Hanmer-Lloyd (2001) highlights that companies need to extend their environmental responsibility beyond their own boundaries to lower pollution or waste throughout the supply chain. Eco-design therefore, as discussed above, is a key aspect in attaining corporate environmental performance. Eco-design effectively incorporates environmental management

aspects into the process of designing a product while paying attention to its entire movement across the supply chain. According to Zailani et al. (2012), there are two major eco-design (external) drivers in the context of institutional theory: regulation/incentives, customer pressure and their effect on EP. The study argued that all these drivers are coercive pressures, albeit from different sources. Examining data from 132 manufacturing firms in Malaysia that were ISO 14001 certified, the study observed that eco-design mediates the impact of these pressures on environmental performance.

Another proponent of external drivers of corporate environmental performance-Ramanathan et al. (2014) investigated the implications of external pressure focusing on coercive pressure on CEP. Ramanathan et al. examined how coercive pressure affects UK-based firms' environmental performance by using structural equation modelling (SEM) for assessing dependence relationships. The study outcome revealed that internal stakeholders had the strongest impact in shaping companies' environmental performance, followed by external stakeholders, economic pressures, and environmental regulations.

Correspondingly, Adebajo et al. (2016) examined the effect of sustainable management practices as well as external pressures on environmental outcomes with mediating effects of sustainable management practices. The study made use of empirical analysis based on data from 6<sup>th</sup> edition of the International Manufacturing Survey (IMSS). According to the findings, there was a significant relationship (direct and mediating) between adopting formal sustainability program, external forces, and environmental results.

As studies come to an agreement on the need for corporate performance, some studies have shown institutional pressures to be important drivers of environmental performance. Institutional pressure is known to emanate from state agencies, regulatory bodies, environmental activists' groups, local governments, and even public opinion. Pressure from these institutions has been found to work positively towards corporate environmental performance. These findings have been supported by studies such as the one by the US federal and state government agencies. The two joined hands with the U.S. National Ski Areas Association to set up the Sustainable

Slopes Program in 2000 as a voluntary environmental initiative targeting the American Ski Industry.

By the year 2020, about 200 U.S. ski areas had signed up on to the Sustainable Slopes Program (SSP). Separately, Rivera and De Leon (2004) investigated the motivation of 109 western Ski resorts in the U.S. to participate in the SSP. According to the findings, participation in this SSP was associated with intensified federal supervision, state agencies' environmental demands, local (non-governmental) environmental groups, and public opinion. Furthermore, it was shown that there was a higher probability of ski encountering stricter oversight and stronger institutional forces (coercive and normative) from state and other environmental groups along with public opinion to participate in the SSP. Therefore, in line with prior studies on factors that drive manufacturing companies' voluntarism in environmental management, the study finds a positive correlation between increased institutional pressures and participation in voluntary environmental programs.

Also, Zhu and Sarkis (2007) observed that institutional pressure resulted in increased Chinese manufacturing companies' green supply chain practices. Regulative (coercive) and market (normative) pressures resulted in environmental outcome improvements in green purchasing and eco-design, while (mimetic) pressure was found to impact several green supply chain management adoptions with significant improvements in economic benefits. Similarly, Husted and Allen (2006) noted that institutional pressure guided the strategic CSR decisions in MNEs operating in Mexico as opposed to the other expected strategic drivers such as profitability and costs management. Stakeholder pressure has been noted to serve as a significant motivator for both reactive and proactive environmental engagement and protect the organization's investments against environmental liabilities (Betts et al., 2015; Sarkis et al., 2010).

The view that institutional pressure drives corporate environmental performance is further supported by a study that observed that organizations within Europe are faced with the same pressure. The European Commission endorses the European Environmental Management Standard (EMAS) and ISO 14001. The study by Delmas (2002) involved a comparative study on adopting ISO 14001 in the US and Europe.

The study analysed data from a survey of 140 firms in Europe against 152 firms in the US. The study finds the context in Europe to provide a more fertile ground than the one in the US for the development and diffusion of EMS standards including ISO 14001 (ITC, 2007) due to good relations between industry, regulatory agencies and other stakeholders. The environment in the US is different – there is little cooperation between regulatory agencies and the industry which results in the slow diffusion and adoption of ISO 14001.

In the US, the preceding survey showed that stakeholders did not require companies to be ISO 14001 certified and still questioned the importance of the standard. It is for this reason that ISO 14001 certification could not be a widespread phenomenon. In the US, it has remained unclear whether benefits gained from becoming ISO 14001 certified could offset potential costs of obtaining the certification. Consequently, the demand for the ISO 14001 certification was found to be weak. On the contrary, European companies rank better in terms of corporate environmental performance owing to the strict regulatory bodies and endorsements to environmental management standards.

Other than institutional pressure, studies have pointed at normative pressure as a driver of corporate environmental performance. Amran et al. (2012) evaluated the linkage between business networks, characteristics of firms, company ownership, and activities of mitigating climate change in Malaysia. Data from 100 companies' annual reports and CSR reports from seven industries was used to test hypotheses for the study. It was observed that business networks foster institutionalization and facilitate the inculcation of common behaviour norms and values amongst members. In line with expectations, business networks were found to significantly influence efforts of mitigating climate change. These findings could be attributed to normative pressure because the network members are normally expected to conduct themselves in a certain way (as per established values and norms).

DiMaggio and Powell (1983) seconded this argument by noting that firms that in a comparable environment are likely to be similar over time. Also, Campbell (2006) asserted that there is a stronger likelihood of companies conducting their activities in a responsible manner to have more elaborate participation of their stakeholders in

some form of institutionalized dialogue. Zhu and Sarkis (2007) studied four major industries: automobile, power-generating, chemical and petroleum to determine the linkages between institutional pressures, GSCM practices and firms' economic and environmental performance. From the study, the sectors were found to have been impelled by their rivals to make improvements in their environmental practices as discussed above.

In developing countries, there has been a growing need to consider the stakeholders' interest in environmental practices of companies and more stakeholders are having more say and power to influence companies' decisions (Perez-Batres et al., 2012; Tong, 2018). In this regard, several studies have focused on the effect of stakeholders' pressure on corporate environmental practices (Ali & Frynas, 2018; Sandhu et al., 2012). This current study investigates the effect of government regulators, major customers, competitors, employees and community environmental groups on environmental performance of a firm. This is an area where not much research has been undertaken especially from the perspective of developing nations. Mchavi and Ngwakwe (2017) sought to examine the relationship between external pressure and disclosure of corporate environmental information in sustainability reports of banks in South Africa. The research findings by the study reinforced the need to consider stakeholders' interests in environmental practices. To be specific, the research indicated that banks in South Africa were less concerned with environmental issues and that none of the seven environmental pressure variables showed a significant relationship with environmental disclosure of banks.

To better appreciate the arguments as presented above on sustainability and how sustainable practices are engendered and adopted across organizations, institutional theory will be used as an instrument. Delmas and Toffel (2004) proposed the application of institutional pressures by stakeholders to enhance environmental outcomes. Further, the study found firm and plant characteristics such as size, competitive position, and level of internationalization amplify or reduce the impact of institutional pressures. External stakeholders play a vital role in reshaping the decisions of companies and ensure conformity with environmental responsibilities. Past studies have established the connection between stakeholders and CEP as well

as the role of external pressure in promoting CEP (Adebanjo & Ahmed 2016; da Silva Monteiro & Aibar-Guzmán, 2010; Ramanathan & Nath, 2014).

Also, institutional theory has been widely used to appreciate environmental management practices by companies and in exploratory studies involving organizations' environmental management practices (Delmas, 2002; Hoffman 1999; Hoffman and Jennings 2014; Kollman & Prakash, 2002; Zhu & Sarkis 2007). Notably, institutional theory has the ability to offer explanation as to why organizations will choose certain environmental management practices despite the absence of apparent prospects of economic returns as well as the dominance of some practices in industries (Campbell, 2007; Zhu et al., 2013).

Further, Glover et al. (2014) discovered in their study among 70 large and small organizations in the dairy supply chain in the UK, the presence of all three forms of institutional pressure. In the study, powerful supermarkets pressured smaller producers through buying contracts and carbon audits with an aim of spearheading new and acceptable sustainable practices. Evidence of mimetic pressure revealed itself in the attempt to replicate successful publicly available green information by the supermarkets and other larger organizations in their environmental uptake. Finally, normative pressure was evident in the inclusion of acceptable practices and new rules rooted in social obligations in the firm which proved it positioned it as a sustainable organization.

Another study by Hoffman (1999) on the evolution of environmentalism in the US chemical industry from 1962 to 1993 based its arguments on institutional theory. It was revealed that regulatory and normative pressures played a pivotal role in environmental concerns in the industry which progressed incrementally. Significantly dominant during this season were regulations by the EPA, and by 1993, environmental concerns in the chemical industry had attracted unparalleled attention with the Responsible Care Program improving normative pressure.

Further, research has shown that the dissemination of practices among organizations tends to follow institutionalization process occasioned by social comparison, resource dependence and network ties, which link potential adopters in an

organizational field. This further supports the argument that while singular force may be stand out at a given point in time, all three pressures (coercive, mimetic and normative) co-exist and may contribute in ensuring that organizations are in tandem with social expectations even while they seek for profits and shareholder value maximization (Campbell, 2007; Freeman, 1984; Guler et al. 2002; Hoffman 1999). Thus, institutional theory focusses on how shared systems of rules, social and cultural practices and professional networks pressure are exerted on organizations to conform to generally acceptable social practices so as to ensure legitimacy and survival.

On the other hand, institutional analysis has revealed that managers play an instrumental role in the adoption of environmental management practices by organizations. Managers' cognitive frame and perspectives are to a large extent influenced by messages they receive through educational system as well as professional publications (Campbell, 2007). This further evidences the place of normative institutions and the extent to which environmental management could be affected by these institutionalized norms.

However, like other theories, institutional theory has not been impervious to criticisms. The theory has been criticized for focusing excessively on isomorphism and structural conformity in the organizational-environmental relationship which has led to belittling the role played by active agency and resistance in such relationship. The organization's sense of rational choices needs to be acknowledged when responding to institutional pressure. According to Clegg et al. (2006), the key challenge is a specification of the conditions under which rationality would be largely constrained. DiMaggio (1988) argued that firms are not passive receivers of pressures and elements from their institutional environments since they have ingenious ways of adopting and reflecting their institutional environment (institutional entrepreneurship).

Additionally, the theory has been criticized for overstepping its mark due to the broad-based definition of institutional pressures. Suddaby (2010) asserted that the theory treats organizations as hyper-muscular supermen who can resist institutional pressure, transforming organizational fields, and changing institutional logics.

According to Suddaby (2010), the theory views even the slightest of change as institutional and any change agent as an institutional entrepreneur and so the theory loses focus on its central point of assessing how and why some elements in the institutional environment are accorded meaning and attended to by organizations whilst other elements are ignored.

From above the extant literature, institutional theory has played a key role in demonstrating the adoption or non-adoption of environmental practices by firms in developed as well as developing countries. Firms that will tend to possess similar characteristics illustrate the likelihood of an institutional effect. Institutional rules and norms in the various forms have ensured the transition towards certain environmental management practices within organizational fields. For this reason, the absence of institutional pressure (coercive, mimetic and normative) may serve as a barrier to environmental practices uptake and subsequently an effect on the environmental performance. The lack and absence of robust and effective market institutions, or institutional void or institutional distance will constitute an impediment to environment practices uptake (Amaeshi et al., 2016b; Matten & Moon, 2008). Amaeshi et al. (2016b) observed that organizational gap characterised by weak legal environments (states and civil societies) could undermine socio-environmental effort, thus further leading to a barrier in weak and challenging beginning economies.

Stakeholders' theory, on the other hand is widely acknowledged in environmental management (Mensah, 2014). Many institutions have failed in their handling of social problems, which has impelled them to depend upon businesses with the management talent, capital resources and functional expertise for a solution, such as assistance in crafting the organization' CSR policy and activities. Organizations that transparent in relation to environmental matters work on improving their reputation and loyalty of customers, employees, environmentalists, community and the government, instead of just focussing on avoidance of fines, sanctions, penalties and let-down of main stakeholders charged with irresponsibility. This suggests that companies in their environmental management practices would do well to consider the expectations of their major stakeholders.

According to Martín-de Castro et al. (2016) organizations that protect the environment while at the same time reducing their negative impact are able to maintain attractive environmental reputation before their stakeholders. This consequently appeals to skilled and committed employees, well-satisfied clients and local community, and eventually, is likely to contribute to improved financial performance. Good environmental practices tend to positively impact employee turnover and absenteeism, increase productivity, while at the same time contributing to employee commitment.

Though the studies above proved that stakeholders' pressures can indeed influence the adoption of environmental behaviour, it is important to further investigate how internal and external stakeholders of an organizational affect the environmental behaviour and performance of a firm. A more holistic look at a broader spectrum of companies as based on this study will provide more clarity on the wide range of relationships between different stakeholders and how they influence the CEP of a firm, thus supporting the current study.

This study focused on five stakeholders developed using the stakeholders' theory. The stakeholders under consideration in this study include the government and government agencies, large customers, competitors, employees and community groups. The institutional theory is used to define the mechanisms under which the pressure is exerted to the businesses and this will fall into the three categories: coercive, mimetic and normative pressure. In this study, coercive pressure will be the pressure that will be exerted by government and government agencies as well as the large customers. Mimetic pressure will refer to pressure as a result of competitors whilst normative pressure will emanate from pressure as a result of employee and community groups.

Based on the foregoing discussion, it is thus hypothesized:

***Hypothesis 1a:*** *There is a significant and positive correlation between coercive isomorphic pressure and energy efficiency*

***Hypothesis 1b:*** *There is a significant and positive correlation between mimetic isomorphic pressure and energy efficiency*

***Hypothesis 1c:*** *There is a significant and positive correlation between normative isomorphic pressure and energy efficiency*

***Hypothesis 1d:*** *There is a significant and positive correlation between coercive isomorphic pressure and resource management*

***Hypothesis 1e:*** *There is significant and positive relationship between mimetic isomorphic pressure and resource management*

***Hypothesis 1f:*** *There is significant and positive relationship between normative isomorphic pressure and resource management*

In conclusion, an evolving business environment has presented firms with engagement practices whose fulfilment creates both value for the stakeholders and acts as sources of competitive advantage. Such engagements establish collaborative links by identifying the stakeholders, managing the relationships, and engaging them for the success of the business strategy and sustainability of the business. In this case, stakeholders are positively involved through environmental initiatives and practices that are beneficial to the environment, firm and society.

### ***2.3.2 Board and Top Management Team Gender Diversity and Corporate Environmental Performance***

Both managers and board of directors play an instrumental role in the strategic direction of an organization hence shaping the organizational strategic direction including CEP. The board's demographic diversity is a crucial aspect of the firm's leadership capacity to input on corporate outcomes. Further Post et al. (2011) posited that board diversity facilitates better decision making by involving directors and facilitating diversity in ideas, perception, and knowledge. The argument has been supported heavily by past research work, stressing the need for diversity in the management and gender inclusivity.

According to feministic studies relating to gender differences, socialization rewards divergent conduct in both genders in a different manner. More specifically, socialization causes men to remain more competitive and individualistic, whereas women are inclined to show interest in others. Consequently, it is the female gender that tends to know more about the correlation between individualistic well-being and environmental damage than men (Adams & Funk, 2009). In comparison to men,

women are more likely to focus on the long term and the needs of stakeholders (Brammer, Millington, & Rayton, 2007; Harrison & Coombs, 2012; Matsa & Miller, 2013; Silverman, 2003).

As a matter of fact, organizations that are focused on stakeholders' needs tend to place greater emphasis on developing strategic relationships with stakeholders over the long term, rather than merely focusing on their economic gains (Dyllick & Hockerts, 2002). Leadership that is focused on meeting the needs of stakeholders is also known to facilitate the implementation of practices that are conducive to environmental protection. In summation, men are more likely to adopt a short-term and myopic approach to the strategy of a company. Contrastingly, women may exhibit greater willingness to not only withstand increased expenses, but also augment their concentration to accommodate the needs and concerns of a higher number of stakeholders from a long-term perspective.

Lu and Herremans (2019) used a sample of 837 dominant US-based companies and found out that gender diverse boards scored high in environmental performance in comparison to the less environmentally impacting industry groups, where effect significant impact was observed. The study argued that gender diversity brought on board a variety of skills, healthy mix of knowledge and experience that improved the decision-making process resulting in environmental responsibility.

A similar study by Li et al. (2016) established a positive relationship between gender diversity on boards and environmental policy amongst 865 publicly registered firms in the US. The firm's policy was on key environmental factors; recycling, pollution prevention, and using clean energy. The study deduced that common values shared by women such as coordinated joint decision making, information sharing and collaboration led to favourable decision making and strategies like crafting firms' environmental policy. The virtue of better environmental policy for firms with gender diversified boards was attributed to increased CSR responsibility at the company level by female board members as compared to their male counterparts and inherent women directors' personal characters.

A study of 500 firms in the US by Palmer et al. (2012) concluded that female directors had greater influence on a firm's environmental performance than the women on top management team. The study used Newsweek Green Ranking as a proxy for corporate environmental performance. Another study done by Hossain et al. (2017) on female representation in TMT and board positions and their influence on disclosure pertaining to climate change observed a positive linkage between information on carbon disclosure and gender diversity. The study was carried out in Austria and specifically examined how increasing female representation on corporate boards affected carbon emission from a global standpoint. A sample of 331 companies from 10 industrial sectors across 33 nations with companies situated in 12 different locations was engaged and data analysis was done by the use of regression analysis and hypothesis testing. This study however concentrated only on women influence on carbon disclosure information and did not consider additional environmental management practices, such as VEMS adoption which this study investigated.

Additionally, increasing female representation in the boardroom lowers the likelihood of a company being culpable of an environmental offence, although this likelihood does go up with an increase in board size. This was posited by a study done by Taurigana et al. (2017) in the UK that aimed to establish the correlation between corporate boards and its probability of being convicted of committing an environment-specific offence. The study used a sample comprising of 55 companies listed on the London Stock Exchange (LSE) which were convicted for committing an environmental offence between 2000 and 2014. According to this study, adding a single male member in the boardroom raised the probability of environmental conviction by 4.2%. Contrastingly, female presence lowered the probability of getting convicted by 34.1%. However, the study did not consider all the corporate board characteristics with some being core to matters related to environmental offence conviction like the presence of environment committee and the firm's ownership structure. Again, the sample of 55 firms used by the study was quite small.

Jiang and Akbar (2018), basing their study on UET as well as feminist care ethics theory, investigated how the inclusion of female executives impacts environmental

performance. The study sought to investigate whether increasing the number of female executives had any correlation with China-based listed firms' environmental investment. A sample of 359 firms was employed for analysis with Pooled OLS (Ordinary Least Squares) regression employed for data analysis. According to the findings, a positive correlation was indeed found between the two. Further, it was observed that the intent of female executives of investing in environmental protection is not primarily led by government subsidies. Instead, their willingness and interest in safeguarding environment is ascribed to their genuine concern for addressing issues concerning social responsibility. The study was limited to a Chinese context, hence the need to explore a different setting of the developing countries such as those in Sub Saharan Africa.

Viviers and Mans-Kemp (2016) conducted a similar study on the relationship between gender diversity and environmental management in the South African context. The main objective of their study was to evaluate the linkage between representation of women in the boardroom and several components of environmental optimization using a sample of companies listed on the Johannesburg Stock Exchange (JSE). A sample of 745 annual observations was employed and descriptive statistics used to establish trends while inferential statistics were used for gauging the research hypothesis. According to the findings, women bring new perspectives to the boardroom, specifically on environmental management issues. Further, there was evidence that boards where female representation was increased had better environmental policies, which led to lower pollution and increased recycling of waste as opposed to boards that were dominated by men. More interestingly, the study found that more female presence on the directors' board also becomes an attractive proposition to investors seeking gender equality and effective environmental management.

A Nigeria-specific study conducted by Emanuel et al. (2018) was aimed at assessing how corporate diversity impacted disclosure of the country's registered manufacturing companies. It took into consideration 37 organizations dealing with consumer and industrial goods via a purpose random sampling technique between 2012 and 2016. In addition, the study used the technique of content analysis for ascertaining the extent to which the sampled companies made their CSR disclosure.

According to the findings, gender, size of board, and the number of overseas directors positively impacted the selected companies' CSR disclosure. Also, that the study suggested that including a non-executive director as well as an independent director did not have a major impact on CSR disclosure.

There was evidence of positive correlation between participation of female members in the board and voluntary disclosure of climate change information in a study carried out by Ben-Amar et al. (2017). The study evaluated the linkage between gender diversity in the boardroom and firms' response to sustainability initiatives concerning Carbon Disclosure Project (CDP). It investigated Canadian firms listed publicly spanning across a six-year period between 2008 and 2014 in order to examine how increasing female representation in the boardroom impacted response to the demands of stakeholders for increased public reporting pertaining to risks on climate-change. In addition, Barako and Brown (2008) concluded that heterogeneity of ideas, experiences and innovations brought about by a higher proportion of women directors on the board lead to higher incidences of voluntary corporate social reporting.

Allazzani and Hassnein (2017) postulated that an organization's social and environmental outcomes are as a result of the decisions made by powerful actors within the organization. The study deduced that female directors influenced the organization into fulfilling social needs other than the environmental concerns. An observation anchored on the thoughts that due to cultural dimensions, Malaysia has a significant humane orientation that augment female directors' preferences for social needs. Despite the study not showing a linkage between female directors and better environmental performance, it does contend that a firm's decision makers' cognitive biases, values and culture reflect on the institution's outcomes.

Similarly, Glass et al. (2014) argued that the influence of gender diversity on corporate environmental practices is both nuanced and context-specific. First, women CEOs did not show any significance in promoting environmental practices while gender diverse boards demonstrated a weak relationship. However, women on board that had linkages with other players did portray strong environmental concerns. In addition, male CEOs with gender diverse boards performed better on environmental

records than female CEOs with gender diverse boards. Despite the study's inconclusiveness, it is in support that demographic heterogeneity is crucial in advancing environmental adaptivity, creativity and innovation.

A study by Birindelli et al. (2019) assessed the linkage between female presence across boards in 96 banks from the Europe, Middle East and Africa (EMEA) regions. According to the findings, gender diversity in the board had a non-linear correlation with the bank's environmental performance. According to the study, large number of women on board relates negatively with environmental performance, an observation explained by dual critical mass perspective that asserts the need for gender balance. In contrast to the findings by Glass et al. (2014), Birindelli et al. (2019) observed that increasing the number of women in a board led by a female CEO, beyond a set threshold-the critical mass-led to better environmental performance. This is in support of the homophily perspective that social similarity led to increased trust and reduced conflict.

Another gender-diversity specific study conducted in Arab Gulf States observed that the impact of including female directors was not the same across nations (Issa & Fang, 2014); this variance was ascribed to the stereotyping and discrimination. More specifically, the study utilized a sample of longitudinal panel data collected from 244 non-financial-listed firms across six countries spanning a period of two years (2012 to 2014). These included Oman, Saudi Arabia, Qatar, Bahrain, the UAE, and Kuwait. Gender diversity was shown to positively relate with CSR reporting in Bahrain and Kuwait as result of social and political liberalization. However, in Oman, Saudi, Qatar and UAE there are cultural and traditional barriers that hinder women within the corporate levels of decision making.

Matsa and Miller (2013) as well as Silverman (2003) postulated that when it comes to leadership skills, women tend to focus more on the long-term as compared to men. According to Brammer et al. (2007) and Harrison and Coombs (2012), women are better positioned than their male counterparts in managing the interests of diverse stakeholders and retain their focus on shareholder performance-based interests. When companies embrace an orientation towards stakeholders, it leads to improved relationship management with the various stakeholders as they strive to have

strategic connections with the same stakeholders as opposed to myopically focusing on economic gains for the stock owners (Dyllick & Hockerts, 2002; Svendsen, 1998). As per these findings, men are likely to be more focused on the short-term when it comes to company strategy as compared to women. Consequently, the perspective of gender socialization suggests that involving more females (than males) in TMT would be better for improved environmental management. While it is true that the likelihood of female CEOs pursuing environmentally pleasant policies than male CEOs is higher, it has also been posited that gender diversified boards are more responsive to environmentally friendly practices and executions than boards with no diversity.

According to Brown et al. (2018), a positive correlation exists between gender diversified boards and greater transparency in a firm's governance. Further evidence by Post et al. (2011) and Webb (2004) studies indicated that firms allocate more resources to environmental as well as CSR proportional to the number of women at the board level. Again, firms with gender diversified boards are better positioned than their peers to be more innovative in their management strategies, personnel initiatives and their business practices (Torchia et al., 2011). As compared to their male counterparts, women directors are more likely to be more attentive to stakeholders' needs, resulting in better corporate decisions involving a higher number of stakeholders (Adams & Funk, 2009; Fondas & Salsalos, 2000; Miller & Triana, 2009). Female board members are also known to embrace more financial commitments in creativities that are more globally based and valuable to a higher number of stakeholders as opposed to only company owners.

Finally, during indeterminate situations, females are more likely to act ethically as compared to men (Smith & Rogers, 2000). Women directors are found to be more proactive in tackling environmental matters than their male counterparts. Furthermore, they are more likely to be inclined towards environmental conservation than men (Diamantopoulos et al., 2003). As such, this evidence suggests that female members of the board will be more likely to view environmental preservation as virtuous and necessary. A study by McKinsey and Company (2009) conjectured that women's exceptional performance in education also reflects in professional performance. According to the study's findings, firms with a threshold of at least

three women in top level management ranks scored highly on pointers of organizational brilliance as well as financial performance as compared to their counterparts with zero number of women at realms of management.

The adaptation to environmental deprivation calls for huge sums of capacities; and resources; therefore, it would be highly erroneous on a company's part to neglect women's capacity and abilities. This is highly evident in matters of raising awareness on sustainable production and consumption, where women's overwhelming contributions and capacities have been proven to be of high value when it comes to conserving and managing the environment. On this basis, it is hypothesized that positive correlation between gender diversity and women participation as articulated by McKinsey and Company (2009), will continue and transform into enriched environmental outcomes.

Women are known to play an important role by advocating initiatives that are aimed at safeguarding the environment (Brough, et al., 2016). In their study, Ben-Amar, Chang and McIlkenny (2017) observed that there is a positive correlation between gender diversity in the boardroom and organizations' voluntary disclosures. Heterogeneity, which is encapsulated via increasing the presence of female members in the TMT, would have an impact on the environmental strategy adopted by female presence. This is because the viewpoints of women tend to be distinct as far as environmental issues are concerned. Paquette (2016) meanwhile, opined that the viewpoint of women tends to be more conducive to environmental protection than men.

Furthermore, extant research has shown that fuel consumption tends to reduce with increased female presence in the board (Brough et al., 2016). An ever-increasing body of scholarly work is examining the drivers of CEP. Some earlier scholars contend that gender diversity is positively correlated to the environmental performance of firms (Biswas et al., 2018; Emmanuel et al., 2018; Glass et al., 2015; Hossain et al., 2017; Li et al., 2016; Liao et al., 2015; Lu & Herremans, 2019; Palmer et al., 2012; Post et al., 2014; Shoham et al., 2017; Tauringana et al., 2017; Viviers & Mans-kemp, 2016). However, some studies' conclusions reported both non-relationship or even a negative correlation between gender diversity and the

environmental performance of a company (Alazani et al., 2017; Birindelli et al., 2019).

In order to better understand the manner in which gender diversity of the TMT and board contributes to its environmental outcome, it would be useful to take into consideration other variables that may influence this relationship, such as the firm's size and its stage of evolution (Coles et al., 2001), the industry's degree of homogeneity and regulation (Palia, 2000), as well as competitive conditions. The theoretical framework that has developed this relationship in a deeper way is the UET. The composition of a decision-making group represents a fundamental factor that influences the effectiveness of that group as well as of the organization where it exists. This factor appears to be crucial for a group that is involved in strategic decision making, such as the board and the TMT. In fact, for each member of the upper echelon to maintain their strategic function effectively, it is necessary for them to have adequate cognitive assets, with a balanced mix of knowledge and values (Hambrick and Mason, 1984).

The knowledge and values held by the upper echelon depend strongly on its composition, because they come from the contribution of each director/manager and the social interaction happening inside the board or management team. So, a correct measurement of the board's cognitive assets needs to analyse each director's cognitive assets and that of the entire group. Nevertheless, this task is particularly challenging due to the absence of a precise metric and because directors are reluctant to be the subjects of such investigations (Hambrick and Mason, 1984). The choice of measuring the board's cognitive assets by means of some demographic variables is not new in organizational science and is attributed to the need to consider some proxies that are more easily accessible and related to the board instead of some psychological variables that are difficult to observe and measure. The basis for this approach is the hypothesis that each person's cognitive assets, and consequently those of the group, are primarily attributed to personal data, such as age, gender, or nationality, or previous experiences, which are determined through educational level, professional background, and the time spent at the firm (Hambrick and Mason, 1984).

Based on the above and using the upper echelon theory the study hypothesizes the following:

***Hypothesis 2a:** Board gender diversity has a positive effect on the likelihood of ISO 14001 adoption*

***Hypothesis 2b:** TMT gender diversity has a positive effect on the likelihood of ISO 14001 adoption*

***Hypothesis 2c:** Both TMT and Board gender diversity have a joint positive effect on the likelihood of ISO 14001 adoption*

There are two demographic literature bases under the upper echelon theory on team's attributes (age, gender, functional background etc.). The two often complement each other to shed light on either characteristic (Zhang, 2007). The more common approach involves examining group heterogeneity by testing hypotheses relating to attribute difference, such as gender diversity to the enhancement of a firm's performance (Zhang, 2007). This approach has generated numerous insights despite the lack of consensus. The second group of studies focuses on group homogeneity by looking at similarities among team members (Zhang, 2007).

Meanwhile, a less-studied attribute but one that is of concern to this study is years of experience. Substantial academic research has been done to explain the relationship between upper echelon characteristics and firm choice of strategic decisions. However, little has been done to understand these attributes in relation to the adoption of voluntary environmental programs (Rudy & Johnson, 2016). Age is a fundamental demographic characteristic in upper echelon theory. Burgess and Tharenou (2002) observed that female and young chief executive officers had a higher probability of investing in corporate social responsibility initiatives.

Based on (Upper Echelon Theory) UET, this study assesses the extent to which women average years of experience on boards and TMT influence firm adoption of ISO 14001. Older and long-tenured chief executive officers are argued to be aware of organization corporate political activities. This is an observation attributed to a greater breadth and depth of experience as compared to younger and less experienced colleagues (Hambrick & Fukutomi, 1991). Further, long tenures executives are

argued to have a developed perspective on the gains of participating in corporate social activities. To the contrary, young (chief executive officer) CEOs are open to strategic options and are willing to invest in the firm's nonmarket environment, such as CSR (Rudy & Johnson, 2016). Young executives are willing to take strategic risks than older CEOs (Child, 1975).

There is reason to believe that if women holding leadership roles in a firm is found to result in improved environmental outcomes, these women's long tenure has a linear association with ISO 14001 adoption. Previous systematic study of leaders' attributes has not considered the "in-group" view. It has been argued that executives with long tenures have a developed perspective on the advantages of participating in corporate social activities (Rudy and Johnson, 2016). Thirdly, citizens' social responsibility is gradually known to strengthen with age, which is why senior board members have a stronger sense of the environment (Ma, Zhang, Yin & Wang, 2019). To assess the influence of women experience in the decision to adopt ISO 14001, it is hypothesised:

***Hypothesis 2d: Higher average years of experience of the women in TMT and board increases the likelihood to adopt ISO 14001.***

There has been a lot of scholarship on understanding the underlying motivation in firms making environmentally-conscious decisions. Consequently, those in formulation and decision-making processes have reportedly been observed to influence corporate environmental performance, a factor that has been attributed to their background characteristics, beliefs and values. However, the impact of gender diversity (female representation on board and TMT) on corporate environmental performance is scarcely studied in the African context.

### ***2.3.3 Voluntary Environmental Management Systems (VEMS) and Corporate Environmental Performance***

Voluntary environmental management systems have been found to promote environmental performance. Initiatives that relate to voluntary environmental management systems are increasingly gaining popularity and being relied upon to address major environmental challenges. Voluntary environmental management systems address challenges such as climate change, waste reduction, toxic release reduction, among others. These initiatives are therefore crucial in corporate environmental performance.

Arimula et al. (2016) observed that third party organizations, governments and even different industries have promoted and even developed the adoption of Voluntary environmental management systems. The capacity of governments around the world to establish and enforce regulations that promote environmental conservation are increasingly becoming constrained. Collectively, VEMS outlines a structure for organizations to guide and identify its environmental performance (Lee et al., 2015; Nemati et al., 2016). Summarily, the importance of environmental initiatives is to help organizations implement and improve their environmental management systems and as a result improve their environmental performance.

Scholars propose different theoretical perspectives for the emergence and proliferation of VEMS as well as factors that determine their efficacy in enhancing environmental quality. According to Prakash and Potoski (2011), VEMS differ from government command and control<sup>1</sup> environmental regulations in two ways: for the latter, the government and its regulatory agencies are the main stakeholders and thus, make decisions on how to reward and sanction companies based on their environmental stewardship, while VEMS allow a bigger number of varied stakeholders to participate in assessing, sanctioning, and rewarding firms' environmental stewardship. Therefore, VEMS consider more nuances in their standards of appraisal to enable varying stringency levels across programs, which then makes it possible for companies to shop various programs for environmental

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<sup>1</sup>So called, because they instructed firms to cut back their end-of-pipe toxic waste emissions and regulated how they did it by commanding adherence to specific technologies and rules

commitment; government regulations on the other hand are usually more stringent and rigid.

Additionally, command and control regulations are known to encounter a challenge of widespread shortfalls in enforcement around the world, especially in developing countries where there is absence of adequate expertise, capacities, and resources (Power et al., 2011). Other obstacles include an exhaustive rulebook on regulations, high costs of enforcement and compliance, heavy-handedness, and regulatory inflexibility (Borck & Coglianese, 2009; Fiorino, 2006). Furthermore, growing differences among various sources and types of pollutants, the complications of modern processes of production and the emergence of non-point pollution source have made it difficult to legislate new regulations on control.

Industries around the world have opted for voluntary environmental programs that provide extra incentives such as positive publicity, reputation, and subsidies with a win-win outcome. In developed economies, voluntary programs have become popular and have been studied widely too. Dingwerth (2008) noted that clean production initiatives prove to be beneficial in the long term, they offer a considerable promise for poor countries. While cleaner production initiatives offer numerous benefits, organizations have been unable to take advantage of the opportunities more so in developing countries. Rusell and Vaughan (2003) attributed the inability to take up the opportunities on limited political will and incomplete legal foundations.

Also, Anton et al. (2002) cited mandatory regulation as the weak link in adopting voluntary initiatives. According to the study, voluntary instruments perform poorly in countries where regulations are weak. Weaknesses in regulations arise from poor policy formulation, general lack of will, by different stakeholders, to enforce regulations and inadequate funding of regulatory bodies. Russel and Vaughan (2003) observed that non-regulatory factors that motivate organizations to enrol in voluntary environmental initiatives such as community groups and consumers are weak in developing countries. This situation is further complicated by weak environmental advocacy groups and private sector. Blackman (2010) described economies in

developing countries as populated with informal businesses and small-scale firms that are less or rather not prone to either non- regulatory or regulatory pressure.

Both scholars and practitioners, agree that regulations on control and command are the cornerstone of environmental governance across the world; however, their efficacy in addressing contemporary challenges pertaining to the environment (on their own) is suspect. They propose a change of tact from treating businesses solely as the medium of environmental ailments to mobilizing businesses with attractive motivations to enhancing regulations on command and control (Fiorino, 2006; Kettl, 2002; Prakash, 2000). Thus, VEMS have emerged as new policy instruments to remedy the limitations of command and control environmental regulation regimes. VEMS aim to put in place a reliable, affordable way for creating incentives for companies to go beyond the obligations of established laws in producing public goods relating to the environment. VEMS operate on the assumption that companies will be rewarded by stakeholders for proactive measures like customer loyalty, relief from regulations, goodwill, and higher product price/market share (Gunningham et al., 2003; Lundgren, 2003).

The stringency and rigidity of government environmental regulations serves as the point of departure and provides incentives for actors to sponsor VEMS for ensuring that programs are bolstered by varying stringency levels, as opposed to common regimes of command and control where the responsibility of maintaining environmental standards is solely entrusted upon governments/government agencies (Prakash & Potoski, 2007). However, jurisdictions characterized by public regulations that are imposed stringently may make it harder for companies to set themselves apart via beyond-compliance VEMS; hence, actors may find lower incentives to sponsor VEMS. Conversely, jurisdictions with relaxed regulations provide companies with more opportunities to stand out tall in terms of VEMS-based environmental stewardship (Börzel & Risse, 2010).

Potoski and Prakash (2004) claimed that VEMS are more likely to thrive amidst flexible relationships between businesses and the governments as instruments for firms to distinguish themselves and signal their higher environmental virtue. A case in point could be Britain, which has taken initiatives in leading several prominent

experiments with regard to voluntary governance. Among them, some have yielded models global programs like ISO 14001 and ISO 9000. Meanwhile, some scholars contend that combining governments' voluntary and command-and-control approaches tends to bolster firms' environmental outcomes (Arimura, 2008).

Barrett (2007) claims that even in jurisdictions where public regulation is enforced strictly and stringently, exogenous shocks, for example, an industry-related disaster could provide actors with an opportunity to launch a VEMS. Cases in point include the oil spill disaster in the Gulf of Mexico for industries on petroleum extraction and the rise of Responsible Care, a flagship VEMS of the chemical industry against the backdrop of Bhopal tragedy of 1984. The chemical industry realized the need for collectively indicating their obligation towards environmental stewardship in wake of the Emergency Planning and Community Right to Know Act passed by US Congress in 1986.

Another example is the forest industry, where according to Cashore et al. (2004), rapid deforestation due to lax forestry regulations opened the way for emergence of forestry VEMS. Organizations such as Greenpeace and Rainforest Alliance started conducting campaigns on deforestation of tropical vegetation and biodiversity loss. When the government failed to implement new regulations, such entities decided to participate in governance and sponsored the Forest Stewardship Council program, where adapters are obligated to implement several sustainable forestry and social practices.

In certain industries, it is perceived that the decision of one company can impact their peers. In such cases industry and trade associations are provided with incentives to set up programs to enhance the collective reputations of their members. Sometimes these programs on self-regulation seek to anticipate government command and control regulations, sometimes though not necessarily with the intention of reducing social welfare outcomes (Dawson & Segerson, 2006; Maxwell et al., 2000). Actors belonging to a certain industry could sponsor VEMS as a strategy to convince government, regulatory agents and other stakeholders about the companies' environmental responsibility within the industry and possibly reduce regulatory oversight incentives, thus reducing the need for interest groups to mobilize the

setting of higher environmental stewardship standards (King & Lenox, 2000; Welch et al., 2000).

Some scholars argue that VEMS emerge and recruit firms as members as a form of strategic response to markets (Moon & DeLeon, 2007). These firms want to signal their solidarity with consumers and investors who are environmentally conscious (Reinhardt, 2000; Rivera, 2002), while tackling environmental problems in a proactive manner. For example, Prakash and Potoski (2007) draw on the theory of clubs in economics to propose the application of a rational perspective in the study of the voluntary programs' effectiveness. The study singles out program design as the variable that program sponsors and policymakers have the liberty to modify as they desire; in addition, it underscores the existing variety in the design of voluntary programs and connects design to specific issues pertaining to actions of these voluntary clubs that in turn, affect the efficacy of their programs.

Prakash and Potoski (2007) further developed their ideas from their previous study in Prakash and Potoski (2005). They differentiated Buchanan clubs whose *raison d'être* is to produce club goods; and from voluntary clubs whose central purpose is to produce private benefits for individual member firms, club goods for members only and positive externalities that can be enjoyed by all in the community. The latter make up the welfare gain for society and constitute the major justification for and policy benefit payoff from voluntary clubs. However, the study admits that all institutions can fail, and voluntary club failure can be associated with free riding and shirking. Free riding may occur where firms that are part of a certain voluntary program may seek to accrue benefit from the club's reputation without doing what it takes to be environmentally responsible—hoping that other firms' goodwill attributed to their commitment to environmental sustainability will somehow spill over to them – since stakeholders will not always pick out firms that are doing the good deeds from the others and will spread their rewards to all.

Shirking may occur where after joining a voluntary club, a company may yield positive social externalities despite delivering on its promises. On the other hand, deliberate shirking may occur for reasons such as divergence between the goals of participants of voluntary club and also because sponsors and club members take

advantage of information asymmetries between themselves and sponsors and stakeholders; thus, stakeholders are unable to distinguish between program shirkers from non-shirkers. The study argued that voluntary clubs can put in place mechanisms for ensuring compliance as well as for sanctioning non-compliance for mitigating free-riding and shirking.

In summary, Voluntary Environmental Management Systems (VEMS) have recently become important tools in enhancing organizations environmental proactiveness, augmenting the traditional compulsory environmental regulations. Their practical applications within the firm level have been widely studied within the developed countries with less attention to the African context. Among the most widely accepted VEMS is ISO 14001 and UNGC that are discussed in the preceding section and whose efficacy among Kenyan firms is the subject of this study.

#### ***2.3.4 The United Nations Global Compact (UNGC)***

UNGC was established in the year 2000 owing to external constraints and institutional pressured confronted by organizations (Ortas et al., 2015). The initiative aimed to ensure greater accountability and transparency in promoting the cause of social responsibility. The founding of UNGC was also aimed at creating a world where everyone can have a humane life by giving the global market a human face (Williams, 2004). This was to be achieved through two basic approaches. One was by facilitating learning and discussions through dialogue among local networks, workshops and partnership projects that are focused on shaping CSR programs and strategies.

The second way of accomplishing this was by outlining ten principles relating to labour, human rights, anti-corruption, and environment. This has reinforced the significance of CSR and has set agreeable global business ethical standards. Kohna (2004) credited the UNGC for the transition from hierarchical strategies to consensual/voluntary approaches. Proponents of the initiative hold that it promotes dialogue between civil society groups, private businesses, and international organizations on global ethical business practices. On the other hand, critics contend that UNGC members may free-ride and brainwash by joining to create a positive corporate image and delude on the reality of corporate responsibility.

The UNGC is the world's largest self-regulatory global governance initiative crucial in addressing negative business practices by setting CSR standards (Abbot & Snidal, 2010). The UNGC boasts of over 14,000 signatories and 7,000 other stakeholders from 160 countries (UN, 2020). Expectedly, the initiative has fronted intensified discussions on firms' social and environmental responsibility (Voegtlin & Pless, 2014). In promoting environmental responsibility, the UNGC advocates for business precautionary approach in dealing with environmental challenges. Also, it encourages firms to undertake environmental initiatives that are aimed at greater responsibility and promulgates the development and use of technologies that are environmentally friendly (Voegtlin & Pless, 2014). One of the most common criticisms against the UNGC is that members may free-ride and greenwash by joining to create positive corporate image rather than apply these principles to their business processes and therefore delude on the reality of their corporate responsibility (Adler et al., 2007).

Studies on UNGC focus on the companies' incentives for adopting the UNGC, the composition of its participants, and the effect exerted by the business strategies and operations of committed companies. In this regard, a number of studies have assessed the financial as well as non-financial advantages of adopting the UNGC, such as enhancements in corporate image, deriving competitive advantages, learning better practices, and catalyzing strategic alterations while getting the principles implemented (Arevalo et al., 2013). Nevertheless, such studies do not paint an overtly optimistic picture of UNGC's positive effects as far as business practices are concerned (Runhaar & Lafferty, 2009) primarily due to two reasons: (1) the various phases of participating companies' business performances; and (2) the heterogeneity of these companies, industry sector, size, and geographic location. Furthermore, prior studies are yet to examine whether or not the companies' commitment towards the UNGC has an impact on their corporate EP.

Haque and Ntim (2018) evaluated the effects of UNGC (among other major international initiatives for sustainable development) on EP. The study analysed 13-year panel data from 2245 UK-based firms spanning 11 industries. According to the results, institutional and regulatory pressures exerted by the UNGC, for example, could compel firms to publicize social as well as environmental activities to gain

legitimacy and public acceptability, rather than attempting to improve their EP by reducing carbon and green-house gas (GHG) emissions. The study carries out a robust analysis of a large sample of panel data of UNGC participant firms in 11 sectors in the UK. Haque and Ntim (2007) relate firms' engagement in Carbon Reduction Initiatives (CRIs) with actual EP measured by the level of reduction of GHG emissions. It is possible for companies to allegorically take part in CRIs without necessarily making actual improvements in GHG emissions. Authors have expressed concerns on the fact that the proxies used (e.g. CHG emissions) might not reflect actual corporate practices in their entirety.

Ortas et al. (2015) evaluate the impacts of firms' financial, environmental, social and governance performance (ESG) in Spain, France, and Japan – all of which are known to be home to the highest number of adopters. The study examined 198 companies (from 10 sectors of the economy in accordance with the Global Industry Classification Standard (GICS) system) for the period 2008–2013, operating in the aforementioned countries with an unwavering commitment to the UNGC. The study made use of three indicators, namely: reduction of emissions, innovation of products and reduction of resource consumption to measure a particular firm's effect on living and non-living natural systems as well as ecosystems, including the air, land, and water; to determine the firm's CEP.

Results from the foregoing study indicated that companies' commitment towards the UNGC has a significant and positive effect on the ESG performance of companies. This link continues to be observable throughout the negative economic situation that arose during the period covered by the sample when the global economy experienced deep recession – thus showing that positive impacts of the companies' commitment towards the UNGC persist during challenging economic times as well. The study however does not take into consideration the potential effects of recycling and proper waste disposal on reducing production costs and improving financial performance as well.

Cetindamar (2007) carried out a survey to assess the impact that CSR practices have on firms' environmentally responsible behaviour, especially in terms of its economic aspects. They collected data from 29 companies committed to the UNGC (from Asia,

Africa, North America, South America, Europe, with five of them accounted for by developing countries) and combined this with several semi-structured discussions as well as interviews with strategic players within the UNGC system, an employee of a participating NGO, and researchers within the domain of CSR. Results showed that although participation in UNGC did not accrue significant cost reductions (cost-cutting is not one of the motivating factors for firms' participation anyway), adopting firms produce reduced amounts of waste and experienced lower labour costs in the short run as well as in the long run. Despite producing results that are statistically significant, it is not possible to generalize the findings owing to the small size of sample.

The UNGC has received its fair share of criticism. Sethi and Schepers (2013) criticised the UNGC claiming it had neither managed to put in place clear metrics to measure progress nor to persuade its participant firms to include the ten aforementioned principles as part of their operations and policies to intensify their CSR activities, including on environmental sustainability. Brown et al. (2018) carried out a focused review of the UNGC within the theoretical framework of CSR in order to make sense of the various arguments made by both supporters and critics, not to mention the myriad articles on its effectiveness or lack thereof.

Matten and Moon's (2008) study examined the UNGC within the context of implicit versus explicit CSR to elucidate the manner in which it varies in different nations. Explicit CSR comprises of policies that propose addressing issues that are perceived as constituting part of the more generic social contribution of a company and assign both social and business value to it. Implicit CSR, on the other hand, is made up of norms and values delineating the obligations of companies in a group sense, as opposed to individually (Matten & Moon, 2008). Brown et al. (2018) noted that the discussion by Sethi and Schepers (2014) on: the UNGC's failures, the lack of consistency, discordance between public policy and private interests, among others, concentrates on contending institutional logics and pays no attention to cohesive institutional logics, such as the emergence of codified norms and values as well as mutual interactions that might help resolve these issues.

Into the future, the study makes an argument that the UNGC faces a challenge in terms of sustaining some benefits of explicit as well as implicit CSR, such as the sense of discretion provided to adopters to collaborate with other stakeholders, including NGOs, labour unions, customers, civil societies and nations, attaining success through combined efforts in multi-stakeholder CSR initiatives. Brown et al. (2018) and Sethi and Schepers (2014) evaluated the design features of the UNGC in order to examine their influence on its effectiveness in general and make recommendations on what could be done to improve the latter. The studies only marginally address the effect of adoption of the UNGC on firms' EP.

A study carried out by Berliner and Prakash (2012) to examine companies' implementation of the UNGC using panel data from 112 countries from 2001-2007 found out that the extent of countries' entrenchment in international networks of NGOs is negatively correlated with adoption of the UNGC by firms within these countries. Berliner and Prakash (2012) also analysed data on ESG and used statistics on a panel of about 3,000 publicly traded companies in the US to estimate the effect of UNGC adoption on CEP. Results revealed that UNGC adopters improve the shallow features of CSR performance, but perform worse than non-adopting firms, especially in aspects that are fundamental to their business models, which entail higher costs to change.

Berliner and Prakash (2012) employed a range of statistical tests and obtained findings to show that UNGC members' environmental performance is poorer than that of non-members and that members take advantage of loopholes in monitoring and enforcement and avoid making changes to their EP. The study had a wider scope and made use of a larger data set, however, the study only considered UNGC adopters and did not evaluate firms in developing countries which may reveal unique characteristics.

### **2.3.5 ISO 14001**

The second point of reflection is from ISO 14001- an EMS specification of the ISO 14000 standard which looks into five elements. The five elements include environmental policy and planning, implementation and operation of programs, targets, corrective action, and management review (Babakri et al., 2003). ISO 14001

provides a systematic framework to an organization's products, services and process to manage present and future environmental impacts. This CSR program encourages organizations to get their environmental effects managed in a procedural manner, and premised on a series elucidated as the "Deming Cycle" of plan-do-check-act founded on quality management systems (Testa et al., 2014). Despite the importance of ISO 14001 in terms of the agenda on environmental policy, their efficacy in improving EP is still debatable (Hertin et al., 2008).

Organizations rely on EMS to lower environmental effect, improve EP, and meet government environmental regulations. ISO 14001 is a set of standards that provides organizations with a systematic framework to an organization's products, services and process to manage present and future environmental impacts. With 358, 953 signatories by 2017, it remains the most commonly used VEMS (ISO, 2017; Prakash & Potoski, 2011).

Studies by Arimura et al. (2008), Comoglio and Botta, (2012), Franchetti (2011), Iwata et al. (2010), Melnyk et al. (2003), Nishitani et al. (2012) and Nguyen and Hens (2013) concluded that companies that are ISO 14001 certified are more likely to lower pollution emissions. Similarly, studies conducted by Eng Ann et al. (2006), Fei-Baffoe et al. (2013), and Halis and Halis (2016) found that EMS adoption is positively associated with EP. Contrarily, studies from Hertin et al. (2008) and Shetty and Kumar (2016) did not find any evidence in support of the notion that organizations certified with EMS have significant positive impact on EP. An Australia-specific study by Tung, Baird and Soch (2014) for example, did not make any such conclusion. On a similar note, Zobel (2015) did not find any statistically significant difference between adopters and non-adopters of ISO 14001 on EP over a 12-year period.

Gomez and Rodriguez (2011), and Arimura et al. (2016), compared the toxic release of companies certified with ISO 14001 and those that were not to conclude that ISO 14001 certification does not necessarily lower a firm's environmental polluting footprint. Correspondingly, the findings of Qi et al. (2014) on the linkage between ISO 14001 and EP were unclear. Another study by Anton et al. (2004) did not find conclusive evidence of the linkage between ISO 14001 certification and EP.

Therefore, it can be inferred that the findings on ISO 14001 are inconclusive at best, thus suggesting the need to carry out more studies on the effectiveness of the certification with regard to EP.

Halis and Halis (2016) investigated businesses which are EMS-certified in Turkey. The study examined the development and the effect of EMS implementation, in particular EMS under ISO 14001, on environmental performance. The study surveyed 147 businesses and came up with 26 variables some of which were combined into factor constructs that were subjected to analysis to yield indicators for the following performance benchmarks: competitive, financial, production, and social. Further, the study analysed the relationship between the investigated variables using regression analysis. Correlation analysis showed a high level of correlation between environmental performance and EMS implementations, thus complementing previous studies carried out on Turkish businesses. The study also found that businesses that get certified and implement EMS also send signals to clients and partners so as to protect the environment. In this regard, the study conducted by Halis and Halis (2016) considered waste minimization along with companies' recycling practices. However, the study does not specify the industry sectors where the businesses selected into the sample belong, and so it is unclear whether they controlled for sample selection bias. The study employed a linear regression model, whose limitations include heteroscedasticity.

Lee et al. (2013) carried out a study to evaluate the linkages between companies that help enhance their suppliers' environmental performance, competitive advantage, and environmental performance amongst 119 manufacturing companies certified with ISO 14001 in Malaysia. According to Eltayeb et al. (2011), and Rao (2002), a buying firm that engages in environmental collaboration activities with its suppliers would do so in a three-pronged approach: firstly to educate suppliers on environmental management via performing activities like awareness seminars, make sure that suppliers are aware of the benefits associated with green practices, and provide them with the requisite technical information; secondly to support suppliers by facilitating the developmental of environmental teams' environmental programs, visiting the grounds of for providing on-site technical counsel, and even providing financial assistance to suppliers so as to make improvements in their environmental

performance (Arlbjørn & Lüthje, 2012); lastly to take part in joint venture initiatives such as establishing common teams for long-term projects aimed at developing green solutions such as green product designs and clean technologies (Vachon & Klassen, 2006a, 2006b).

Lee et al. (2013) measured environmental performance using six metrics: lowered air emission, wastewater, solid wastes and use of dangerous materials; fewer environmental accidents and enhanced environmental state of the organization. As per the findings of the study, such measures indeed had a positive and significant linkage between competitive advantage and environmental performance. The study highlights proper waste management and recycling but does not consider them as parameters or even as specific activities for firms to encourage their suppliers to carry out.

Environmental programs do not provide a company with a basis for making improvements in its environmental performance, as per a study that undertook a comparison between the toxic release of ISO 14001 certified and uncertified companies (Gomez & Rodriguez, 2011). This study used the Mann-Whitney U-test as well as the Student's t-test to compare two Toxics Release indices: one of 70 non-certified companies and the other one of 56 certified companies, a total of 126 firms from Asturias, Cantabria, Galicia and Castilla-León regions in Spain. The study finds no relationship between the fact of a company being certified and its pollutant emission indices. However, the study did not pay any attention to how environmental programs affect waste management and recycling and whether these leads to improved environmental outcomes.

Russo (2009) makes use of a sample of 242 large and small firms from six segments from the electronic industry for examining the influence of ISO 14001 certification on EP. The study computes toxic release indices using data on these firms' emissions as provided by the Toxic Release Inventory (TRI) of Environmental Protection Agency (EPA). Results showed that the correlation between emissions and variables for ISO 14001 certification was generally low, although early adopters showed greater emissions' reductions than those who adopt ISO 14001 at a later stage. Results also indicated that greater experience with ISO 14001 play an important role

in accumulating real benefits for adopting firms as well as for lowering emissions to improve the firms' environmental performance. However, one limitation of this study is that it only evaluated firms belonging to the electronic industry of the US. The study paid no attention to the impact of ISO 14001 on firms' recycling or waste management practices.

Hertin et al. (2008) assessed the impact of EMSs on companies' the eco-efficiency. The study made use of simple correlations, a 'trend differences' approach and Jaggi-Freedman indices on a large data set (with 5,000 performance data points for 274 companies and 400 production sites) of European firms in five industrial sectors (electricity, fertilizers, paper, printing, textile) to assess whether or not the performance of firms that adopt EMS is better than their non-adopting counterparts as well as whether their performance enhances after the introduction of EMS. However, the study did not find any unambiguous correlation between the two.

Testa et al. (2014) carry out a study for comparing the efficacy of European EMAS scheme as well as the ISO 14001, two major standards setting the conditions of an EMS. More specifically, it examined the impact of both standards on reduced emissions of carbonic anhydride (CO<sub>2</sub>) on 229 Italy-based plants. According to the study, although the implementation of both EMS helps improve immediate and long run environmental performance of firms in industries that are energy intensive, the impacts of ISO 14001 are dissimilar to those of the EMAS. According to the findings, ISO 14001 certification led to greater enhancements in environmental performance in the short run as compared to the longer term. On the other hand, adoption of EMAS is found to be most efficacious in the long term when various facets are completely integrated into a company's management structure. The study however, does not evaluate nor compare the effect of ISO 14001 and EMAS on recycling of waste produced or safe disposal of waste.

Studies have pointed out that firms which have adopted UNGC did well on environmental performance than their peers (Berliner & Prakash, 2012; Eduardo Ortas, Igor Aivarez, & Ainhoa Garayar, 2015). Other studies staged a case against UNGC, where they argued that it has no improvements on the environmental performance of firms which have already adopted it (Brown et al. 2018; Sethi &

Schepers, 2013). On the impact of ISO14001 adoption on environmental performance, studies have shown a stronger relationship of the same with CEP. Most of the extant literature has however extensively explored European, American, and Asian contexts. Relatively, very few studies have been carried out in Africa, such as in Nigeria and South Africa

In summary and going by institutional theorists, the survival of an organization is essentially grounded on its social legitimacy. This compels it into conforming into easily recognizable and acceptable standards. Accreditation with ISO 14001 or UNGC helps firms build-in structures within the organization that legitimize their internal and external activities within environmental grounds. By implementing such guidelines, it will help the organization become isomorphic to the institutional environment. External constituents reward the legitimacy with markets, interested employees, contracts and investments, hence surviving. Consequently, normative pressure and expectations are key in shaping institutional behaviour (Zhang et al., 2013). However, do adopting firms really meet the outlined environmental expectations? In order to help provide some clarity on the query, this study hypothesizes:

**Hypothesis 3a.** *Firms accredited with UNGC have more effective waste management practices.*

**Hypothesis 3b** *Firms certified with ISO 14001 have more effective waste management practices.*

## **2.4 Conceptual Framework**

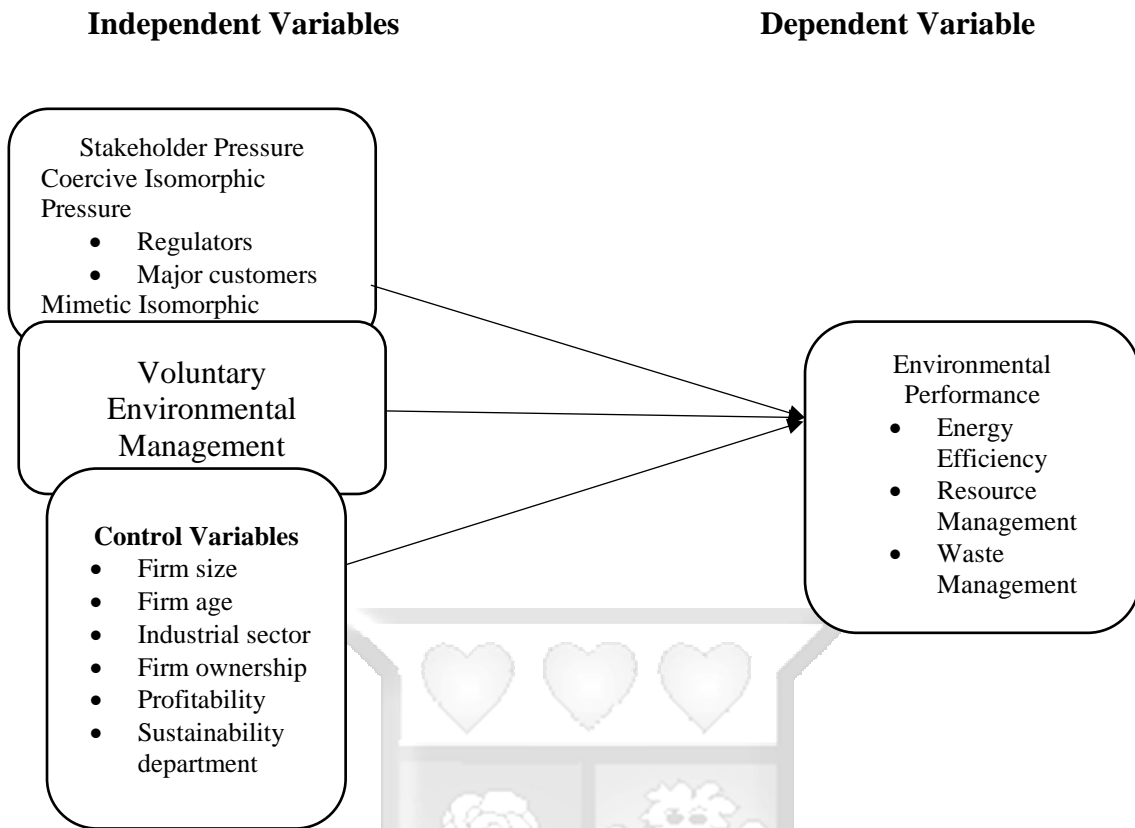
This study zeroes in on corporate environmental performance of firms in developing countries by espousing on the relationships between (1) stakeholders' pressure (2) gender diversity on board and top management (3) voluntary environmental management systems and corporate environmental performance.

To explore the first objective, the assumption is based on both the stakeholders' and institutional theory that an institution's environment does influence the development of its formal structures. For instance, in this study better resource management, energy efficiency and waste management are assumed to improve the environmental

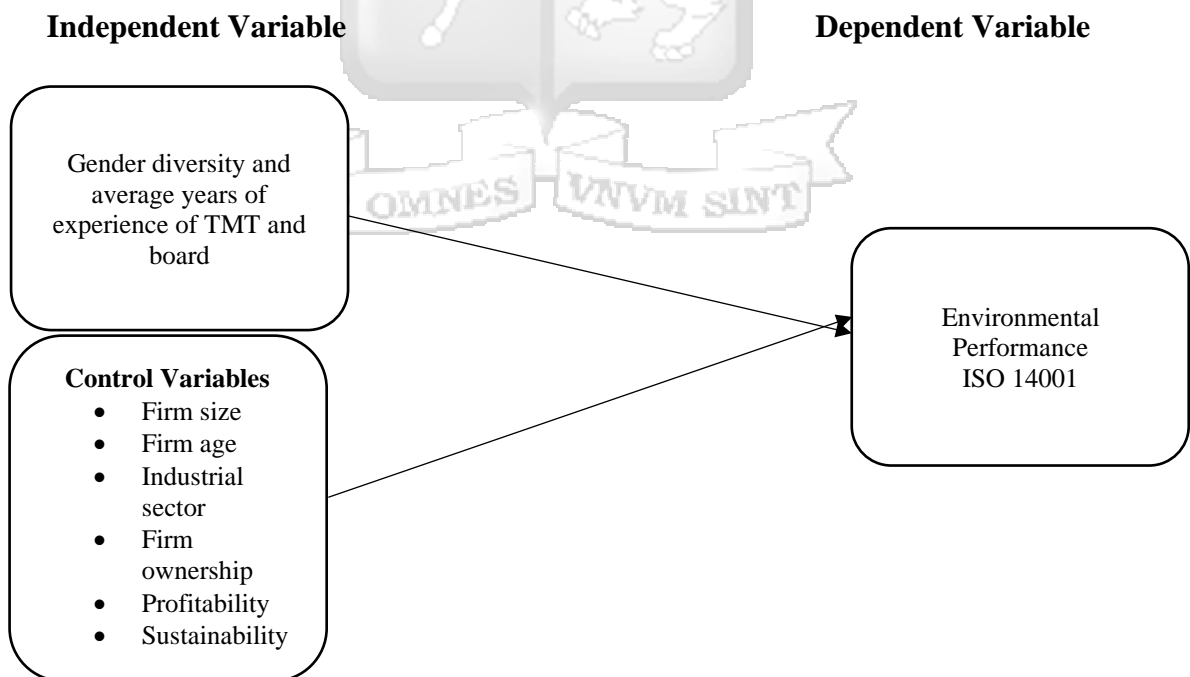
performance of an organization. Currently, the failure to invest in either practice is seen by those affected by the company operations- stakeholders- as being irrational and negligent towards the environment. Assumedly, their implementation is more or less seen as a legal mandate by the stakeholders. Consequently, organizations implement such practices to either benefit or maintain legitimacy within the institutional environment hence increasing homogeneity of the organizational structures with the external surroundings. Extant literature has grouped the stakeholder pressures into three: that from legal mandates-coercive pressure, pressure to copy successful competitors-mimetic pressure, and pressure from similarity in approaches and attitudes by both professional individuals and associations else known as normative pressure.

To have a momentum for the second objective, this study greatly based its argument on the upper echelon theory, which view the outcomes of an organization as a reflection of its directors and managers strategic formation and enactment. With the assumption that manager's experiences, values and personalities determine their interpretations thus affecting their choices, it is worth evaluating these attributes in reference to corporate environmental performance. In line with this school of thoughts and by acknowledging the decision-making role of the executives, this study posits that human factors, specifically gender, plays a key role in an organizations' decision to adopt voluntary environmental systems (ISO 14001).

Lastly, voluntary environmental management systems may be adopted by organizations as 'vocabularies of structure' in form of procedures other than to improve efficiency. To access the Kenyan situation, this study evaluates if the adoption of either ISO 14001 or UNGC leads to better scores on, energy efficiency, resource and waste management as the third objective. In any of the relationships above, inherent firm attributes may enhance positive correlations, necessitating analytical controls. Figure 2.1 presents the conceptual framework for this study.



**Figure 2.1: Conceptual Framework for Objective One and Three**



**Figure 2.2: Conceptual Framework for Objective Two**

### **2.4.1 Independent variable**

In the first objective, the independent variable is stakeholder pressure. As observed by Darnall et al. (2008), various stakeholders— regulators, major customers, competitors, employees, communities and other interested parties— are key in influencing the firm's decisions to adopt proactive environmental practices. However, as noted by Betts et al. (2015), the influence from either group of stakeholders may be perceived different by the organization. Hence, to assess stakeholders influence on CEP, this study grouped stakeholders into coercive, mimetic and normative pressures proxied as regulators and major customers, competitors and employees respectively. The influence of government regulators, major customers, competitors and employees, and the community on organizations was assessed by asking our respondents key questions as per the survey. The responses were coded into dummy variables (Yes=1 and Otherwise= 0).

Subsequently in the second objective, the independent variable is gender diversity on board and top management team. Gender diversity was measured using a dummy variable (Yes=1 for at least one woman, otherwise= 0) separately in either team. Additionally, respondents gave the approximate average years of experience of the women on the board and the TMT. To compute for average years of experience on the board and the TMT as a unit, reported years of experience was summed up and dividend with the total size of the board and TMT separately.

In the third objective, the independent variable was voluntary environmental management system (ISO 14001 and UNGC). The adoption of either was measured as dummy variables (Yes= 1, Otherwise=0).

### **2.4.2 Dependent Variables**

For the first and third objective, three dependent variables were tested: energy efficiency, resource and waste management. Energy efficiency was measured through two proxies; the perceived extent to which a firm had realized energy savings due to a decrease in energy use intensity and self-evaluation of the energy efficiency levels. Secondly, resource management was measured using three proxies, the extent to which a firm uses non-toxic, biodegradable and recyclable materials. Thirdly, waste management was measured using three proxies: if the firm uses

environmentally friendly methods to dispose waste, undertakes solid and water waste recycling. In each of the three categories, values were assigned values 1,2,3,4 to which the respondents would relate their attitude; not at all, to a small extent, to a moderate extent and to a great extent.

For the second objective, two dependent variables were used UNGC and ISO 14001 certification. In both of the two voluntary environmental management programs, a dummy variable was used. If the firm has adopted UNGC = 1 and/or ISO 14001= 1, Otherwise ISO 14001=0 and/or UNGC = 0.

### **2.4.3 Control Variables**

There are numerous firms with specific and unique characteristics which distinguish them and enable them to perform better in their operations. These unique characteristics are synonymous to firm attributes. In this regard, several research studies have strived to unearth the relationship between several firm attributes and firms' environmental performance: Abubakar and Akomolafe (2017); Akbas (2014); Chariri (2017); Elsayed (2007); Innocent and Akafor (2018); Mgeni and Nayak (2016); Orazalin (2019); Younis and Sundarakani (2019). The focus of this section is on the structural criteria of firm characteristics which will be considered as the element of control variable in this study.

#### **2.4.3.1 Firm Size**

A firm's size is an important element, which, in many cases, determines the levels of environmental performance of a company (Younis & Sundarakani, 2019). Firm size can be evaluated as the total equity value, total value of sales, total firm value, and earnings before interests and taxes (EBIT) or as the total number of employees (Da Silva & Aibar-Guzman, 2009). Its importance is also perceived in the manner in which it gives the firm a competitive edge where large firms are entrusted with more power than small ones; thus, the smaller firms are vanquished by their bigger counterparts in a highly competitive market (Kaguri, 2013). Arguably, bigger firms perform better in environmental management as compared to smaller ones since they are in possession of strong research and development, more finances, marketing capabilities, experience and expertise and with greater social (Amran et al. 2012; Da Silva & Aibar-Guzman, 2009; Darnall et al., 2008; Hojat et al., 2010; Tatoglu et al.,

2019; Wang et al., 2018). In wake of their capability, large firms may assign more resources and tend to have more developed EMS and related processes (Tatoglu et al., 2019).

A recent study by Innocent and Okafor (2018) revealed that the impact of size of a company was significant and positive on waste management cost. This is attributed to the fact that large firms get more attention from the general public, which is why they are always under intense scrutiny to demonstrate their responsibility towards the environment. Studies by; Abubakar (2017); Akbas (2014); Amran et al. (2011); Brammer and Pavelin (2008); Elsayed (2006); Nandi and Ghosh (2012) share the same viewpoint that large companies tend to disclose a great deal of information since they are much exposed to public scrutiny than their smaller counterparts.

However, there are other studies which have posited that there is no correlation between the size of a firm and EP. Chariri et al. (2017) for instance, observed that a firm's size did not have any impact on EP. Bowen (2000) reached a similar conclusion in his study, observing that firm size does not matter in predicting environmental responsiveness. In this study, firm size is proxied as the number of employees.

#### *2.4.3.2 Profitability*

Hibiki et al (2003) contended that profitability-rate of operating profit to sales-has a positive incentive to adoption of environmental management practices. Firms that are more profitable are more open to divulging environmental information as compared to their less profitable counterparts that tend to be more secretive (Ahmad, 2012). Profitability was also observed to have a positive correlation with efforts for mitigating climate change since companies that are more profitable can make more investments in activities related to environmental mitigation (Amran et al., 2012). It is essential that when a company earns more profits from the operation of the business, a portion of that profit should be spent on environmental protection (Vinayamoorthi et al., 2015).

Managers of profitable firms would be motivated to ensure impressive EP due to increased publicity and so as to attract new investors (Gloria, 2018). According to the

preceding study, profitable firms performed better in waste management as compared to their counterparts. On the other hand, Nakamura et al. (2001) postulated that the EP of profitable firms was better than their counterparts since they are more likely to pursue environmental objectives and also, they are capable of financing new environmental programs. This is unlike Hibiki et al. (2003); Kathyayini et al. (2012) who concluded that growth rate, debt ratio, capital turnover or sales are not incentives for better environmental performance.

Some selected studies however revealed no relationship between firm profitability and environmental outcomes. For instance, no significant difference was found in the level of environmental disclosures between highly profitable companies and those with lower profitability levels (Ahmad et al., 2003; Cho et al., 2010; Monteiro & Aibar-Guzman, 2009; Zeng et al., 2012). According to Vinayagamoorthi et al. (2015) profitability proxies, this study uses perceived return on assets (ROA) and return on sales (ROS).

#### *2.4.3.3 Firm Age*

Firms are known to improve with age since it has been observed that ageing companies have higher levels of equity ratios, profits, productivity, as well as, lower debt ratios (Coad et al., 2013; Coad, 2016). As a company matures, it leads to stable growth through specialization, standardization and coordination aimed at reducing costs and improving quality (Innocent & Okafor, 2018). Similarly, a study done by Mgeni and Nayak (2016) revealed that firm age had a positive correlation with business performance. Results from a study carried out by Cho et al. (2018) also pointed out that the age of a firm positively correlated with environmental issues since older firms are more likely to put in place well-established precedents as well as routines for activities related to CSR. It is also assumed that firms that are able to survive for a long time are able to satisfy stakeholders' financial and environmental obligations.

However, there are some studies that have posited a negative correlation between the age of a firm and its EP. For instance, it was found that there is a negative correlation between the age of a firm and the extent of corporate disclosure (Nandi & Ghosh, 2012). Echoing this viewpoint, Rouf (2011) reported a negative relationship between

voluntary reporting and firm age which was attributed to the fact that young firms had better reporting quality than old firms in order to compete with older firms for survival.

#### *2.4.3.4 Firm Ownership*

Firm ownership can be in the form of local, foreign or government ownership. The measurement of foreign ownership is as the ratio owned by overseas shares to the total number of shares (Nakamura et al., 2001). Various developing countries' governments, in most cases, promote inward foreign investments in order to stimulate technology-related "spillovers" from foreign firms to domestic entities. Earlier research conducted by various scholars in the developing countries highlighted that the liberalization of foreign direct investment could boost the relocation of cleaner technology and environmental management systems from the origin country to the host country (Scaringelli, 2014). Similarly, Cole et al. (2008) carried out a study in Ghana which revealed that while foreign ownership may help facilitate technological access, the decision makers' ability within the company to make efficacious use of that technology was strongly predicated on foreign experience and/or training. In this context, Lizal and Earnhart (2005) suggested that ownership structure only has an indirect impact on EP through its influence on financial performance.

Foreign companies were reported to be the best performers in EP by Wang and Jin (2002) in the sense that they had the lowest pollution discharge intensities which could be attributed to their high level of sensitivity to environmental pollution matters. A study by Ghazali (2010) also suggested that there is a positive linkage between overseas ownership and the performance of a company in that companies with foreign shareholders tend to disclose more information in their annual reports. This, in turn, attracts more investors, thereby boosting the performance of the firm both in environmental and financial matters. Further, the fact that a firm is controlled by a foreign company can also affect the level of its environmental information disclosure due to environmental culture and the situation in the foreign country (Monteiro & Aibar-Guzman, 2009)

Other studies came up with different conclusions on the subject of foreign ownership and how it influences local firms' environmental outcomes. For instance, Myriam and Scaringelli (2014) conjectured foreign ownership in local firms did not have any impact on emission levels in water and air, and as a consequence, environmental quality. Similarly, it was observed that companies who had foreign ownership did not have a positive correlation with efforts related to climate change mitigation. This is attributed to the fact that foreign shareholders might not be familiar with local environmental culture, as postulated by Amran et al. (2012). Also, another study by Da Silva and Aibar-Guzman (2009) revealed that no statistically important difference was found between disclosure of environmental levels between companies with foreign ownership and their domestically owned counterparts. Firm ownership was measured as either locally or foreign owned.

#### *2.4.3.5 Sustainability Department*

Most of the above studies have looked at firm size, profitability and the age of a company as the main attributes of a firm which have a palpable influence on EP. However, there is another unique and emerging attribute of the firm called sustainability department, which this study found to be very essential in environmental issues facing an organization. From the analysis, sustainability department is an important attribute of a firm which is perceived to positively drive the EP of a company. Here, this department is entrusted with the responsibility of increasing the sustainability of a firm in order to safeguard its long-term prospects. More specifically, this is done by conserving and restoring ecosystems, safeguarding communities, and helping ensure competitive profits.

A number of extant researches have utilized an environmental committee for a sustainability department where it can be argued that the EP of companies that include an environmental committee (in the board) is significantly more proactive than their counterparts who are not associated with any such committee (Dixon-fowler et al., 2017). Meanwhile, studies have also revealed that companies with such committees tend to be more ecologically transparent, thus augmenting its EP level. The board environmental committee not only provides the company with vital environmental constituencies, but also keeps a vigil on decision making related to environmental issues, thus impacting a company's EP (Dixon-fowler et al., 2017).

Further, it is articulated that an environmental committee systematically plans, implements and reviews sustainability policies and activities. Additionally, it enhances employees' awareness on their jobs' environmental aspects, which encourages them to strive hard to lower negative impacts (Liao et al., 2015). There is little literature available on sustainability department since the majority of prior authors lacked the awareness of such an attribute. However, a study by Orazalin (2019) evaluated the effect of sustainability committees on not only social performance, but also on CEP. According to the findings, the inclusion of a sustainability committee helps augment the efficacy of CSR strategies, which, in turn, paves the way for better CEP and social performance. Firms with a sustainability department were assigned Yes=1, otherwise=0.

#### *2.4.3.6 Export Market*

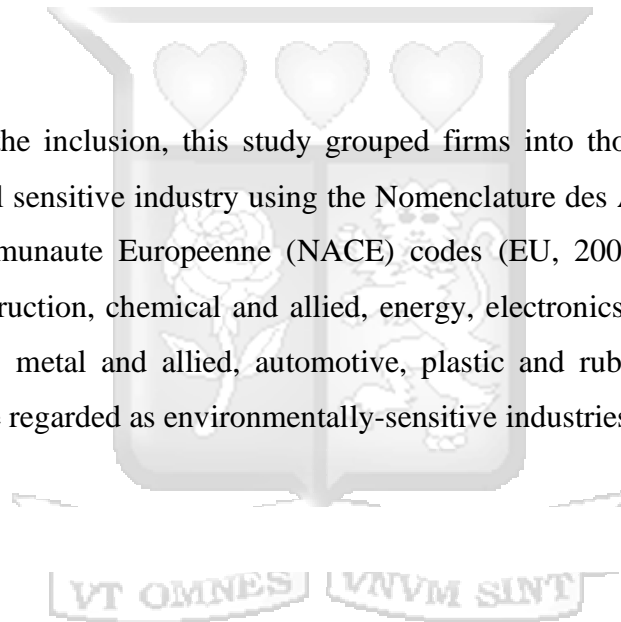
Hibiki et al. (2003) opined that consumers in developed economies are more aware of firm's environmental responsibilities and may consider suppliers who are environmental conscious. In the views of Nakamura et al. (2001), foreign consumers may be at a disadvantage in close monitoring of a firm's environmental practices. Consequently, a firm that is more export oriented can greatly accrue (in terms of sales) on visible steps aimed at environmental protection such as rectification with ISO 14001 and UNGC. As a result, foreign markets can influence the adoption of environmental management practices that lead to better environmental performance.

In developed countries, high-quality standards are as a result of modern production technologies. For local firms to adopt environmental management practices, their export must be subjected to the foreign high-quality standards. This is an argument supported by Andonova (2003) who concluded that exporting firms are faster in adopting clean technologies than non-exporting ones. However, the latter study did not find evidence for exporting as a contributor to local firms undertaking audits or certifying with ISO 14001. In this study, if a firm exported its product or services, it was assigned Yes=1 or otherwise=0.

#### 2.4.3.7 *Environmental Sensitive Industry*

According to Hibiki et al. (2003), firms in pharmaceutical industry, precision machine industry, metal industry and transportation machinery have a less probability of acquiring ISO 14001 certification. However, Videras and Alberini (2000) hold that firms that are more polluting to the environment tend to adopt environmental management practices due to pressure from the regulators and environmental groups. In stark contrast, Harvathova (2016) as well as Henriques and Sadorsky (2006) concluded that consumers facing firms-service based- are more likely to adopt with voluntary environmental management practices due to high publicity. All in all, a firm's industrial profile or sector is likely to affect its impact on the environment and thus the perceived need to attend to its environmental impact.

To untangle the inclusion, this study grouped firms into those that are within the environmental sensitive industry using the Nomenclature des Activites Economiques dans la Communaute Europeenne (NACE) codes (EU, 2005). Firms in building, mining, construction, chemical and allied, energy, electronics and electrical, leather and footwear, metal and allied, automotive, plastic and rubber, timber wood and furniture were regarded as environmentally-sensitive industries.



## CHAPTER THREE: RESEARCH METHODOLOGY

### 3.1 Introduction

The objectives of this study were to determine the drivers of CEP In firms. Specifically, the research focused on stakeholders' pressure, gender diversity at the Board and Management level as the voluntary environmental management systems for firms in Kenya. To achieve these objectives, there was need to select research methodology which guided the conduct of the study. Chapter three provides details on the manner in which this study was executed. To start with, a brief overview of the underlying research philosophy is elucidated. This is followed by research design, population-related information, data collection instrument, sampling design, procedure of gathering data, data analysis and presentation which included the analytical techniques that were used to test the hypotheses and lastly, a section on ethical considerations are presented.

### 3.2 Research Philosophy

In social sciences, research philosophies, can be classified as: positivism (scientific) and phenomenology (interpretivism) which may be viewed in two major perspectives, quantitative and qualitative approaches (Cooper & Schindler, 2014). This study adopted a positivist research philosophy. Positivist philosophy postulates that knowledge is premised on tangible facts and that no abstractions or subjective status of individuals is considered. Positivism thus, derives a quantitative perspective, which states that there is an objective reality that can be expressed numerically, with explanatory and predictive power (Cooper & Schindler, 2014; Furrer et al., 2008).

The study chose positivism to enable evidence gathering on the basis of reasons as well as facts gathered by direct observations. Its measurements were undertaken empirically using a combination of statistical analysis and quantitative methods to not only enable generalization, but also to statistically elucidate the relationship between cause and effects (Saunders et al., 2016). Put succinctly, positivism enabled hypotheses testing using quantitative techniques. Positivism posits that there is only one truth about how things work in the social world and that reality is objective.

Therefore, it is important to base the research on objective rather than subjective methods. Positivism aims at finding causal relationships and explaining any irregularities by using fundamental laws. The positivist aims at generalizing the outcome of the study by using ample sample and quantitative methods. It is also noteworthy that the researcher is independent of the entire process throughout the study, which enhances the objectivity of the results. From the positivist perspective, systems and human behaviour in organizations can be categorized as well as scientifically measured to understand what is transpiring within the organization (Hatch & Cunliffe, 2006).

There is a debate on how well positivism is suited to exploring the complexity and variability of the socio-behavioural phenomena (Hasan, 2016). Further, its attendant reductionist posture and focus on objective reality does not give room to empathic appreciation of social phenomena from a person's perspective. There are concerns that research that strictly adopts the scientific model may lead to lack of inclusion of the richness and complexity of social environments (Aliyu et al., 2014). Also, the positivist approach is considered inadequate as far as understanding how people live and experience the world, how they adjust with it, how they aspire to change it, among others (Antonesa et al., 2006; Walsh & Ryan, 2015).

Complete objectivity is therefore not fully achievable; suggesting that subjectivity should be accepted as part of human nature. Even then, a common observation is that both positivists and interpretivists aim at understanding their world. While some parts of that world may be better studied and understood objectively, others will necessarily call for a more subjective approach (Weber, 2004). This is the case for this research where the subject of corporate environmental performance has been assumed to be an objective study and hence based on positivism. Positivism aids our understanding of the CEP in firms in an objective and value-free manner, which could be assumed to be only one half of the social world. The remaining half focusses on understanding and interpreting human actions. For cases where positivism proves insufficient owing to a lack of basic reasons for action, a potential consideration could be the adoption of both positivism and interpretivism, hence a mixed-method approach.

### **3.3 Research Design**

Quantitative data was used to describe the relationship existing between organizational external and internal pressures, gender diversity in Board and TMT, adoption of VEMS and CEP. The study used descriptive approach to understand the insight and ideas about the problem. Descriptive approach was considered appropriate because it explains the characteristics of population by selecting unbiased sample. Furthermore, it is flexible enough to offer new ways for considering various facets of a problem under investigation (Kothari, 2018). Questionnaires were used to collect quantitative data (Creswell, 2009). The descriptive design helped in answering the research objectives and testing of hypotheses. Concerning this study, the above descriptive research design was used to gather, summarize, present and interpret data in order to unravel the relationship between dependent variables and independent variables.

Similar to scientific studies, the research approach in the current study was guided by the aim of the study, which was to investigate environmental management among firms in Kenya. The main objective of the study was to establish the drivers of CEP in firms, and this was attained through the use of survey (questionnaire) approach involving large sample to gather the required data (cross-sectional). The measurable and quantifiable data adopted the use of scales. The study also came up with testable hypotheses and deductive reasoning was utilised verify the truth or otherwise of these stated hypotheses. The study thus offers detailed explanation which helps to increase our understanding of the research aim being investigated.

The study aimed at achieving valid reality knowledge about how laws and regulations help explain patterns of social behaviour by social actors (firms) which relates to environmental management. This is important in in coming up with strategies on enhancing environmental management and consequently, promoting environmental sustainability. The current study therefore aligns itself at the extreme end of the objectivity philosophy in studying environmental management among organizations as this is a modern social and management research (Holden & Lynch, 2004)

The fact that the study was using a survey method for data collection, there is risk that there will arise social desirability bias. Social desirability bias occurs when the respondents provide answers that differ from their actual attitudes, values, or behaviours. That is, subjects changing their answers for impression management (to look better to others), self-deception (to feel good about themselves), or identity definition (Larson, 2019). This study reduced this bias by maintaining subject anonymity, providing confidentiality assurances as well as framing of the survey questions to neutralize answers that appear socially acceptable.

### **3.4 Target Population**

The population of this study entails firms operating in Kenya. The criteria used for selecting firms are the geographical and sectorial diversity of firms which includes manufacturing and non-manufacturing sectors. Kenyan companies are categorized into 18 sectors, among which 12 belong to processing and value addition, whereas the remaining two provide essential services for enhancing the formal industry. Notably, majority of the firms are distributed in 8 counties in Kenya including Nairobi, Nakuru, Kiambu, Machakos, Mombasa, Nyeri, Kisumu and Eldoret. For the purposes of this study, firms in Nairobi, Kiambu and Machakos were mapped (Otiso, 2005). To determine the population of the registered companies in Kenya, efforts were focused on the registrar of companies who provided data for over 17 million registered companies in Kenya. The challenge with this data was that one could not tell which of the firms were in operation and hence include them as the population of this study.

Due to the above limitation, the study considered the second option in term of defining the population of the study. This called for the engagement of both the Kenya Association of Manufacturers (KAM) and the Kenya National Chamber of Commerce and Industry (KNCCI) who provided the data on where their members are located. There was a deliberate reason not to use the members of KAM and KNCCI as the population due to self-selection bias as membership to both bodies is based on paid membership. The location of their members was used as a proxy of where one would find operating companies in Kenya. These efforts confirmed that 80% of their members were located in the three geographical areas: Nairobi, Kiambu and Machakos. Nairobi metropolitan area had the widest coverage and was split into

five regions (Industry area, Mombasa road, Westland area, Central Business Area and Ngong Road and its environs). The actual streets in the 7 earmarked areas were mapped and using random sampling a total of 110 streets were selected and the total companies located in those streets formed sample of which this study is based on.

The choice of the population was informed by the heterogeneity of the firms and a departure from earlier studies that mainly centred on natural resource intensive companies. A census of the firms in the selected areas was undertaken to evaluate the CEP and its linkages to organizational external and internal pressures; gender diversity in board and management and the efficacy of the VEMS on waste management. The target respondents included senior management with the following titles: Chief Executive Officer, Managing Director, Executive Director Corporate Services, Corporate Social Responsibility Manager, Sustainability Manager and Environment, Health and Safety Manager, who were assumed to have a responsibility on firm's environmental outcomes.

#### ***3.4.1 Sampling Design***

This denotes the process of choosing several objects and individuals from a given population in such a manner that the chosen elements represent the overall traits observed in the entire group. A sample frame refers to a list of population items that are made accessible at the time of study (Kothari, 2018). In this study, all companies in the areas chosen collectively constituted the sample frame. It is also noteworthy that this study employed a systematic random sampling in order to obtain a representative sample from the total population of the companies.

Systematic random sampling is preferred because it is simple, convenient, unbiased and helps in random selection. Mugenda (2008) indicated that a sample size comprising of nearly 40 per cent of the population is usually sufficient to pave the way for reliable analysis of data. Furthermore, it facilitates testing to identify major differences between estimates. The sample for this study was drawn from the companies located in 110 streets that had been identified through the mapping using the KAM and KNCCI databases. The total sample consisted of 1560 companies.

### **3.5 Data Collection Instrument**

Neuman (2014) highlighted several techniques for quantitative data collection: survey, experiment, and nonreactive (secondary analysis, content analysis, as well as existing statistics). Survey research proceeds deductively and begins with conceptualization of variables before operationalizing each variable as at least one survey question. The current study entails a cross-sectional field surveys where the data on the variables was collected simultaneously using a structured questionnaire. Earlier studies on CEP have used survey questionnaire approach (Aragón-Correa et al., 2007; Clemence, 2006; Molina-Azorín et al., 2009; Montabon et al., 2007; Sroufe, 2003; Yu & Ramanathan, 2016). Additionally, there exists limited publicly available environmental data by Kenyan firms, which in turn ensures that the survey questionnaire is the most appropriate method of data collection (Fernández-Vine et al., 2010).

### ***3.5.1 Pilot Testing***

This study entailed carrying out a pilot test for examining the relevance of the questions as well as the respondents' interpretation. A pilot survey is a preliminary testing of various aspects in the proposed research methodology, including the hypothesis, questionnaire, sample design and research methods. On the other hand, pilot testing enables detection of problems in the instrumentation of the research. In this pilot survey, the questionnaire was administered to the randomly selected firms, with each representing a distinct sector. Comments from the respondents of the pilot tests were used in order to improve the quality of the questionnaire. The target respondent for the piloting included EHS manager, Corporate Communication manager, Manager environmental affairs, Manager environmental and regulation affairs, etc. Several reminders were sent to prompt responses from individuals who arguably would possess the most comprehensive and accurate knowledge about the questions in the survey.

Based on the results of the pilot study, it was ascertained that the respondents were able to understand the questionnaire items, the terms used, the sequence of questions and the flow of statements. The pilot was instrumental to help in the adjustment of the format of the questionnaire including the font, layout and the length of the same (i.e. the time taken to complete the questionnaire). From the pilot study only minimal refinement was required and minor changes were made on some of the questions

which were refined to ensure that concepts meant the same for the respondents to ensure uniformity of the data collected.

### **3.5.2 Validity of Research Instrument**

A research instrument's validity denotes the degree to which it is able to aptly represent the intended underpinning construct of the same (Bhattacharjee, 2012). Validity's empirical assessment measures the efficacy with which a measure is related to at least one external criterion, premised on the basis of empirical observations. Equally, its absence implies the misalignment between the concepts used for assessing the social phenomenon and the on-ground reality in the world inhabited by the researcher (Neuman, 2014). Four kinds of measurements constitute validity: content validity, face validity, construct validity, and criterion validity. Since the existing study involves more than one indicator for one construct, it renders the construct validity relevant. This study uses two types of construct validity: convergent and discriminant.

### **3.5.3 Convergent Validity and Discriminant Validity**

Convergent validity denotes the affinity with which a particular measure converges into the underlying construct. It is possible to establish convergent validity by comparing one indicator's observed values (of a single construct) with other indicators belonging to the same construct as well as by demonstrating high validity between these indicators' values. On the other hand, discriminant validity denotes the extent to which a particular measure is not distinguished from other constructs which are not supposed to be measured by it. It is possible to establish discriminant validity by providing that one constructor's indicators are not similar to or whose correlation with other constructs is low. Exploratory factor analysis is the most common method (statistical) for demonstrating both types of construct validity.

### **3.5.4 Reliability of Research Instrument**

A research instrument's reliability denotes the extent to which a construct's measure remains dependable or consistent. This establishment is made via a credible line of data collection and enquiry. Put differently, same results could be achieved by using

the same pattern of data collection within a similar setting. In order to measure reliability, Tavakol and Dennick (2011) proposed the use of Cronbach's alpha that was designed by Lee Cronbach in the year 1951. The following formula is used to calculate Cronbach's alpha:

$$\alpha = \frac{K}{K-1} \left( 1 - \frac{\sum_{i=1}^K \sigma^2 Y_i}{\sigma^2 X} \right) \quad (1)$$

K denotes the number of measure items,

$\sigma^2 X$  signifies the observed total score's variance

$\sigma^2 Y_i$  denotes the observed variance for item i

**Table 3.1** Cronbach's Alpha

Cronbach's alpha	Internal consistency
$\alpha \geq 0.9$	Excellent
$0.9 > \alpha \geq 0.8$	Good
$0.8 > \alpha \geq 0.7$	Acceptable
$0.7 > \alpha \geq 0.6$	Questionable
$0.6 > \alpha \geq 0.5$	Poor
$0.5 > \alpha$	Unacceptable

Reliability was measured by reliability co-efficient (Cronbach alpha). According to Makgosa (2006), a value of below 0.5 indicates the variables' unreliability, which is why it is unfeasible for deducing the findings. As per Field (2005), Cronbach alpha of 0.8 was appropriate for cognitive tests, including intelligence tests. However, a Cronbach alpha of 0.7 is feasible for ability tests. Since the existing study would aim to determine the linkage between organizations' internal and external pressures, gender diversity in Board and management and CEP, the test would be premised on the basis of ability. For this reason, a Cronbach alpha of 0.7 is deemed suitable for all constructs. Table 3.3 reveals the alpha values were higher than the above mentioned cut-off point (Tatoglu et al., 2019).

**Table 3.2** *Cronbach's Alpha Test*

<b>Variable</b>	<b>Number of Items</b>	<b>Cronbach's Alpha Coefficient</b>
Voluntary Environmental Systems	8	0.7580
Energy Efficiency	10	0.8952
Waste management	7	0.8591
Resource Management	8	0.8536
Institution Pressure	21	0.9134
Perceived Financial Performance	7	0.9288

### **3.6 Data Collection Procedure**

Ten research field enumerators who were selected on the basis of their knowledge on environmental sustainability matters were deployed to distribute and administer questionnaires to the target sample. Before they could carry out the exercise, the field enumerators were first trained for two days on the objective of the research as well as the protocol and procedure of data collection. In addition to the ten enumerators, a supervisor who also doubled up as the data entry clerk was appointed and trained on data entry on SPSS module. Each enumerator was allocated a street and every day they went to the companies with the questionnaire as well as the letter from Strathmore University Business School with the authorization to collect data. There was a question dropping point based at the Nairobi Central Business District (CBD) area where enumerators would drop all the completed questionnaires for collection and later to be used for data keying.

### **3.7 Data Analysis and Presentation**

For this study, the quantitative data generated was coded as well as keyed into Statistical Packages for Social Sciences (SPSS Version 25.0). Stata 14 was used to conduct data analysis. Responses that had common themes were combined into cogent categories. On the other hand, descriptive statistics were used for drawing relative/absolute percentages (mean and standard deviation, and frequencies). Most of the variables for this study were in the form of a dummy variable. The drivers of

the CEP were measured on a Likert scale ranging from 1- meaning ‘to no extent’ and 4 meaning ‘to a large extent’. The idea of the Likert scale was to measure the extent to which presence of a certain characteristic in the firm. To make the measure dummy, to all non-presence of the characteristic, denoted by ‘not at all’ were labelled 0 while, ‘to a small extent’, ‘to moderate extent’ and ‘to higher extent’ were labelled 1, hence making the variables to be dummy variables. The study also made use of probit analysis for examining the magnitude and extent of correlations between the variables as well as for evaluating the hypothesized linkages. The research hypotheses were tested at 95% level of confidence in order to provide for drawing conclusions. Pairwise correlation was computed to show the nature and strength of the relationship.

### **3.7.1 General Model Specification**

Considering that most of the dependent variables of this study are a dichotomous dependent variable, logit and probit models will be more appropriate when attempting to model the relationships. Linear regression models will not be appropriate as the linearity assumptions are not valid in this case. The straight line which is associated with the linear regression is replaced by an S-shaped curve that: 1) respects the boundaries of the dependent variable; 2) allows for different rates of change at the low and high ends of the scale; and 3) (assuming proper specification of independent variables) does away with heteroskedasticity. Whereas the linear regression predictor is represented below:

$$\hat{Y}=\alpha+\beta x \quad (2)$$

The logit and probit predictors can be written as:

$$\hat{Y}=f(\alpha+\beta x) \quad (3)$$

Logit and probit differ in how they define  $f(x)$ . The logit model uses something called the cumulative distribution function of the logistic distribution. The probit model uses something called the cumulative distribution function of the standard normal distribution to define  $f(x)$ . Both functions will take any number and rescale it to fall between 0 and 1. Hence, whatever  $\alpha + \beta x$  equals, it can be transformed by the

function to yield a predicted probability. Both logit and probit methods will yield similar (though not identical) inferences. Logit –coefficients can be interpreted in terms of odds ratios. On the other hand, the probit models can be generalized to account for non-constant error variances in more advanced econometric settings and hence the preference to use the probit model for this study. The choice of the probit model is also based on the fact that probit model assumes normal distribution of the predictors.

### ***3.7.2 Objective 1 Models: Stakeholder Pressure & Corporate Environmental Performance***

#### ***3.7.2.1 Dependent Variables***

Under objective one, two dependent variables were considered, that is energy efficiency and resources management. Energy efficiency is the method of reducing energy consumption through usage of less energy to attain the same level of output. Basically, the same amount and quality of output is maintained at reduced energy usage with the subsequent reduction of utility bills. It has been accredited for its effectiveness in reducing greenhouse gas emissions especially in the manufacturing sector. Energy efficiency is attained through implementation of more efficient processes as well as more advanced technology which initially calls for sound investment by the firms with the anticipation of reduced energy consumption in the near future. Firms which have embraced and implemented energy efficiency technologies in their premises have been miles ahead of their counterparts in matters of environmental performance.

Resource management entails planning in such a way that the right resources are assigned to the right tasks. Firms embrace the aspect of resource management to ensure that they are using materials wisely and effectively. Due to constrained budgets coupled by increased pressure on firms to deliver innovative and technologically advanced products and services, resources must be fully utilized and focused on the highest priorities. It is paramount for organizations to balance resources' capacity and demand. Defining of resources and their availability as well as planning of resource demand allows for effective use of limited resources. With standardization of processes and procedures, there is minimal wastage of resources and reduced environmental externalities

Energy efficiency was measured through two proxies; the perceived extent to which a firm had realized energy savings due to a decrease in energy use intensity and self-evaluation of the energy efficiency levels. Lastly, resource management was measured using three proxies, the extent to which a firm uses non-toxic, biodegradable and recyclable materials. In each of these categories, values were assigned values 1,2,3,4 to which the respondents would relate their attitude: ‘not at all’, ‘to a small extent’, ‘to a moderate extent’ and ‘to a great extent’.

#### 3.7.2.2 *Independent variable*

Various stakeholders– regulators, major customers, competitors, employees, and communities– are key in influencing the firm’s decisions to adopt proactive environmental management practices (Henriques & Sadorsky, 2006). The influence of government regulators and major customers as a proxy for coercive pressure, competitors as a proxy for the mimetic pressure and employees, and the community as a proxy for normative pressure were assessed on our respondents by asking key questions. The responses were coded into dummy variables (Yes=1 and 0=otherwise).

#### 3.7.2.3 *Control variables*

A *firm’s size* is an important element, which in many cases determines the levels of performance of a company. It can be evaluated as the total equity value, total value of sales, total firm value, and earnings before interests and taxes (EBIT) (Gabaix et al., 2013) or as the total number of employees (Monteiro & Aibar-Guzman, 2009). In matters of sustainability including environmental management large firms are better equipped in terms of experience and expertise, strong research and development, more finances, marketing capabilities and social impact which enable them to pursue sustainable performance (Tatoglu et al., 2019; Wang et al., 2020). Again, from literature, more insight into performance level of firms reveal that large firms face greater pressure on environmental matters than their smaller counterparts since they come under greater scrutiny and incline more to environmental disclosure (Akbas 2014; Innocent & Gloria, 2018). However, studies by Bowen (2002) as well as Chariri et al. (2017) observed that a firm’s size did not have any impact on EP.

*Profitability* is a measurement of excess revenues which are over and above the cost incurred. Profitability can be measured in relation to sales or investment. It is mainly measured using ratios like the return on assets (ROA), return on capital employed (ROCE), return on equity (ROE), return on sales (ROS), gross profit margin, and net profit margin, among others (Vinayagamoorthi et al., 2015). Firms that are more profitable are more open to divulging environmental information as compared to their less profitable counterparts that tend to be more secretive (Ahmad, 2012; Amran et al., 2012; Vinayagamoorthi et al., 2015). The authors discovered that profitability variables of the firm (ROA, ROE, ROCE and ROS) had a significant impact on environmental outcomes since firms which make profits divert some portion of that profit to matters of environmental management (Innocent & Gloria, 2018). However, Monteiro and Aibar-Guzman (2009) found no significant difference in the level of environmental disclosures between highly profitable companies and those with lower profitability levels.

Well established firms (*firm age*) have higher levels of equity ratios, profits, productivity, as well as, lower debt ratios (Coad et al., 2013; Coad, 2016). Results from a study carried out by Cho et al. (2018) also pointed out that the age of a firm positively correlates with environmental issues since older firms are more likely to put in place well-established precedents as well as routines for activities related to CSR. However, there are some studies that have posited a negative correlation between the age of a firm and its EP. For instance, it was found that there is a negative correlation between the age of a firm and the extent of corporate disclosure (Nandi & Ghosh, 2013). Echoing this viewpoint, Rouf (2011) reported a negative relationship between voluntary reporting and firm age which was attributed to the fact that young firms had better reporting quality than old firms in order to compete with older firms for survival.

*Firm ownership* can be local ownership, foreign ownership or government ownership. The measurement of foreign ownership is as the ratio owned by overseas shares to the total number of shares (Nakamura et al., 2001). Earlier research conducted by various scholars in the developing countries highlighted that the liberalization of foreign direct investment could boost the relocation of cleaner technology and environmental management systems from the origin country to the

host country (Myriam & Scaringelli, 2014). Cole et al. (2008) carried out a study in Ghana which revealed that while foreign ownership may help facilitate technological access, the decision maker's ability within the company to make efficacious use of that technology was strongly predicated on foreign experience. Further, the fact that a firm is controlled by a foreign company can also affect the level of its environmental information disclosure due to environmental culture and the situation in the foreign country (Monteiro & Aibar-Guzman, 2009). However, Myriam and Scaringelli (2014); Amran et al., (2012) conjectured foreign ownership in local firms did not have any impact on emission levels in water and air, and as a consequence, environmental quality.

Another unique and emerging attribute influencing a firm's environmental management practices is the presence environmental committee. Lately, it has been argued that firms with an environmental committee (in the board) are more proactive in conserving and restoring ecosystems, safeguarding communities, and helping ensure competitive profits than their counterparts not associated with any such organizational structure (Dixon-fowler et al., 2017; Grace & Ndubuisi, 2018; Liao et al., 2015). Consequently, there is need for substitution of the environmental committee with the presence of a *sustainability department* that is tasked with systematic planning, implementing and reviewing of sustainability policies and activities. According to the findings, the inclusion of a sustainability committee helps augment the efficacy of corporate social responsibility strategies, which, in turn, paves the way for better CEP and social performance.

Firm's *industrial sector* (environmental sensitive industries) is a determinant of resultant environmental management practices. According to Horváthová, (2012) companies that pollute the environment more are likely to adopt voluntary environmental management systems to deter regulators pressure. Similarly, manufacturing firms have been sensitive to environmental issues for longer than service firms (Crum et al. 2011), therefore it is expected that the industry might partially explain the performance.

#### 3.7.2.4 *Model Specification*

$$\text{Pr(Energyefficiency)} = \beta_0 + \beta_1[\text{regulatorinit}] + \beta_2[\text{majorcustomers}] + \beta_3[\text{competitors}] + \beta_4[\text{employpres}] + \beta_5[\text{community}] + \beta_6[\text{kenyan}] + \beta_7[\text{rosgrowth}] + \beta_8[\text{lnemployees}] + \beta_9[\text{Infirimage}] + \beta_{10}[\text{export}] + \beta_{11}[\text{sustaindept}] + \beta_{12}[\text{foreign}] + \beta_{13}[\text{roagrowth}] + \beta_{14}[\text{ESI}] + \varepsilon_i$$

$$\text{Pr(Resource management)} = \beta_0 + \beta_1[\text{regulatorinit}] + \beta_2[\text{majorcustomers}] + \beta_3[\text{competitors}] + \beta_4[\text{employpres}] + \beta_5[\text{community}] + \beta_6[\text{kenyan}] + \beta_7[\text{rosgrowth}] + \beta_8[\text{lnemployees}] + \beta_9[\text{Infirimage}] + \beta_{10}[\text{export}] + \beta_{11}[\text{sustaindept}] + \beta_{12}[\text{foreign}] + \beta_{13}[\text{roagrowth}] + \beta_{14}[\text{ESI}] + \varepsilon_i$$

### 3.7.3 Objective 2 Models: Gender diversity in board and top management influences environmental management systems

#### 3.7.3.1 Dependent Variable

The dependent variable was the firm's ISO 14001 certification status. Sampled firms gave a response of either 'Yes' or 'No' in the questionnaire to indicate whether they were certified or not. This was measured as a dummy variable and coded 1 if the organization was ISO 14001 certified or 0 if otherwise.

#### 3.7.3.2 Independent Variables

The independent variables measured the presence of women in the top management teams and on the board of directors in each firm. Gender diversity was measured using two proxies: a dummy variable (1 for at least one woman on the board (TMT), 0 if otherwise) and a share of women measured as the ratio of women on the board or in the top management team compared to the total number of board members or top management. They were applied to both the TMT and the board separately for hypothesis 1(a) and 1(b), while for hypothesis (1c). The study used the combination of both the women in TMT and the board.

The second independent variable measured was the average years of experience of the women on the board and the TMT, separately and in combination. Respondents gave the approximate average years of experience of the women on the board and the TMT.

#### 3.7.3.3 Control Variables

Despite the assertion that corporate environmental performance is influenced by the gender composition of a firm's corporate leadership, it is undoubtedly also a function of other aspects of a firm's performance. A failure to include such aspects in the model means that observations based only on the relationship between gender diversity and corporate environmental performance may be causal. To deter such a possibility, the study included the following control variables in the model.

A firm's *size* may affect its ability to address its impact on the environment. Large firms are highly likely to adopt ISO 14001 due to widespread publicity, low margins of abatement costs, and the availability of the resources required to implement environmental management system (EMS) unlike small organizations (Harvathova, 2016; Hibiki et al., 2003; Takahashi et al., 2001). Ozusaglam et al. (2017) presented a U-shaped description between firm size and EMS adoption; therefore, we control for firm size, which is measured in the analysis using the number of employees in a firm.

A firm's *industrial profile* or sector is likely to affect its impact on the environment and thus the perceived need to attend to its environmental impact. It has been reported that companies that pollute the environment more adopt ISO 14001 to reduce the pressure they are under from regulations (Harvathova, 2016; Videras & Alberini, 2000). Harvathova (2016) posited that service-based industries were highly likely to adopt ISO 14001, which is contrary to Henriques and Sadorsky (2006), who reported that such industries were less likely to become certified. To reduce the number of explanatory variables, the study opted to classify firms into environmentally sensitive industries (ESI) using NACE codes.<sup>2</sup>

Foreign-owned firms were observed to have a higher tendency to be ISO 14001 certified compared to locally owned businesses (Curkovic, 2005; Hibiki et al., 2003), which could be a result of being exposed to the best international business practices. The ownership structure is controlled for differentiating Kenyan-owned firms and those owned by foreigners.

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<sup>2</sup> To account for industrial activity, sample firms were classified into environmentally sensitive industries as per the NACE (Nomenclature des Activites Economiques dans la Communaute Europeenne) codes. We included the following categories: building (D), mining (C), and construction (F); chemical and allied (D), energy (E); electronics and electrical (D); leather and footwear (D); metal and allied (D); automotive (G); plastic and rubber (D); timber wood and furniture (D) (EU, 2005).

Singh et al. (2014) argued that well-established firms are reluctant to adopt ISO 14001 certification due to the use of mature technologies and capital equipment. On the contrary, Mohana et al. (2018) deduced that older firms had higher chances of adopting EMS because they had a better resource base and technical expertise. The firm's *age* is controlled for by aggregating the number of years a firm has been in operation.

Firms *exporting* their products to the international market are more likely to adopt ISO 14001 (Hibiki et al., 2003). International markets consider suppliers who are certified with environmental management systems because consumers in developed economies are more aware of the environmental responsibilities of companies. The study, therefore, needed to control for firms that are exporters.

A firm's *profitability* is likely to affect its capacity to address its impact on the environment. A firm's financial performance, proxied as total revenue, has been reported to encourage ISO adoption (McGuire, 2010). However, studies by Hibiki et al. (2003) and Horváthová (2016) did not establish a link between the firm's profitability and ISO 14001 adoption. Firm's profitability is controlled for through a perceived return on sales (ROS) and return on assets (ROA) measures that were equivalent to 1 if it was reported to be much better or 0 if otherwise.

There was also control for one *attribute of firms' structure* that might influence their propensity to pursue environmentally friendly policies and practices. Firms with an environmental committee had a high environmental performance in the Newsweek Green Rankings (Kimball et al., 2012). To account for such an influence, the sustainability department was considered by assuming a dummy variable (1 if there was a sustainability department within the firm and 0 if otherwise).

*Different stakeholders* – the media, shareholders, clients/consumers, employees, regulators, communities, and other interested parties– are considered instrumental in influencing the firm's decisions to adopt proactive environmental practices (Henriques & Sadorsky, 2006). There was need for the control for the influence of government regulators, customers/clients, the media, and the community on the

respondents by asking key questions. The responses were coded into dummy variables (Yes=1 and 0=otherwise).

#### 3.7.3.4 Model Specification

The study tested the following Probit model in the regression analysis.

$$Pr(ISO\ 14001\ certification=1) = \alpha_0 + \alpha_1[Gender\ diversity] + \alpha_2[Firm\ age] + \alpha_3[Firm\ size] + \alpha_4[Export] + \alpha_5[ESI] + \alpha_6[Ownership] + \alpha_7[Sustainability\ department] + \alpha_8[Perceived\ ROS] + \alpha_9[Perceived\ ROA] + \alpha_{10}[Regulators] + \alpha_{11}[Customers] + \alpha_{12}[Community] + \alpha_{13}[Media] + \varepsilon$$

or

$$Pr(ISO14001_i=1 | X_i) = \Phi(x_i'\beta),$$

The distribution function of the standard normal random variable is represented as  $\Phi$ . The gender diversity of the board and top management team may be influenced by firm attributes such as the number of women in the TMT and Board as well as the size of the management team and the board. Therefore, a regression model that compares gender diversity proxies and firm characteristics may result in endogenous problems caused by inconsistent estimates and biased outcomes (Greene, 2012).

Previous studies have focused on the problem of endogeneity related to organizations' decision to incorporate women on the board and in top management roles (Gul et al., 2011). Campbell and Mínguez-Vera (2007) used panel data methodology to control for unobserved heterogeneity to show that gender diversity impacted firm performance and that it was not the case that better-performing organizations hired women. The foregoing study used a causality test. Srinidhi et al. (2011) used the two-stage procedure model to control for endogeneity. These studies have recommended the use of an instrumental variable approach to address endogeneity.

Therefore, in this study, the Probit model, which has continuous endogenous regressors, was applied to address this potential problem. This study used the size of the TMT and Board (the number of top managers and board) as an exogenous

instrument to predict the number of women managers and directors, respectively. The size of TMTs and boards was expected to have a positive effect on the likelihood of female directors and managers being appointed. Better-governed firms are also likely to encourage women's appointment as directors (Adams & Ferreira, 2009). To address this, our study used average years of experience on TMTs to predict women's participation.

### ***3.7.4 Objective 3 Mode: Voluntary Environmental Management Systems & Corporate Environmental Performance***

#### ***3.7.4.1 Dependent Variable***

Waste management was a dummy equal one if a firm adopts all three practices: waste recycling, wastewater recycling and use of environmentally safe methods to dispose of waste. Nguyen and Hens (2015) advocated the use of waste as an operational measure of EP. This study uses waste management as a measure of the effectiveness of ISO 14001 and UNGC because both standards help in the reduction of their generation (Arimura et al., 2008). Waste management is a numeric and non-financial measure of EP indicators that provides vital information on environmental impact (Henri & Journeault, 2008; Jaaffar et al., 2018). Waste management varies differently in organizations and exerts different kinds of pressure on the facility. Organizations reduce the generation of waste even in the absence of regulations and on their initiative, firms depend upon flexible policies, including performance standards. In doing so, facilities can accrue benefits of reduced product input costs.

Waste recycling, wastewater recycling and use of environmentally safe disposal methods were measured through a Likert scale. On a scale of 4-points, respondents were asked the extent to which; "The firm undertakes waste recycling", "The firm undertakes wastewater recycling" and "Disposes of physical waste through environmentally safe methods". In each of the three proxies, a binary variable was used. In each case, a firm took the value of one if it did not undertake waste recycling/wastewater recycling and used safe methods to dispose of their waste (2= to a small extent, 3= to a moderate extent, 4= to a great extent).

#### ***3.7.4.2 Independent Variable***

UNGC and ISO 14001 are the independent variables that assume a dummy variable in each case, as proposed by Flankova, et al. (2018). If the firm has adopted UNGC = 1 and/or ISO 14001= 1. Otherwise ISO 14001=0 and/or UNGC = 0.

#### 3.7.4.3 *Control Variable*

Control for stakeholders' pressure from regulators, major competitors, community, media and possible influences from the management through a reward based on environmental performance were considered. This is based on a study on the performance of EMS in Western Australian companies by Annandale et al. (2004) that identified stakeholder pressure from the clients, senior management, public and regulators as influencing environmental performance as control variables. Further, Arimula et al. (2008) observed that primary consumers desire of a company to have a green image and firm produce export destinations to sway environmental performance. Regulatory pressure both legislative and political will were found to influence organization environmental performance hence qualify to be considered as control variable to this study.

Multinational enterprises have a higher likelihood of adopting voluntary environmental programs to reduce risks on their foreignness (Nakamura et al., 2001). Firms exporting to foreign markets are likely to have more pressure to adopt international certification programs (Christmann & Taylor, 2001). Arimula et al. (2008) controlled for various firm characteristics the number of employees as a proxy for firm size, age of the facility and listing with the stocks exchange. Harvathova (2016) and Hibiki et al. (2003) controlled firm financial performance and reported there wasn't any relationship, unlike McGuire (2010) who found out that firms with higher total revenue were likely to adopt ISO 1400. As a result, the study controlled for various firm characteristics among them firm size (proxied as the number of employees), ownership, market, industrial sector and organizational strategies such as sustainability department and environmental policy.

There are equivocal findings on the effect of EMS on environmental waste in the extant literature. For example, Arimura et al. (2016) argued for the difference in regulatory settings among different firms and the concerns of endogeneity in the studies that may be unobservable yet which positively related to environmental

performance. In addition, there are different measures of environmental performance that range from specific indicators such as air pollution to multiple natural resources measures.

#### 3.7.4.4 Model Specification

Assuming no endogeneity of ISO 14001 and UNGC, this study makes use of a bivariate probit model for gauging their effects on CEP. The data set lacks any traditional instrument and newly proposed ones did not fulfil all the validity requirements. Hence, the approach relied on what was undertaken by Altonji et al. (2005) on account of lacking instruments. The method makes the assumption that the degree of selecting unobservables is equal to that of choosing the observables. Either of these components of CEP may or may not have influences on EMS (ISO 14001 and UNGC) adoption. For this reason, the degree of correlation between unobservable and observable elements of performance remains unchanged. Generally, it is expected that the level of the organization's waste management practices will improve, provided that the net benefit from waste management initiatives can be demonstrated. Waste management improvement is predicated on several factors, including the adoption of EMS (ISO 14001 and UNGC).

The resulting model takes the form;

$$WASTEMGT_i = 1 [WASTEMGT^*_i \geq 0] \quad (4)$$

$$WASTEMGT^*_i = \delta EMS_i + X_{1i} \beta_1 + \varepsilon_{1i} \quad (5)$$

Where (2) is an indicator function.  $WASTEMNGT^*_i$  is a latent variable that represents the net value got from practicing waste management.  $EMS_i$  assumes the value of one of the facilities was certified with UNGC or/and ISO 14001. It is a dummy variable with  $\delta$  coefficient. Further,  $X_{1i}$  and  $\beta_1$  represent the vector of the study control variables, corresponding coefficients, respectively and the idiosyncratic error term, respectively. In this case, if an organization undertook waste management, then  $WASTEMGT = 1$

Assuming that EMS is exogenous and are independent of the error term and making the assumption that this error term is distributed normally. These assumptions result in a probit model:

$$\text{WASTEMGT}_i = 1;$$

$$\Pr(\text{WASTEMGT}_i=1|\text{EMS}_i, X_{1i}) = \Phi(\delta \text{EMS}_i + x'_{1i}\beta_1), \quad (6)$$

The standard normal random variable's distribution function is represented as  $\Phi$ . Average partial effect in the interest of concern in EMS.

$$E_{X1}[\Pr(\text{WASTEMGT}= 1|\text{EMS}=1, x_1) - \Pr(\text{WASTEMGT}= 1| \text{EMS}=0, x_1)], \quad (7)$$

Alternatively, it is approximated as:

$$1 / N \sum_{i=1}^N [\Phi(\delta + x'_{1i}\beta_1) - \Phi(x'_{1i}\beta_1)], \quad (8)$$

### 3.7.4.5 Endogeneity of Environmental Management Systems (EMS) (ISO 14001 and UNGC)

If it is assumed that EMS (ISO 14001 and UNGC) is an endogenous variable, a bivariate probit model will allow us to identify the potential endogeneity of EMS.

$$\text{EMS}_i = \begin{cases} 1 & \text{if } \text{EMS}^*_i \geq 0 \\ 0 & \text{otherwise} \end{cases} \quad (9)$$

$$\text{EMS}^*_i = X'_{2i}\beta_2 + \varepsilon_{2i} \quad (10)$$

Where  $i = \text{ISO 14001, UNGC}$

On the other hand,  $\text{EMS}^*$ - latent variable- represents the positive influences of having an EMS.  $X'_2$  is a group of control variables, whereas  $\varepsilon$  denotes the error term. In this model, it is assumed that the normal distribution of  $\varepsilon$  is bivariate.

In the absence of credible instruments, the bivariate probit model is estimated with  $X_1=X_2=X$ . This underpins the need to make an assumption that replicates the results via the standard approach of instrumental variable. Altonji et al. (2005) put forth the idea of using the selection of observables for studying the underlying bias due to unobservables and demonstrated the manner in which such information is incorporated during estimation. The adoption of EMS takes the following model:

Let WASTEMGT\* be determined by

$$\text{WASTEMGT}^* = \delta \text{EMS} + w' \gamma \quad (11)$$

$w$  is the vector with both observed and unobserved variables that determines WASTEMNGT\*,  $w = (w_1, K, w_k)'$  and  $\gamma$  is the coefficient vector.  $\gamma = (\gamma_1, K, \gamma_k)'$ . Further define dummy variable  $s_j$  indicating if  $w_j$  is observed. In both equations, observed and unobserved variables are given by

$$x' \gamma_x = \sum_{j=1}^k s_j w_j, \quad v = \sum_{j=i}^k (1 - s_j) w_j \gamma_j, \quad (12)$$

In the above equation,  $x$  denotes the observable portion of  $w$  and coefficients are contained in  $\gamma_x$  (a subvector of  $\gamma$ ). On the other hand, the error component of  $v$  denotes unobserved variables in  $w$ . Considering  $x' \gamma_x$  and  $v$ , the equation is rewritten as

$$\text{WASTEMNGT}^* = \delta \text{EMS} + x' \gamma_x + v, \quad (13)$$

As per the equation, it is very improbable that there is no correlation between the observed control variables  $x$  and  $v$ .

Equation (x) can be rewritten as

$$\text{WASTEMNGT}^* = \delta \text{EMS} + x' \beta_1 + \varepsilon_1, \quad (14)$$

Here,  $\beta_1$  is defined to certify  $\text{COV}(\varepsilon_1, X) = 0$  (i.e.,  $x$  is exogenous in equation). For this reason,  $\beta_1$  accounts for the direct impact of  $x$  on WASTEMNGT in addition to the interaction between  $x$  and  $v$ . Let us now assume that the linear projection of EMS on  $x'\beta$  and  $\varepsilon_1$  is expressed as follows:

$$\text{Proj}(\text{EMS}^* | X'\beta_1, \varepsilon_1) = \phi_0 + \phi_{X'\beta_1} X'\beta_1 + \phi_{\varepsilon_1} \varepsilon_1 \quad (15)$$

$\phi_{X'\beta_1} + \phi_{\varepsilon_1}$  shows the influence of the observable (and unobservable) element of the WASTEMNGT results on adopting EMS, respectively. It represents a selection on observables (selection on unobservable). The term  $\phi_\varepsilon$  represents the two assumptions made by Altonji et al. (2005) on the extreme conditions concerning the degree of selection made. The conditions provide the identifying information related to the upper and lower bound estimates of EMS effects  $\delta$ . According to the first extreme condition, the portion of WASTEMNGT pertaining to unobservables does not have any correlation with EMS\*, which is  $\phi_{\varepsilon_1} = 0$ . If this condition holds, the conclusion is that the EMS is not endogenous.

The second extreme condition is when the relationship of a section of WASTEMNGT pertaining to the observables is the same with EMS\* as that which pertains to the unobservables, i.e.,  $\phi_{\varepsilon_1} = \phi_{X'\beta_1}$ . Considering data collection restrictions, the elements of  $X$  can be interpreted to be a random subset of several variables in  $w$ . It agrees to the assumption that each  $S_j$  in the equation independently and identically distributes binary random variable equal to one, with the probability for all  $j$  being the same. When  $w$  becomes bigger, the second condition becomes approximately true for all projections of  $s_j$ . The two extreme conditions limit the selection degree on unobservables between zero and an upper value equal to the selection degree on the observables.

It is notable that each extreme condition denotes varied identifying assumptions for the  $\delta$  coefficient. For example, the first one corresponds to  $\rho = 0$  in the bivariate probit condition elucidated as  $x_1 = x_2 = x$ . To obtain the upper-value approximation of

□□□□□ coefficient, a univariate probit model for performance is estimated. Meanwhile, the second condition can be shown to be approximately equal to the following upper limit for  $\rho$ :

$$\rho = \frac{COV(x\beta_1, x\beta_2)}{VAR(X\beta_1)}$$

(16)

Extending the log estimate over  $(\delta, \beta_1, \beta_2)$  subject to the aforementioned limits on  $\rho$  yields a lower limit approximation of the  $\delta$  coefficient.

#### 3.7.4.6 Robustness check: Ordered Probit

In order to carry out the robustness check, the work follows the proposal made by Alauddin and Tisdell (2006) by developing the model below that is built around a latent regression.

$$y^* = x\beta + \alpha \tag{17}$$

In the illustrated case,  $y^*$  is unobserved, whereas the observed is as follows:

$$Y = 0 \text{ if } y^* \leq 0$$

$$Y = 1 \text{ if } 0 < y^* \leq \mu_1$$

$$Y = 2 \text{ if } \mu_1 < y^* \leq \mu_2$$

$$Y = j \text{ if } y^* \geq \mu_{j-1} \tag{18}$$

The values;  $\mu_1$ ,  $\mu_2$ , and  $\mu_{j-1}$  signify threshold parameters that are unknown and are further estimated with  $\beta$  value. Consequently, the approximations of various observed values of  $y$  may be interpreted as the intercepts, as in (i) through the threshold parameters.

In the survey questionnaire, responses typically entail the expression of one's feelings and are mutually dependent on measurable and unobservable factors designated as  $\varepsilon$ . The questionnaire ordinal scale is from one, meaning 'not at all' to four, 'implying to a great extent' all that represent varied feelings. The responses are assumed to represent scores that are closely related to the attitude on the given question. With the assumption that  $\varepsilon$  is normally distributed with an approximated zero value and a variance of one, the following is derived:

$$\begin{aligned}
\text{Prob}(Y = 0|X) &= \phi(-x'\beta) \\
\text{Prob}(Y = 1|X) &= \phi(\mu_1 - x'\beta) - \phi(-x'\beta) \\
\text{Prob}(Y = 2|X) &= \phi(\mu_2 - x'\beta) - \phi(\mu_1 - x'\beta) \\
\text{Prob}(Y = j|X) &= 1 - \phi(\mu_{j-1} - x'\beta)
\end{aligned} \tag{19}$$

In order to have all the probabilities as positive, the following must be obtained:

$$0 < \mu_1 < \mu_2 < \dots < \mu_{j-1} \tag{20}$$

As the conventional practice, the probabilities of the independent variables of  $x$  should not be equivalent with those of the coefficient on the marginal effects. As an illustration of the scenario with five categories, the model will incorporate three unknown threshold parameters

Considering a case with five categories, the model will have three unknown thresholds, with the first probability normalized to zero, and others as:

$$\begin{aligned}
\text{Prob}(Y = 0|X) &= \phi(-x'\beta) \\
\text{Prob}(Y = 1|X) &= \phi(\mu_1 - x'\beta) - \phi(-x'\beta) \\
\text{Prob}(Y = 2|X) &= \phi(\mu_2 - x'\beta) - \phi(\mu_1 - x'\beta) \\
\text{Prob}(Y = 3|X) &= \phi(\mu_3 - x'\beta) - \phi(\mu_2 - x'\beta) \\
\text{Prob}(Y = 4|X) &= 1
\end{aligned} \tag{21}$$

Subsequently, the matching marginal effects of the changes in independent variables for the above probabilities are as follows:

$$\begin{aligned}
\frac{\partial \text{Prob}(y = 0|X)}{\partial X} &= \phi(-x'\beta)\beta \\
\frac{\partial \text{Prob}(y = 1|X)}{\partial X} &= [\phi(-X'\beta) - \phi(\mu_1 - x'\beta)]\beta \\
\frac{\partial \text{Prob}(y = 2|X)}{\partial X} &= \phi(\mu_1 - x'\beta) - \phi(\mu_2 - x'\beta)]\beta \\
\frac{\partial \text{Prob}(y = 3|X)}{\partial X} &= [\phi(\mu_2 - x'\beta) - \phi(\mu_3 - x'\beta)]\beta \\
\frac{\partial \text{Prob}(y = 4|X)}{\partial X} &= \phi(\mu_3 - x'\beta)
\end{aligned} \tag{22}$$

The analytical model described above was used to check the robustness of the findings.

### **3.8 Ethical Considerations**

According to Bryman and Bell (2007), principles pertaining to ethical consideration such as consent/anonymity of respondents, safety of participants, data confidentiality, and research affiliations are an important facet of research practice. Correspondingly, Saunders et al (2016) suggested that it would be unethical to subject the research participants/respondents to any disadvantage such as embarrassment or harm. The current study ensured that the respondents acted willingly without any coercion, whereas their anonymity was maintained. The data provided by the respondents was treated with confidentiality and solely used for the purpose of analysis.

In order to assure respondents of confidentiality and anonymity, a letter of introduction outlining that the data collected was utilized for academic purposes was submitted to enable the maximization of responses. Additionally, clearance was sought from the University Research Ethics Committee prior to undertaking the actual data collection. In addition, the research was approved by the Kenya National Commission for Science, Technology, and Innovation (NACOSTI), thus implying that the research practice does not pose any risk to the research participants. The approvals relating to data collection and ethical matters are included as part of the appendices of this thesis.

## **CHAPTER FOUR: PRESENTATION OF RESEARCH FINDINGS**

### **4.1 Introduction**

In addition to presenting data, this chapter discusses the findings from the data analysis and explains the manner in which the latter contributes to attaining the objectives of the study. The chapter presents and discusses the data relating to the nature and extent of environmental practices, EP, and firm-specific characteristics with respect to environmental sustainability. In turn, this is followed by multiple regression analyses, which tests the hypotheses outlined in chapter two relating to the three objectives of this study. The remainder of this chapter is structured in the following manner: section 4.2 elaborates on the demographics of the respondents and the firms. This is followed by section 4.3 on the nature and extent of environmental practices. Section 4.4 reports the data analysis and findings.

### **4.2 Respondents and Firm Background**

For this survey, the target sample was 1560 companies and data was collected from 1180 firms accounting for 76% response rate. Eventually, after data cleaning and elimination of micro enterprises - companies with less than 10 employees as per OECD definition, a total of 852 responses were used for this study. The distribution of the firms in the sample according to industry type was as illustrated in Table 4.1:

**Table 2.1** *Distribution of the firms*

<b>Type of industry</b>	<b>Number of firms</b>	<b>Percentage</b>
Building, Mining & Construction	68	8.0
Chemicals & Allied	27	3.2
Energy, Electrical & Electronics	40	4.7
Food & Beverages	93	10.9
Leather & Footwear	4	0.5
Metal & Allied	54	6.3
Automotive	67	7.9
Paper & Board	39	4.6
Pharmaceutical; Health Services & Medic	57	6.7
Plastic & Paper	46	5.4
Business Services – Consultancy	49	5.8
Financial Services	25	2.9
Textiles & Apparel	23	2.7
Timber, Wood & Furniture	36	4.2
Agriculture - Farming, Fishing & Forest	55	6.5
Hospitality	9	1.1
Manufacturing	84	9.9
Service	53	6.2
Others	23	2.7
<b>Total</b>	<b>852</b>	<b>100</b>

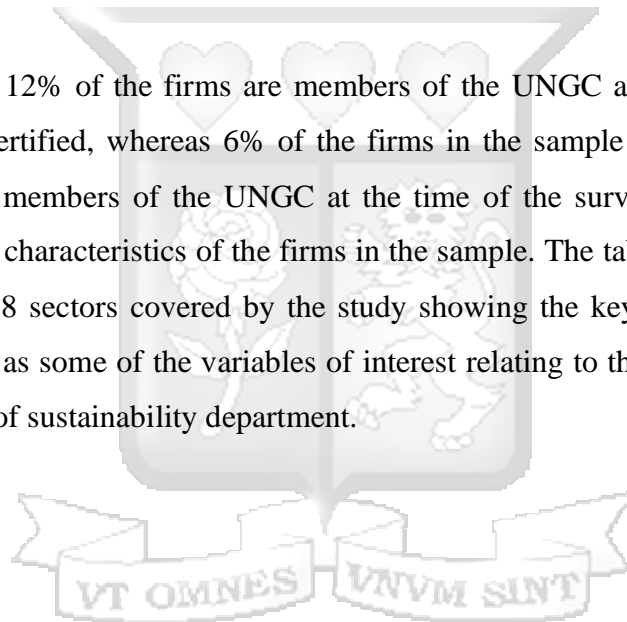
Approximately 72% and 12% of the sample firms were Kenyan fully owned and foreign fully owned, respectively, whereas of these, 17% were co-owned (Kenyan and foreign owned). The average age of the firms is 21 (Std. Dev. = 20) years, indicating that the firms in the sample may have acquired valuable knowledge and experience in business over a period of many years. The average number of employees for the firms in the sample is 247 (Std. Dev. = 712). In addition, 76% of the firms were found to have at least one woman in the TMT (with 13% having up to three women), and 51% of firms had at least one woman in the board of directors. However, while the average number of years of experience for the individuals in the TMT was 12 years (Std. Dev = 7.8), the average years of experience for women in TMT was 7 years.

Moreover, 36% export their products and 59%, 58% and 53% of the sample firms' perceived return on sales, investments and assets, respectively to be better or much better in the last financial year. On the other hand, 54% of firms stated that their

profit margins in the same financial year were better and much better; similarly, 58%, 53% and 58% indicated that they achieved a better and much better sale growth, market share growth and profit growth, respectively.

With regard to stakeholder pressure, 86% of the firms posited that regulators tried to initiate environmental activities, while 85% were required by major customers to adopt environmentally responsible business. Additionally, 63% of the firms cited that community environmental groups were likely to file lawsuits against environmental misconduct, while 31% pointed out that their activities were closely monitored by the media. Lastly, 90% of the firms reported that employees expected the firm to mitigate environmental impact.

Furthermore, 12% of the firms are members of the UNGC and 26% of firms were ISO 14001 certified, whereas 6% of the firms in the sample were both ISO 14001 certified and members of the UNGC at the time of the survey. Table 4.2 presents some notable characteristics of the firms in the sample. The table provides details for each of the 18 sectors covered by the study showing the key characteristics of the firms as well as some of the variables of interest relating to the gender diversity and the presence of sustainability department.



**Table 4.2** *Some Characteristics of Firms Surveyed*

<b>Industry</b>	<b>Mean and Standard Deviation</b>	<b>Age</b>	<b>Number of employees</b>	<b>Number of women in TMT</b>	<b>Average experience of individuals in TMT</b>	<b>Average experience of women in TMT</b>	<b>Number of women in Board</b>	<b>Average experience of individuals in Board</b>	<b>Average experience of women in Board</b>	<b>Average experience of individual sustainability department</b>	<b>Average experience of women in sustainability department</b>
Building, Mining & Construction (68 firms)	Mean	15	116	2	10	6	0	3	12	2	1
	Std. Dev.	14	265	2	5	4	1	6	10	4	2
Chemicals & Allied (27 firms)	Mean	27	389	2	15	7	1	8	15	2	1
	Std. Dev.	25	1387	2	8	6	1	9	10	4	2
Energy, Electrical & Electronics (40 firms)	Mean	23	316	2	12	7	1	8	13	2	2
	Std. Dev.	28	1153	2	6	6	1	9	9	5	4
Food & Beverages (40 firms)	Mean	23	316	2	12	7	1	8	13	2	2
	Std. Dev.	28	1153	2	6	6	1	9	9	5	4
Leather and Footwear (4)	Mean	8	66	1	12	7	1	4	8	3	3
	Std. Dev.	8	90	1	8	7	1	5	6	5	5
Metal and Allied (54 firms)	Mean	22	125	2	14	6	1	3	15	4	2
	Std. Dev.	16	195	2	9	6	1	6	11	7	4
Automotive (67 firms)	Mean	23	116	2	14	8	0	5	14	2	2
	Std. Dev.	20	274	2	10	8	1	10	11	4	3
Paper and Board (39 firms)	Mean	25	169	5	12	6	1	5	18	3	2
	Std. Dev.	19	235	16	8	5	1	8	15	6	5
Pharmaceutical; Health Services & Medical Equipment (57 firms)	Mean	25	560	3	13	9	1	8	15	3	2
	Std. Dev.	24	1329	4	8	7	1	9	10	5	3
Plastic & Rubber (46 firms)	Mean	22	190	1	13	6	0	3	14	2	1
	Std. Dev.	17	282	1	10	8	1	10	10	4	3
Business Services - Consultancy	Mean	14	133	2	10	6	1	4	9	2	1

Industry	Mean and Standard Deviation	Age	Number of employees	Number of women in TMT	Average experience of individuals in TMT	Average experience of women in TMT	Number of women in Board	Average experience of individuals in Board	Average experience of women in Board	Average experience of individual sustainability department	Average experience of women in sustainability department
(49 firms)	Std. Dev.	18	239	2	6	5	1	6	9	4	3
	Mean	43	945	4	15	13	3	12	16	4	3
Financial Services (25 firms)	Std. Dev.	34	1709	2	9	7	2	10	10	9	8
Textiles & Apparel (23 firms)	Mean	15	189	2	9	6	1	7	11	3	2
	Std. Dev.	14	349	2	3	5	1	9	9	4	3
Timber, Wood & Furniture (36 firms)	Mean	22	110	2	12	7	1	8	13	4	3
	Std. Dev.	18	202	1	8	6	1	11	9	9	8
Agriculture - Farming, Fishing & Forestry (55 firms)	Mean	17	227	2	11	9	1	6	9	4	2
	Std. Dev.	14	542	2	7	10	1	11	8	6	6
	Mean	36	420	3	16	11	2	9	16	5	4
Hospitality (9 firms)	Std. Dev.	39	619	3	5	8	4	11	10	8	5
	Mean	20	124	2	12	6	1	5	13	2	1
Manufacturing (84 firms)	Std. Dev.	18	187	3	8	7	1	9	11	4	3
	Mean	22	253	3	14	8	1	9	16	5	2
Service (53 firms)	Std. Dev.	20	628	4	9	8	3	10	12	11	4
	Mean	15	133	2	11	7	1	7	12	2	2
Others (23 firms)	Std. Dev.	12	301	2	6	7	1	10	10	4	4
	Mean	21	247	2	12	7	1	6	13	3	2
Total (852 firms)	Std. Dev.	20	712	4	8	7	1	9	11	6	4

### **4.3 Nature and Extent of Environmental Management and the descriptive statistics**

This section extrapolates on the findings of data analysis about the nature as well as extent of CEP among the 852 firms. Environmental management practices of these firms were measured with respect to energy efficiency, waste management, resource management and the adoption and implementation of the VEMS.

#### **4.3.1 Energy efficiency**

Energy efficiency generally refers to using less energy to produce the same amount of output. Thus, it is possible to express energy efficiency as a ratio of a process's useful output to its energy input in the same process. Since this term is innately generic, there exists no definitive measure for the same (Patterson, 1996). Therefore, this study had to depend on a series of indicators to quantify changes in energy efficiency. At the same time, companies could carry out myriad activities in order to make improvements in their energy efficiency.

Although close to 60% of firms are aware of the Energy Management regulations of 2012, only about 45% have been successful in implementing energy efficiency policies (both to a moderate and greater extent). In addition, only approximately 38% of firms train their staff on energy management, and only about 27% have invested in renewable energy options (both to a moderate and greater extent), respectively. Similarly, only 30% have undertaken an energy audit over the past three years and of these, about 35% have implemented less than 40% of the audit recommendations. For this study, the respondents' perception on their firms' performance on energy efficiency practices and indicators were used as shown on table 4.3.

**Table 4.3** *Energy efficiency practices among firms in Kenya*

		Not at all	To a small extent	To a moderate extent	To a greater extent	Total
<b>The company is aware of the Energy Management regulations of 2012</b>	Number of firms	167	185	241	259	<b>852</b>
	Per cent	19.60	21.71	28.29	30.40	<b>100.00</b>
<b>The firm has been successful in implementing energy efficiency polices.</b>	Number of firms	243	227	223	159	<b>852</b>
	Per cent	28.52	26.64	26.17	18.66	<b>100.00</b>
<b>The firm has sufficient technical expertise to identify, develop and implement energy efficiency</b>	Number of firms	278	177	213	184	<b>852</b>
	Per cent	32.63	20.77	25.00	21.6	<b>100.00</b>
<b>The firm conducts energy trainings, campaigns and awareness programs for all staff on energy management?</b>	Number of firms	347	180	208	117	<b>852</b>
	Per cent	40.73	21.13	24.41	13.73	<b>100.00</b>
<b>Energy savings have resulted in a decrease in energy use intensity</b>	Number of firms	246	214	246	146	<b>852</b>
	Per cent	28.87	25.12	28.87	17.14	<b>100.00</b>
<b>The firm invests in renewable energy options (solar, wind, briquettes, etc.)</b>	Number of firms	476	142	134	100	<b>852</b>
	Per cent	55.87	16.67	15.73	11.74	<b>100.00</b>

### ***4.3.2 Waste and Pollution Management***

With regard to the management of waste and pollution, a determination of whether firms dispose waste in environmentally safe ways and to what the extent firms recycle their solid and water waste was sought as reported on table 4.4. About 20% of the firms surveyed did not inform customers at all of the environmental impacts of the products marketed while about 33% do not recycle their waste at all. About 10% of the firms surveyed do not control the release of any substance that may cause environmental damage from their production process, and approximately 22% did not orient their investment decisions towards reducing waste and pollution.



**Table 4.4** *Waste and Pollution Management practices among firms in Kenya*

		<b>Not at all</b>	<b>To a small extent</b>	<b>To a moderate extent</b>	<b>To a greater extent</b>	<b>Total</b>
<b>The firm is committed to better waste and pollution management</b>	Number of firms	25	92	233	502	852
	Per cent	2.93	10.8	27.35	58.92	100.00
<b>The firm informs customers of the environmental impacts of the products marketed</b>	Number of firms	166	159	262	265	852
	Per cent	19.48	18.66	30.75	31.1	100.00
<b>The firm undertakes waste recycling</b>	Number of firms	277	150	203	222	852
	Per cent	32.51	17.61	23.83	26.06	100.00
<b>The firm reduces and controls the use of inputs that cause environmental damage</b>	Number of firms	95	141	297	319	852
	Per cent	11.15	16.55	34.86	37.44	100.00
<b>The firm reduces and controls the release of any substance that may cause environmental damage</b>	Number of firms	89	122	268	373	852
	Per cent	10.45	14.32	31.46	43.78	100.00
<b>Disposes physical waste through environmentally safe methods</b>	Number of firms	44	91	223	494	852
	Per cent	5.16	10.68	26.17	57.98	100.00
<b>Investment (R&amp;D, processes, products, machinery, etc.) decisions are also based on reduced waste and pollution</b>	Number of firms	184	145	265	258	<b>852</b>
	Per cent	21.6	17.02	31.1	30.28	<b>100.00</b>

### ***4.3.3 Resource Management***

This survey explored the use and management of water and other materials among Kenya firms. These included the use of non-toxic, biodegradable and recyclable raw materials, and efficient resource utilization. From the data, 66% of the firms were using recyclable materials, 63% were using biodegradable materials, 74% were active in water efficiency management and 50% of the firms considered waste water recycling as a way of managing materials within the firm. A summary of the same is included in the Table 4.5 below:



**Table 4.5** *Resource management practices among firms in Kenya*

			Not at all	To a small extent	To a moderate extent	To a greater extent	Total
<b>The firm uses recyclable materials</b>	Number of firms		286	179	181	206	<b>852</b>
	Per cent		33.57	21.01	21.24	24.18	<b>100.00</b>
<b>The firm uses biodegradable materials</b>	Number of firms		313	154	193	192	<b>852</b>
	Per cent		36.74	18.08	22.65	22.54	<b>100.00</b>
<b>The firm has a collection policy on its sold materials for products that are discarded by customers</b>	Number of firms		336	149	169	198	<b>852</b>
	Per cent		39.44	17.49	19.84	23.24	<b>100.00</b>
<b>The firm substitutes toxic raw materials with non-toxic materials</b>	Number of firms		284	153	171	244	<b>852</b>
	Per cent		33.33	17.96	20.07	28.64	<b>100.00</b>
<b>The firm has realized an improvement in water efficiency</b>	Number of firms		220	173	222	237	<b>852</b>
	Per cent		25.82	20.31	26.06	27.82	<b>100.00</b>
<b>The firm undertakes wastewater recycling</b>	Number of firms		430	142	143	137	<b>852</b>
	Per cent		50.47	16.67	16.78	16.08	<b>100.00</b>

#### 4.3.4 Environmental Management Systems

The survey also sought to determine firms' implementation of environmental management initiatives by documenting their certification with VEMS such as ISO 14001 and UNGC as well as the extent of firms' compliance to the same. Table 4.6 includes a summary of the findings.

**Table 4.6** *Environmental Management Systems among firms in Kenya*

		No	Yes	Total
<b>The firm has an environmental policy statement outlining commitment to environmental stewardship</b>	Number of firms	343	509	<b>852</b>
	Per cent	40.26	59.74	<b>100.00</b>
<b>The firm is ISO 14001 (Environment Management System) certified?</b>	Number of firms	627	225	<b>852</b>
	Per cent	88.0	12.0	<b>100.00</b>
<b>The firm participates in the UNGC Initiative</b>	Number of firms	750	102	<b>852</b>
	Per cent	73.59	26.41	<b>100.00</b>
<b>The firm publishes an annual report that includes environmental impact?</b>	Number of firms	513	339	<b>852</b>
	Per cent	60.21	39.79	<b>100.00</b>
<b>The firm keeps track of the legal requirements for the environmental issues, and ensure that they are adhered to</b>	Number of firms	197	655	<b>852</b>
	Per cent	23.12	76.88	<b>100.00</b>
<b>The firm has had government inspections/audits for compliance with environmental laws and regulations in the past 3 years</b>	Number of firms	263	589	<b>852</b>
	Per cent	30.87	69.13	<b>100.00</b>
<b>Did you experience any revocation of licenses due to non-compliance issues in the last 5 years?</b>	Number of firms	844	8	<b>852</b>
	Per cent	99.06	0.94	<b>100.00</b>
<hr/>				
		No	Yes	Total
<b>Does your firm have a sustainability unit/ environmental management unit?</b>	Number of firms	525	327	<b>852</b>
	Per cent	61.62	38.38	<b>100.00</b>

	Number of years	No	Yes	Total
Has there been any civil action in respect of environmental non-compliance, or has your firm been convicted of breaking any environmental legislation in the last	1 year?	831 Percentage	21 97.54	852 100.00
	3 years?	847 Percentage	5 99.41	852 100
	5 years?	847 Percentage	5 99.41	852 100.00

	Number of fines	Number of firms	Percentage
Number of fines due to non-compliance issues in the last 5 financial years	0	844	99.06
	1	6	0.70
	2	1	0.12
	3	1	0.12
<b>Total</b>		<b>852</b>	<b>100.00</b>

Only 27% of the companies surveyed are ISO 14001 certified, whereas just 40% of all the firms publish an annual report that includes environmental impact. At the same time, about 70% of the firms had government inspections or audits for adhering to environmental laws and regulations over the past three years. Only 39% of the firms were found to have a sustainability or environmental management unit.

#### 4.3.5 Corporate Environmental Performance (CEP) Proxies

To arrive at the overall level of CEP of each firm based on the energy efficiency, resource management and waste management, the variables were converted into dummy variable of 0 or 1 where, 0 meant the firms did not engage with respective variable in the case energy efficiency, resource management and waste management. On the contrary, if a firm was allocated 1, it meant that it was engaging with energy efficiency, resource management and waste management. For a firm to score, 1 it needs to have been placed as having to a small extent, moderate extent or large extent in all the question relating to the variable, otherwise it was considered a 0.

Based on this criterion, 71% of the firms surveyed had been successful in implementing energy efficient policies. The findings also indicated 44% of the firms undertook waste management through three methods – recycling solid waste, wastewater recycling, and safe waste disposal. In regard to resource management, 47% used recyclable, biodegradable, and substituted toxic raw materials with non-toxic materials. Additionally, in regard to the EMS adoption, 26% and 12% of the sampled firms were ISO 14001 and UNGC certified, respectively.

#### **4.3.6 Explanatory Variables**

A proportion of 34% of the sample firms were found to have a sustainability department. Additionally, the share of women in TMT was 29%, while the share of women when it comes to the board of directors was 19%. The average number of employees is 247, while the average age of the companies is 21 years. Moreover, 36% of the firms were found to export their products. With respect to ownership, 72% and 12% of the sample firms were Kenyan fully owned and foreign fully owned, respectively. Furthermore, 59% and 53% of the sample firms perceived return on sales and assets, respectively to be better or much better in the last financial year.

Regarding stakeholder pressure, 86% of the firms posited that regulators made them initiate environmental activities, while 85% were required to adopt environmentally responsible business by major customers. Additionally, 63% of the firms cited that community environmental groups were likely to file lawsuits against environmental misconduct, while 31% reported that their activities were closely monitored by the media. Lastly, 90% of the firms reported that employees expected the firm to engage in environmental management practices.

**Table 4.7 Descriptive Statistics**

Variable Name	Description of Variable	N	Mean	Standard Deviation	Minimum	Maximum
<b>CEP Proxies</b>						
ISO14001	The firm is ISO 14001 certified yes=1	852	0.26		0	1
UNGC	The firm Participant of UN Global Compact Sustainability Initiative yes=1	852	0.12		0	1
Energyeff	The firm has been successful in implementing energy efficient polices dummy=1 if yes zero otherwise	852	0.71		0	1
Wastemgt	The firm undertakes waste management of waste, water recycling, and safe waste disposal dummy=1 if yes zero otherwise	852	0.44		0	1
Resourcemgt	The firm uses recyclable, biodegradable and substitute toxic raw materials with non-toxic materials dummy=1 if yes zero otherwise	852	0.47		0	1
<b>Explanatory Variables</b>						
dwomeninTMT	Yes=1 if the top management had at least one female	852	0.76		0	1
dwomeninBD	Yes=1 if the Board of directors had at least one female	697	0.51		0	1

Variable Name	Description of Variable	N	Mean	Standard Deviation	Minimum	Maximum
Lnwomenexptmt	Average years of experience of women in top management team	852	7.22	6.90	0	50
Lnwomenexpbd	Average years of experience of women in Board of Directors	697	5.67	8.84	0	65
Rosgrowth	Perceived returns on sales = 1 if better or much better in the last financial year.	852	0.59		0	1
Employpres	Employees expect the firm to implement environment management practices, Not at all=0	852	0.90		0	1
Regulatorinit	Regulators try to initiate environmental activities of companies, Not at all =0	852	0.86		0	1
Majorcustomers	Major customers of my firm require it to adopt environmentally responsible business, Not at all=0	852	0.85		0	1
Community	Community environmental groups are likely to file a lawsuit against our firm in the event of an environmental misconduct, Not at all=0	852	0.63		0	1
Competitors	Our strongest competitors take a leading role in environmental responsibility,	852	0.66		0	1

Variable Name	Description of Variable	N	Mean	Standard Deviation	Minimum	Maximum
	Not at all =0					
Kenyan	Kenyan fully owned	852	0.72		0	1
<b>Control Variables</b>						
Employees	Number of Employees	852	247.23	712.49	10	7300
Firmage	Age of the Business in Years	852	21.23	20.47	0.42	123
Export	firm Exports the products	852	0.36		0	1
Sustaindept	The firm has sustainability department yes=1	852	0.34		0	1
Foreign	Foreign fully owned	852	0.12		0	1
Roagrowth	Perceived Return on assets = 1 if better or much better in the last financial year.	852	0.53		0	1
ESI	Environmental sensitive industries	852		0.40		0 1

This table presents descriptive statistics. The sample includes 852 firms in Kenya with top management team out of which 697 firms have a board of directors.

**Table 4.8** *Energy Efficiency and Resource Management Probit Model*

	Model 1 <b>Energy Efficiency</b>		Model 2 <b>Resource Management</b>	
	Coefficient	Marginal Effects	Coefficient	Marginal Effects
regulatorinit	0.38*** (0.148)	0.13** (0.055)	0.21 (0.150)	0.08 (0.058)
majorcustomers	0.70*** (0.156)	0.255*** (0.060)	0.15 (0.154)	0.06 (0.060)
Competitors	0.01 (0.115)	0.004 (0.037)	0.33*** (0.107)	0.13*** (0.041)
Employpres	0.55*** (0.175)	0.20*** (0.067)	0.34* (0.179)	0.13** (0.067)
Community	0.16 (0.106)	0.05 (0.035)	0.30*** (0.099)	0.12*** (0.039)
Kenyan	-0.33** (0.147)	-0.10** (0.042)	-0.09 (0.121)	-0.04 (0.048)
Rosgrowth	0.32** (0.134)	0.11** (0.044)	-0.18 (0.120)	-0.07 (0.048)
lnemployees	0.13*** (0.049)	0.04*** (0.016)	0.08** (0.040)	0.03** (0.016)
Lnfirmage	0.06 (0.053)	0.02 (0.017)	0.01 (0.048)	0.01 (0.109)
Export	0.07 (0.108)	0.02 (0.034)	0.04 (0.097)	0.02 (0.039)
Sustaindept	0.47*** (0.113)	0.14*** (0.032)	0.37*** (0.099)	0.15*** (0.039)
Foreign	-0.30 (0.193)	-0.10 (0.070)	-0.21 (0.173)	-0.08 (0.067)
Roagrowth	-0.17 (0.135)	-0.05 (0.043)	0.06 (0.119)	0.02 (0.047)
ESI	0.29*** (0.103)	0.09*** (0.032)	-0.13 (0.093)	-0.05 (0.037)
Intercept	-1.71*** (0.302)		-1.41*** (0.259)	
No. of Observations	852		852	
Wald $\chi^2(14)$	152.87***		105.30***	

Model 1 presents Probit model of stakeholders' pressure on energy efficiency and Model 2 presents Probit model of stakeholders' pressure on resource management and control variables. Robust standard errors in parenthesis accounts for heteroscedasticity. \*, \*\* and \*\*\* represent significance levels at the 10%, 5% and 1%, respectively.

Table 4.9 represents the correlations of the study variables. The results revealed that energy efficiency and resource management are positively and significantly correlated with stakeholders' pressure from regulators, competitors, major customers, employees, and community groups.



**Table 4.9** *Pairwise Correlations for objective 1*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
1. ISO14001	1																					
2. UNGC	0.21 ***	1																				
3. energyeff	0.19 ***	0.09 ***	1																			
4. wastemgt	0.18 ***	0.51 ***	0.35 ***	1																		
5. Resource mgt	0.15 ***	0.14 ***	0.22 ***	0.46 ***	1																	
6. sharewomenTMT	0.06 *	0.07 **	0.04	0.03	0.06	1																
7. sharewomenbd	0.04	0.09 **	-0.03	-0.04	0.04	0.33 ***	1															
8. regulatorinit	0.13 ***	0.07 **	0.25 ***	0.20 ***	0.16 ***	-0.02	0.01	1														
9. majorcustomers	0.16 ***	0.10 ***	0.31 ***	0.20 ***	0.17 ***	0.05	0.10 ***	0.26 ***	1													
10. competitors	0.13 ***	0.06 *	0.18 ***	0.16 ***	0.21 ***	0.05	0.06	0.28 ***	0.37 ***	1												
11. Community	0.03	0.11 **	0.17 ***	0.27 ***	0.19 ***	0.03	0.04	0.19 ***	0.23 ***	0.25 ***	1											
12.	0.10	0.05	0.28	0.20	0.17	0.02	0.01	0.31	0.43	0.27	0.22	1										



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
employres	***		***	***	***			***	***	***	***											
13. Kenyan	-.10**	-.12**	-.06*	-.07*	-.01	-.02	0.09**	0.02	-.01	0.002	0.00	-.01	1									
14. rosgrowth	0.09***	0.07**	0.12***	0.00	-.01	0.05	0.05	0.05	0.02	0.02	0.05	0.04	-.04	1								
15. lnempl oyees	0.19***	0.29***	0.20***	0.22***	0.14***	-.03	-.02	0.17***	0.06*	0.04	0.06*	0.08**	-.15***	0.14***	1							
16. lnfirmage	0.12***	0.20***	0.14***	0.11***	0.09***	-.06*	-.02	0.11***	0.02	0.04	0.08**	0.06*	0.0	0.10***	0.49***	1						
17. export	0.12***	0.19***	0.13***	0.15***	0.09**	0.02	-.01	0.10***	0.11***	0.08**	0.10***	0.11***	-.12***	0.11***	0.20***	0.15***	1					
18. sustain dept	0.22***	0.21***	0.22***	0.24***	0.20***	0.07*	0.02	0.13***	0.17***	0.15***	0.17***	0.12***	0.0	0.07*	0.20***	0.15***	0.17***	1				
19. foreign	0.01	0.06*	-.02	0.00	-.04	-.02	-.06	-.06*	0.00	-.07*	-.02	-.01	-.58***	-.02	0.01	-.06*	0.05	0.0	0.0	1		
20. roagrowth	0.08**	0.14***	0.07*	0.02	0.02	0.04	0.01	0.02	0.05	-.03	0.05	0.02	-.09***	0.65***	0.14***	0.13***	0.12***	0.0	0.0	0.0	1	
21. ESI	0.03	-.12**	0.08**	0.05	-.06*	-.01	-.01	0.05	-.01	0.01	-.02	0.03	0.0	0.02	-.10**	0.02	-.01	-.03	0.0	0.0	0.0	1

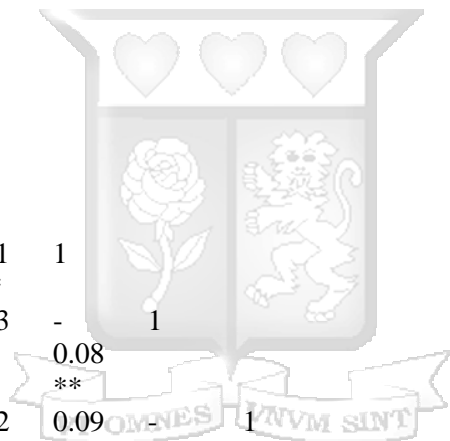
Table 4.9 shows pairwise correlations among dependent as well as independent variables. The sample includes 852 firms in Kenya. \*, \*\* and \*\*\* represent significance levels at the 10%, 5% and 1%, respectively.

Table 4.10 illustrates the correlation analysis. As hypothesized, the adoption of ISO 14001 has a positive correlation with the share of women on the boards of directors, firms that are fully foreign owned, and environmentally sensitive industries. Further, significant and positive correlations exist between the share of women in TMT, that includes the presence of a minimum of one woman, a board of directors with a minimum of one woman on it, the number of employees, firms that are both locally owned and foreign owned, the perceived return on sales being better or much better in the last financial year, the age of the business in years, firms that export products, as well as firms that have a sustainability department. However, it is observed that companies that are fully Kenyan owned are negatively and significantly correlated.



**Table 4.10** *Pairwise Correlation Matrix for objective 2*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
1. ISO14001	1																		
2. sharewomenTMT	0.06*	1																	
3. dwomeninTMT	0.09*	0.72**	1																
4. sharewomenbd	0.04	0.33**	0.26**	1															
5. dwomeninBD	0.08*	0.28**	0.29**	0.85***	1														
6. employees	0.14**	0.01	0.09**	-0.00	0.11***	1													
7. Kenyan	-0.10**	-0.02	-0.05**	0.09**	0.03	-0.08**	1												
8. localforeign	0.11**	0.04	0.08*	-0.06	0.02	0.09**	0.71***	1											
9. foreign	0.01	-0.02	-0.03	-0.06	-0.07*	0.01	-0.58***	-0.16***	1										
10. rosgrowth	0.10**	0.05	0.15**	0.05	0.08**	0.11***	-0.04	0.07*	-0.02	1									
11. ESI	0.03	-0.10**	-0.09**	-0.13***	-0.15***	-0.09**	0.03	-0.05	0.02	0.02	1								



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
12. firmage	0.15**	-0.07*	0.05	-0.01	0.09**	0.38***	-0.04	0.08**	-0.03	0.11***	-0.00	1.00						
13. export	0.12**	0.02	0.09**	-0.01	0.02	0.09***	-0.12***	0.10***	0.05	0.11***	-0.01	0.13*	1.00					
14. sustaindept	0.22**	0.07*	0.10**	0.02	0.06	0.11***	0.00	-0.01	0.01	0.07*	-0.03	0.14***	0.16***	1.00				
15. regulatorinit	0.13**	-0.02	0.04	-0.01	0.03	0.08**	0.02	0.03	-0.06*	0.05	0.05	0.10***	0.10***	0.13***	1.00			
16. majorcustomers	0.16**	0.05	0.07*	0.10***	0.10***	0.06*	-0.01	0.01	0.00	0.02	-0.01	0.03	0.11***	0.17***	0.26***	1.00		
17. Community	0.03	0.03	0.03	0.04	0.06	0.08**	0.00	0.02	-0.02	0.05	-0.02	0.08	0.10***	0.17***	0.19***	0.23***	1.00	
18. media	0.18**	0.04	0.11**	0.02	0.12***	0.26***	-0.06	0.06*	0.01	0.09***	-0.05	0.17***	0.13***	0.29***	0.20***	0.16***	0.24***	1.00

The table shows pairwise correlations among dependent as well as independent variables. The sample includes 852 firms in Kenya with a TMT out of which 697 firms have a board of directors. \*, \*\* and \*\*\* represent significance levels at 10%, 5% and 1%, respectively.

Meanwhile, Table 4.11 presents multivariate analysis, which is the insignificant Wald test for exogeneity that indicates the null hypothesis should be accepted and the conclusion should be reached that there is no correlation between the errors in the ISO 14001 equation in column 2 and the number of women in the TMT in column 1. Further, the Wald test of exogeneity is nonsignificant for the ISO 14001 equation in column 4 as well as the number of women on the equation relating to the board of directors, as shown in column 3. Moreover, an estimation of the IV Probit model regression of ISO 14001 on the share of women in the TMT as well as on the directors' board. The Wald test for exogeneity was also insignificant. Since the data is free from the endogeneity problem, the Probit model is used for analysis.

**Table 4.11** *Instrumental variable (IV) Probit model*

	Column 1 First Stage lnwomenTMT	Column 2 Second Stage ISO14001	Column 3 First Stage lnwomenBD	Column 4 Second Stage ISO14001
lnwomenTMT		0.119 (0.180)		
lnwomenBD				0.173 (0.205)
Lnwomenexptmt	0.314*** (0.014)	- 0.028 (0.090)	0.110*** (0.015)	0.005 (0.059)
Lnemployees	-0.023* (0.013)	0.081* (0.046)	- 0.028* (0.016)	0.080* (0.048)
Lnfirmage	- 0.041*** (0.012)	0.046 (0.053)	- 0.013 (0.017)	0.040 (0.058)
Export	- 0.015 (0.027)	0.103 (0.103)	- 0.052 (0.035)	0.095 (0.111)
Sustaindept	0.067** (0.027)	0.420*** (0.107)	0.008 (0.036)	0.354*** (0.113)
Kenyan	-0.019 (0.040)	- 0.302** (0.128)	0.075 (0.047)	- 0.311** (0.137)
Foreign	0.028 (0.053)	- 0.206 (0.180)	0.001 (0.065)	- 0.186 (0.193)
Rosgrowth	- 0.008 (0.024)	0.152 (0.102)	0.043 (0.034)	0.136 (0.113)
ESI	- 0.083*** (0.025)	0.173* (0.102)	- 0.127*** (0.033)	0.189* (0.112)
Regulatorinit	-0.038 (0.035)	0.357** (0.172)	-0.021 (0.052)	0.389** (0.195)

Majorcustomers	0.026 (0.035)	0.582*** (0.168)	0.096** (0.045)	0.527*** (0.182)
Community	-0.001 (0.027)	-0.196* (0.110)	0.013 (0.037)	-0.228* (0.121)
Media	0.028 (0.030)	0.211* (0.113)	0.006 (0.040)	0.227* (0.123)
lnsizeTMT	0.488*** (0.036)			
lnsizeBD			0.512*** (0.048)	
Intercept	- 0.200*** (0.075)	- 2.077*** (0.278)	- 0.296*** (0.095)	- 2.022*** (0.310)
No. of Observations	852	852	697	697
Wald $\chi^2(14)$		99.97***		74.78***
Wald test of exogeneity		$\chi^2(1):0.06;$ Prob > $\chi^2 =$ 0.8020		$\chi^2(1):0.07;$ Prob > $\chi^2 = 0.7890$

Table 4.11 portrays the findings of the instrumental variable (IV) Probit model with endogenous regressors regression of ISO 14001 in column 2 on the total number of women in the TMT in column 1 and control variables. Further, the table presents an IV Probit model for the subsample of firms that are ISO 14001 certified in column 4 on the total number of women on the directors' board in column 3 and the control variables. Robust standard errors in parentheses account for heteroscedasticity, and \*, \*\*, and \*\*\* represent significance levels at the 10%, 5%, and 1%, respectively.

**Table 4.12 Probit Model for objective 2**

	Model 1 ISO14001		Model 2 ISO14001		Model 3 ISO14001		Model 4 ISO14001		Model 5 ISO14001		Model 6 ISO14001	
	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10	Column 11	Column 12
	Coefficient	Margin Effects	Coefficient	Margin Effects	Coefficient	Margin Effects	Coefficient	Margin Effects	Coefficient	Margin Effects	Coefficient	Margin Effects
sharewomenbd					0.693*	0.222*			0.569	0.182		
					(0.418)	(0.134)			(0.440)	(0.141)		
dwomeninBD							0.887***	0.277**			1.057***	0.327**
							(0.314)	(0.094)			(0.353)	(0.103)
lnwomenexpbd					- 0.092	- 0.030	-	-	- 0.088	- 0.028	-	-
					(0.072)	(0.023)			(0.076)	(0.024)		
							0.317***	0.102**			0.400***	0.128**
							(0.122)	(0.039)			(0.139)	(0.045)
SharewomenTMT	0.491*	0.152*							0.357	0.115		
	(0.279)	(0.086)							(0.327)	(0.105)		
DwomeninTMT			0.365	0.105							- 0.218	- 0.072
			(0.261)	(0.069)							(0.331)	(0.113)
lnwomenexptmt	- 0.045	- 0.014	- 0.109	- 0.034					- 0.009	-0.003	0.145	0.046
	(0.062)	(0.019)	(0.106)	(0.033)					(0.071)	(0.023)	(0.137)	(0.044)
lnemployees	0.102**	0.032*	0.096**	0.030*	0.105**	0.034*	0.088*	0.028*	0.107**	0.034*	0.079*	0.025*
	(0.044)	(0.014)	(0.044)	(0.014)	(0.047)	(0.015)	(0.047)	(0.015)	(0.048)	(0.015)	(0.047)	(0.015)
lnfirmage	0.055	0.017	0.059	0.018	0.059	0.019	0.091	0.029	0.062	0.020	0.087	0.028
	(0.054)	(0.017)	(0.053)	(0.016)	(0.059)	(0.019)	(0.059)	(0.019)	(0.059)	(0.019)	(0.060)	(0.019)
Export	0.106	0.033	0.097	0.030	0.091	0.029	0.093	0.030	0.088	0.028	0.092	0.030
	(0.103)	(0.033)	(0.103)	(0.033)	(0.111)	(0.036)	(0.112)	(0.036)	(0.111)	(0.036)	(0.112)	(0.036)
Sustaindept	0.418***	0.135**	0.416***	0.134**	0.360***	0.118**	0.361***	0.118**	0.352***	0.115**	0.369***	0.121**
	(0.105)	(0.035)	(0.106)	(0.035)	(0.113)	(0.038)	(0.114)	(0.038)	(0.114)	(0.038)	(0.114)	(0.038)

Kenyan	-	-	-	-	-	-	-	-	-	-	-	-
	0.309**	0.100*	0.311**	0.100*	0.350**	0.117*	0.330**	0.110*	0.343**	0.115*	0.329**	0.109*
	(0.127)	*	(0.128)	*	(0.137)	*	(0.136)	*	(0.137)	*	(0.136)	*
		(0.043)		(0.043)		(0.047)		(0.047)		(0.047)		(0.047)
foreign	- 0.201	- 0.059	- 0.206	- 0.060	- 0.222	- 0.067	- 0.198	- 0.060	- 0.221	- 0.067	- 0.182	- 0.055
	(0.179)	(0.049)	(0.180)	(0.049)	(0.193)	(0.055)	(0.193)	(0.055)	(0.193)	(0.055)	(0.194)	(0.056)
rosgrowth	0.173	0.053	0.156	0.048	0.187	0.059	0.200	0.063	0.187	0.059	0.198	0.063
	(0.132)	(0.040)	(0.133)	(0.040)	(0.147)	(0.046)	(0.146)	(0.045)	(0.148)	(0.046)	(0.149)	(0.046)
roagrowth	-0.021	0.006	-0.017	-0.005	-0.066	-0.021	-0.089	-0.029	-0.070	-0.023	-0.095	-0.030
	(0.129)	(0.040)	(0.129)	(0.040)	(0.144)	(0.046)	(0.142)	(0.046)	(0.144)	(0.046)	(0.143)	(0.046)
ESI	0.170*	0.053*	0.159	0.050	0.162	0.052	0.162	0.052	0.168*	0.054*	0.170	0.055
	(0.101)	(0.032)	(0.101)	(0.032)	(0.110)	(0.036)	(0.110)	(0.036)	(0.110)	(0.036)	(0.110)	(0.036)
Regulatorinit	0.359**	0.100*	0.347**	0.097*	0.375*	0.109*	0.374*	0.110*	0.392**	0.113*	0.393**	0.113*
	(0.171)	*	(0.171)	*	(0.196)	*	(0.195)	*	(0.195)	*	(0.194)	*
		(0.042)		(0.043)		(0.050)		(0.050)		(0.049)		(0.049)
majorcustomers	0.585***	0.153**	0.582***	0.152**	0.529***	0.147**	0.508***	0.142**	0.536***	0.148**	0.498***	0.139**
	(0.169)	**	(0.169)	**	(0.182)	**	(0.182)	**	(0.183)	**	(0.182)	**
		(0.036)		(0.036)		(0.042)		(0.043)		(0.042)		(0.043)
Community	-0.207*	-0.065*	-0.198*	-0.062*	-0.227*	-0.074*	-0.230*	-0.075*	-0.230*	-0.075*	-0.239**	-
	(0.109)	(0.035)	(0.109)	(0.035)	(0.120)	(0.040)	(0.120)	(0.040)	(0.121)	(0.040)	(0.120)	0.078*
												*
												(0.040)
media	0.222**	0.071*	0.217*	0.069*	0.266**	0.088*	0.244**	0.080*	0.261**	0.086*	0.242**	0.079*
	(0.112)	(0.037)	(0.112)	(0.037)	(0.122)	*	(0.122)	(0.041)	(0.123)	*	(0.122)	(0.041)
						(0.041)				(0.41)		
Intercept	-		-		-		-		-		-	
	2.198***		2.183***		2.064***		2.106***		2.170***		2.123***	
	(0.285)		(0.288)		(0.311)		(0.310)		(0.319)		(0.321)	
No. of Observations	852		852		697		697		697		697	
Wald $\chi^2(15)$	101.16**		102.48**		75.34***		82.49***		76.63***		83.77**	
	*		*									

Model 1 presents the Probit model of ISO 14001 on the share of women in TMT as well as the control variables, while Model 2 presents the Probit model of the ISO 14001 on the dummy for TMT that included a minimum of one woman along with the control variables. Similarly, Model 3 presents the Probit model of ISO 14001 on the share of women on the directors' board along with the control variables, while Model 4 presents the Probit model of the ISO 14001 on the dummy for the boards of directors which included a minimum of one woman along with the control variables. Model 5 presents the Probit model of ISO 14001 on the share of women on both the board of directors and TMT, and the control variables, while Model 6 presents the Probit model of the ISO 14001 on the dummy for TMT and directors' board that included a minimum of one woman along with the control variables. Robust standard errors in parentheses account for heteroscedasticity, and \*, \*\*, and \*\*\* represent significance levels, at the 10%, 5%, and 1%, respectively.

In order to ascertain the robustness, we estimated models 2, 4, and 6 using an alternative measure of gender diversity by considering a dummy variable in case a company has a minimum of one woman on the board of directors or in the TMT. The results for models 4 and 6 are consistent with the first hypothesis with this different measure of gender diversity. Generally, the results of the alternative test using a gender dummy did not alter the main findings for gender diversity in boards, despite the fact that the dummy is highly significant. Previous studies by Bilimoria (2000) as well as Nielsen and Huse (2010) posited that the presence of women on boards makes a positive contribution to CEP. The findings suggest that women are more agitative at board level when it comes to adopting ISO 14001 than at the level of TMT. In addition, women on boards act as vital conduits to exert mimetic pressure within the realm of the organization to embrace environmental practices, both as a standardized program and best-approach format (Glass et al., 2015).

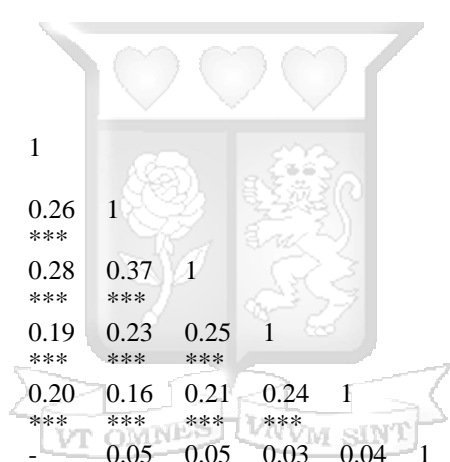
Table 4.13 shows the correlation analysis between CEP proxies and explanatory variables. ISO 14001 is positively and significantly correlated with share of women in top management, stakeholder pressure from regulators, major customers, competitors and the employees. Contrarily, there is an inverse and significant association between ISO 14001 and a firm being fully Kenyan owned. Moreover, the UNGC is positively and significantly related to share of women in TMTs and the

board of directors, stakeholder pressure from regulators, major customers, competitors and community groups. Furthermore, energy efficiency and resource management are found to be positively and significantly correlated with stakeholder's pressure from regulators, major customers, competitors, community groups and the employees.



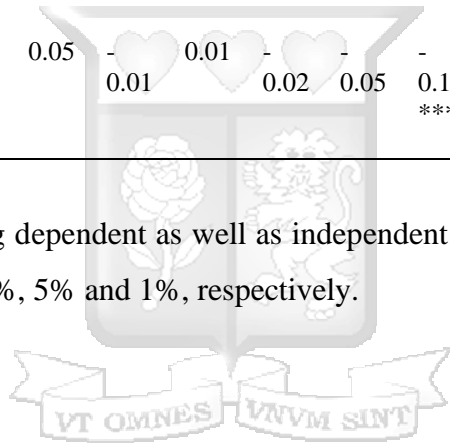
**Table 4.13** *Correlations for objective 3*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	
1.wastemgt	1																						
2.ISO14001	0.18 ***	1																					
3.UNGC	0.15 ***	0.21 ***	1																				
4.investdecision	0.27 ***	0.17 ***	0.06	1																			
5.Smgtreward	0.36 ***	0.24 ***	0.15 ***	0.28 ***	1																		
6.Environpolicy	0.24 ***	0.24 ***	0.14 ***	0.28 ***	0.30 ***	1																	
7.regulatorinit	0.20 ***	0.13 ***	0.07 **	0.21 ***	0.19 ***	0.31 ***	1																
8.majorcustomers	0.20 ***	0.16 ***	0.10 ***	0.18 ***	0.29 ***	0.28 ***	0.26 ***	1															
9.competitors	0.16 ***	0.13 ***	0.06 *	0.20 ***	0.26 ***	0.14 ***	0.28 ***	0.37 ***	1														
10.Community	0.27 ***	0.03	0.11 ***	0.20 ***	0.22 ***	0.18 ***	0.19 ***	0.23 ***	0.25 ***	1													
11.media	0.21 ***	0.18 ***	0.25 ***	0.10 ***	0.32 ***	0.17 ***	0.20 ***	0.16 ***	0.21 ***	0.24 ***	1												
12.sharewomenTMT	0.03	0.06 *	0.07 **	- 0.00	0.06	- 0.00	- 0.02	0.05	0.05	0.03	0.04	1											
13.lnwomenexpTMT	0.07 **	0.07 **	0.10 ***	- 0.01	0.07 **	0.02	0.05	0.05	0.02	0.05	0.12 ***	0.62 ***	1										
14.lnemployees	0.22 ***	0.19 ***	0.29 ***	0.08 **	0.17 ***	0.19 ***	0.17 ***	0.06 *	0.04	0.06 **	0.30 ***	- 0.03	0.24 ***	1									
15.lnfirmage	0.11 ***	0.12 ***	0.20 ***	0.07 1**	0.03	0.08 **	0.11 ***	0.02	0.04	0.08 **	0.13 ***	- 0.06	0.19 ***	0.49 ***	1								
16.export	0.15 ***	0.12 ***	0.19 ***	0.08 **	0.14 ***	0.21 ***	0.10 ***	0.11 ***	0.08 **	0.10 ***	0.13 ***	0.02	0.09 ***	0.20 ***	0.15 ***	1							
17.sustaindept	0.24 ***	0.22 ***	0.21 ***	0.20 ***	0.28 ***	0.23 ***	0.13 ***	0.17 ***	0.15 ***	0.17 ***	0.29 ***	0.07 *	0.07 **	0.20 ***	0.15 ***	0.17 ***	1						



18.kenyan	-	-	-	0.03	-	-	0.02	-	0.00	0.00	-	-	-	-	0.00	-	0.0	1				
	0.07	0.10	0.12		0.03	0.08		0.01			0.06	0.02	0.03	0.15		0.12	0					
	**	***	***			**								***		***						
19.foreign	0.00	0.01	0.06	-	-	0.06	-	0.00	-	-	0.00	-	-	0.01	-	0.05	0.0	-	1			
			*	0.08	0.02	*	0.06		0.07	0.02		0.02	0.05		0.06		1	0.58				
			**	**		*	*		**					*				***				
20.rosgrowth	0.00	0.09	0.07	0.01	0.03	0.09	0.05	0.02	0.02	0.05	0.09	0.05	0.14	0.14	0.10	0.11	0.0	-	-	1		
		***	**			**					***		***	***	***	***	7*	0.04	0.	0.		
																				2		
21.roagrowth	0.02	0.08	0.14	-	0.05	0.14	0.02	0.05	-	0.05	0.12	0.04	0.14	0.14	0.13	0.12	0.0	-	0.	0.65	1	
		**	***	0.01		***			0.03				***	***	***	***	9**	0.09	0	***		
																		***	2			
22.ESI	0.05	0.03	-	0.05	0.02	0.09	0.05	-	0.01	0.01	-	-	-	-	0.02	-	-	0.03	0.	0.02	-	1
			0.12			**			0.01	0.02	0.05	0.10	0.09	0.10		0.01	0.0		0	0.	0.	
			***									***	***	***			3		2	2		

Table 4.13 shows pairwise correlations among dependent as well as independent variables. The sample includes 852 firms in Kenya. \*, \*\* and \*\*\* denote levels of significance at 10%, 5% and 1%, respectively.



**Table 4.14: Effects of UNGC on waste management**

	Model 1 (DP Var: waste management)		Model 2 (DP Var: waste management & UNGC)				
	Probit Coefficient	Probit Marginal Effects	Bivariate wastemgt coefficient	Bivariate UNGC coefficient	Bivariate wastemgt Marginal Effects	Bivariate UNGC Marginal Effects	Bivariate Joint Marginal Effects
UNGC	0.16 (0.156)	0.06 (0.062)	1.10** (0.504)		0.34** (0.152)		
investdecision	0.56*** (0.134)	0.21*** (0.045)	0.55*** (0.134)	-0.04 (0.180)	0.17*** (0.040)	-0.01 (0.027)	0.01 (0.009)
Smgtreward	0.54*** (0.104)	0.21*** (0.039)	0.50*** (0.107)	0.08 (0.150)	0.15*** (0.032)	0.01 (0.022)	0.02* (0.009)
Environpolicy	0.13 (0.116)	0.05 (0.044)	0.11 (0.115)	0.27 (0.174)	0.03 (0.035)	0.04 (0.026)	0.02** (0.009)
Regulatorinit	0.37** (0.166)	0.14** (0.058)	0.37** (0.163)	0.04 (0.246)	0.11** (0.050)	0.01 (0.037)	0.01 (0.011)
majorcustomers	0.29** (0.161)	0.11* (0.058)	0.26 (0.159)	0.26 (0.251)	0.08 (0.049)	0.04 (0.037)	0.12* (0.010)
Competitors	-0.08 (0.114)	-0.03 (0.045)	-0.07 (0.111)	-0.12 (0.159)	-0.02 (0.034)	-0.02 (0.024)	-0.01 (0.010)
Community	0.47*** (0.105)	0.18*** (0.038)	0.44*** (0.106)	0.11 (0.154)	0.14*** (0.032)	0.02 (0.023)	0.02** (0.008)
media	-0.004 (0.114)	-0.001 (0.044)	-0.09 (0.120)	0.42*** (0.149)	-0.03 (0.037)	0.06*** (0.022)	0.03** (0.012)
sharewomenTMT	0.14 (0.280)	0.05 (0.109)	0.02* (0.280)	0.89*** (0.346)	0.01 (0.086)	0.13*** (0.052)	0.05** (0.023)
Inwomenexptmt	0.02 (0.062)	0.01 (0.024)	0.03 (0.060)	-0.13 (0.082)	0.01 (0.018)	-0.02 (0.012)	-0.01 (0.005)

lnemployees	0.15*** (0.044)	0.06*** (0.017)	0.11** (0.050)	0.16*** (0.052)	0.03** (0.016)	0.02*** (0.008)	0.01*** (0.004)
lnfirmage	-0.02 (0.053)	-0.01 (0.021)	-0.05 (0.055)	0.21*** (0.081)	-0.01 (0.017)	0.03*** (0.012)	0.01** (0.005)
export	0.11 (0.103)	0.04 (0.040)	0.05 (0.108)	0.44*** (0.135)	0.01 (0.033)	0.07*** (0.020)	0.03*** (0.011)
sustaindept	0.27** (0.108)	0.10** (0.042)	0.20* (0.115)	0.29** (0.140)	0.06* (0.035)	0.04** (0.021)	0.03** (0.011)
kenyan	-0.21 (0.136)	-0.01 (0.053)	-0.17 (0.139)	-0.19 (0.163)	-0.05 (0.043)	-0.03 (0.024)	-0.02 (0.012)
foreign	-0.12 (0.181)	-0.05 (0.069)	-0.13 (0.182)	0.20 (0.216)	-0.04 (0.056)	0.03 (0.032)	0.01 (0.015)
rosgrowth	-0.13 (0.130)	-0.05 (0.051)	-0.10 (0.131)	-0.09 (0.154)	-0.03 (0.040)	-0.01 (0.023)	-0.01 (0.010)
roagrowth	-0.06 (0.131)	-0.02 (0.051)	-0.11 (0.131)	0.26* (0.151)	-0.03 (0.040)	0.04* (0.023)	0.01 (0.010)
ESI	0.21** (0.100)	0.08** (0.039)	0.26*** (0.098)	-0.41*** (0.143)	0.08*** (0.030)	-0.06*** (0.021)	-0.02** (0.008)
Constant	-2.43*** (0.314)		-2.18*** (0.350)	-3.42*** (0.404)			
No. of Observation	852		852		852	852	
Wald $\chi^2(20)$	194.72***						
Wald $\chi^2(39)$			405.90***				
Rho			-0.54 (0.273)				
Wald test of rho=0:			$\chi^2(1)=2.440$				

Robust standard errors in parenthesis account for heteroscedasticity. \*, \*\* and \*\*\* signify levels of significance at 10%, 5% and 1%, respectively.

**Table 4.15** *Effects of ISO14001 on waste management*

	Model 3 (DP Var: waste management)	Probit Marginal Effects	Bivariate wastemgt coefficient	Bivariate ISO14001 coefficient	Bivariate wastemgt Marginal Effects	Bivariate ISO14001 Marginal Effects	Bivariate Joint Marginal Effects
ISO14001	0.13 (0.111)	0.05 (0.044)	1.05** (0.460)		0.31** (0.124)		
investdecision	0.55*** (0.134)	0.20*** (0.045)	0.45*** (0.143)	0.41*** (0.147)	0.13*** (0.044)	0.11*** (0.041)	0.08*** (0.015)
Smgreward	0.52*** (0.105)	0.20*** (0.040)	0.39*** (0.137)	0.34*** (0.112)	0.12*** (0.043)	0.09*** (0.031)	0.09*** (0.019)
Environpolicy	0.12 (0.117)	0.04 (0.045)	0.01 (0.124)	0.45*** (0.133)	0.003 (0.037)	0.12*** (0.036)	0.06*** (0.017)
Regulatorinit	0.36** (0.166)	0.14** (0.058)	0.32** (0.160)	0.13 (0.186)	0.10** (0.048)	0.04 (0.051)	0.05** (0.020)
majorcustomers	0.29* (0.162)	0.11* (0.058)	0.22 (0.159)	0.33* (0.181)	0.06 (0.048)	0.09* (0.050)	0.06*** (0.019)
Competitors	-0.08 (0.114)	-0.03 (0.045)	-0.11 (0.114)	0.12 (0.124)	-0.03 (0.034)	0.03 (0.034)	0.01 (0.018)
Community	0.49*** (0.106)	0.18*** (0.039)	0.53*** (0.101)	-0.35*** (0.111)	0.16*** (0.030)	-0.10*** (0.030)	-0.00 (0.017)

Media	0.01 (0.114)	0.002 (0.045)	-0.04 (0.114)	0.16 (0.116)	-0.01 (0.034)	0.05 (0.032)	0.02 (0.019)
sharewomenTMT	0.14 (0.279)	0.06 (0.109)	0.03 (0.274)	0.51* (0.281)	0.01 (0.081)	0.14* (0.078)	0.07 (0.047)
lnwomenexptmt	0.01 (0.061)	0.01 (0.024)	0.02 (0.059)	-0.03 (0.063)	0.01 (0.018)	-0.01 (0.017)	-0.002 (0.010)
Lnemployees	0.15*** (0.044)	0.06*** (0.017)	0.12** (0.048)	0.08* (0.044)	0.03** (0.015)	0.02* (0.012)	0.02*** (0.007)
Lnfirmage	-0.02 (0.052)	-0.01 (0.020)	-0.04 (0.051)	0.09* (0.054)	-0.01 (0.015)	0.02* (0.015)	0.01 (0.009)
Export	0.12 (0.102)	0.04 (0.040)	0.10 (0.101)	0.02 (0.109)	0.03 (0.030)	0.004 (0.030)	0.12 (0.017)
Sustaindept	0.26** (0.108)	0.10** (0.042)	0.15 (0.126)	0.28** (0.109)	0.05 (0.038)	0.08*** (0.030)	0.06*** (0.020)
Kenyan	-0.20 (0.136)	-0.08 (0.053)	-0.10 (0.143)	-0.28** (0.132)	-0.03 (0.043)	-0.08** (0.036)	-0.06** (0.026)
Foreign	-0.11 (0.180)	-0.04 (0.069)	-0.06 (0.174)	-0.15 (0.181)	-0.02 (0.052)	-0.04 (0.050)	-0.03 (0.025)
Rosgrowth	-0.14 (0.131)	-0.06 (0.051)	-0.18 (0.128)	0.18 (0.133)	-0.05 (0.038)	0.05 (0.037)	0.01 (0.020)
Roagrowth	-0.05 (0.131)	-0.02 (0.051)	-0.04 (0.128)	-0.03 (0.130)	-0.01 (0.038)	-0.01 (0.036)	-0.01 (0.020)
ESI	0.20**	0.08**	0.16	0.12	0.05	0.03	0.03*

	(0.099)	(0.039)	(0.100)	(0.102)	(0.030)	(0.028)	(0.017)
Constant			-2.14***	-2.57***			
			(0.362)	(0.320)			
No. of Observations	852		852		852	852	
Wald $\chi^2(20)$	195.98***						
Wald $\chi^2(39)$			476.48***				
Rho			-0.56				
			(0.273)				
Wald test of rho=0:			$\chi^2(1) = 2.517$				

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Robust standard errors in parenthesis account for heteroscedasticity. \*, \*\* and \*\*\* represent levels of significance at the 10%, 5% and 1%, respectively

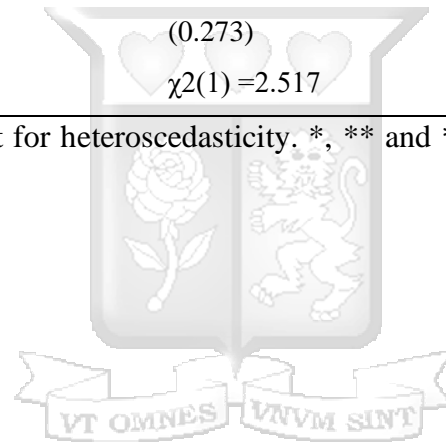


Table 4.16 depicts the test for robustness, as per which the marginal effects for UNGC are significant. As can be seen, the findings are robust. Hence, regardless of the model choice and specification, UNGC is found to influence waste management.

**Table 4.16** *Ordered Probit Model: Dependent Variable: Waste management*

	Coefficient	Marginal Effects			
		Not at all (1)	To a small Extent (2)	To moderate Extent (3)	To great Extent (4)
ISO14001	0.11 (0.093)	-0.02 (0.015)	-0.02 (0.020)	0.03 (0.024)	0.01 (0.012)
UNGC	0.25* (0.130)	-0.04** (0.018)	-0.06* (0.033)	0.06** (0.031)	0.03* (0.020)
Investdecision	0.68*** (0.105)	-0.15*** (0.029)	-0.08*** (0.013)	0.17*** (0.025)	0.06*** (0.009)
Smgtreward	0.31*** (0.089)	-0.06*** (0.016)	-0.06*** (0.018)	0.08*** (0.023)	0.04*** (0.011)
Environpolicy	0.43*** (0.097)	-0.09*** (0.022)	-0.07*** (0.014)	0.11*** (0.025)	0.04*** (0.010)
Regulatorinit	0.30** (0.125)	-0.06** (0.029)	-0.05*** (0.014)	0.08** (0.032)	0.03*** (0.011)
Majorcustomers	0.24* (0.124)	-0.05* (0.027)	-0.04** (0.016)	0.06* (0.032)	0.02** (0.011)
Competitors	-0.08 (0.092)	0.01 (0.016)	0.02 (0.019)	-0.02 (0.023)	-0.01 (0.011)
Community	0.29*** (0.086)	-0.06*** (0.017)	-0.05*** (0.015)	0.07*** (0.022)	0.03*** (0.010)
Media	-0.12 (0.094)	0.02 (0.018)	0.02 (0.017)	-0.03 (0.024)	-0.01 (0.010)
sharewomenTMT	0.31 (0.228)	-0.05 (0.041)	-0.06 (0.045)	0.08 (0.058)	0.04 (0.027)
Lnwomenexptmt	-0.04 (0.050)	0.01 (0.009)	0.01 (0.010)	-0.01 (0.013)	-0.004 (0.006)
Lnemployees	0.06* (0.036)	-0.01* (0.007)	-0.01 (0.007)	0.02* (0.009)	0.01* (0.004)
Lnfirmage	-0.001 (0.042)	0.00 (0.007)	0.00 (0.008)	-0.00 (0.011)	-0.00 (0.005)
Export	0.21** (0.084)	-0.04** (0.014)	-0.04** (0.018)	0.05** (0.021)	0.03** (0.011)
Sustainedpt	0.20** (0.088)	-0.04** (0.015)	-0.04** (0.019)	0.05** (0.022)	0.03** (0.012)
Kenyan	-0.15 (0.106)	0.03 (0.018)	0.03 (0.023)	-0.04 (0.027)	-0.02 (0.014)
Foreign	-0.10 (0.147)	0.02 (0.029)	0.02 (0.024)	-0.03 (0.038)	-0.01 (0.015)
RoSGrowth	0.09 (0.102)	-0.02 (0.019)	-0.02 (0.019)	0.02 (0.026)	0.01 (0.012)
RoAGrowth	-0.02 (0.102)	0.004 (0.018)	0.005 (0.020)	-0.01 (0.026)	-0.003 (0.012)
ESI	0.10 (0.080)	-0.02 (0.014)	-0.02 (0.019)	0.02 (0.020)	0.01 (0.010)
N	852				
LR $\chi^2$ (21)	293.16***				

Table 4.16 shows the ordered Probit model of waste management. Robust standard errors in parenthesis account for heteroscedasticity. \*, \*\* and \*\*\* signify the level of significance at 10%, 5% and 1%, respectively.



## CHAPTER FIVE: SUMMARY OF THE RESULTS AND DISCUSSIONS

### 5.1 Introduction

This chapter presents the summary of the results and the related discussion of the results. The chapter is organized as follows. Section 5.2 presents the summary of the study as per objective of the study. This is followed by section 5.3 which presents the discussions of the findings based on each of the three objectives of the study. Section 5.4 provides a summary of the chapter.

### 5.2 Summary of the Results

This section provides the summary of the results based on the three objectives. The results presented are based on the various hypotheses that were developed from the objectives of this study.

In line with the first objective which was to explore the extent to which CEP in Kenya is influenced by stakeholders' pressure, the following were hypothesized:

**Hypothesis 1a:** There is a significant and positive correlation between coercive isomorphic pressure and energy efficiency

**Hypothesis 1b:** There is a significant and positive correlation between mimetic isomorphic pressure and energy efficiency

**Hypothesis 1c:** There is a significant and positive correlation between normative isomorphic pressure and energy efficiency

**Hypothesis 1d:** There is a significant and positive correlation between coercive isomorphic pressure and resource management

**Hypothesis 1e:** There is significant and positive relationship between mimetic isomorphic pressure and resource management

**Hypothesis 1f:** There is significant and positive relationship between normative isomorphic pressure and resource management

The hypothesis (1a) postulated the presence of a significant and positive relationship between energy efficiency and coercive isomorphic pressure. Results from model 1 table 4.8 show that the marginal effects for the stakeholders' pressure from regulators and major customers are indeed positive and significant. Pressure from the regulators and major customers increases the probability of improving energy efficiency by 13.0 and 25.5 percentage points respectively. Thus, it can be seen that the findings support hypothesis (1a).

Moreover, hypothesis (1b) posited that mimetic isomorphic pressure significantly influences energy efficiency. The findings from model 1 indicates that the marginal effects for the stakeholders' pressure from competitors are non-significant. Therefore, the findings do not uphold the forecasting of the hypothesis (1b)

Further, hypothesis (1c) alluded that normative isomorphic pressure has a positive and significant correlation with energy efficiency. From the model 1, it can be seen that the marginal effects for stakeholders' pressure from the employees are positive and significant. Thus, the probability to improve energy efficiency increases by 55.0 percentage points due to pressure exerted on the employees. This supports the prediction of hypothesis (1c).

Hypothesis (1d) forecast a significant and positive relationship between resource management and coercive isomorphic pressure. The results from model 2 indicate that the marginal effects for stakeholders' pressure from regulators and major customers are insignificant. Therefore, the results do not support the prediction of hypothesis (1d)

Hypothesis (1e) forecast a significant and positive relationship between resource management and mimetic isomorphic pressure. According to model 2, the marginal effects for stakeholders' pressure from competitors are positive and significant. Thus, the probability to improve resource management increases by 13.0 percentage points due to pressure from the competitors supporting the forecast of hypothesis (1e)

Hypothesis (1f) forecasts a significant and positive relationship between resource management and normative isomorphic pressure. From model 2, the marginal effects for stakeholders' pressure from employees are positive and significant. Therefore, the probability to improve resource management increases by 13.0 percentage points due to pressure from the employees. The findings are in line with hypothesis (1f).

The marginal effects for stakeholders' pressure from the community are positive and significant, according to model 2. Thus, the probability to improve resource management increases by 12.0 percentage points due to pressure exerted by the community environmental groups. Additionally, the marginal effects for Kenyan owned firms are negative and significant, according to model 1. Therefore, the probability to improve energy efficiency decreases by 10.0 percentage points if a firm is Kenyan fully owned. Moreover, from model 1, it can be seen that the marginal effects for the return on sales are positive and significant. Hence, the probability to improve energy efficiency increases by 11.00 percentage points if the firm perceives return on sales to be better and much better in the last financial year.

Further, the marginal effects for the number of employees are positive and significant for both model 1 and 2. The probability to improve energy efficiency and resource management increases by 0.04 and 0.03 due to 100% increase in the number of employees, respectively. In addition, the marginal effects for presence of sustainability department are found to be positive and significant across for both model 1 and 2. Therefore, the probability to improve energy efficiency and resource management increases by 14.0 and 15.0 percentage points, respectively. Finally, the marginal effects for environmentally sensitive industries are positive and significant for model 1. Therefore, if a firm is environmentally sensitive, the probability of improving energy efficiency increases by 9.0 percentage points.

From the results of this study, it is confirmed that the premises of neo-institutional theory that organizations are 'systems' that depend and relate with the 'surroundings' (stakeholders) and for their growth, stability and profitability firms have to consider stakeholders' interests (stakeholder theory). The objective was to primarily understand corporate environmental management practices as influenced by

stakeholder pressure in the context of a developing economy and considering different group of stakeholders. Based on a simple probit model, the study sought the relationships between environmental management practices-resource management and energy efficiency and stakeholders' pressure. Overall, it is found that firms' adoption of a given environmental practice can be directly linked to a specific stakeholder pressure. Specifically, mimetic and coercive pressures were found to influence the adoption of resource management and energy efficiency respectively, whilst normative pressure from employees influenced the adoption of both.

Community groups had an influence on how companies engage on resources management within their surroundings. Under the stakeholders' theory, the assumptions have been that power, urgency and legitimacy of the stakeholder led to the importance consideration of such as stakeholder. On the contrary, from the findings, employees who have been seen as less powerful stakeholder within the firms are at the centre stage of influencing firms' decision making to adopt new environmental practices. Based on this, there is need for management of firms to consider how to address the needs of the employees as well influencing their decisions when it comes to their resource management and energy efficiency agenda.

In regard to the second objective which is to explore the extent to which gender diversity in TMT and board influences CEP in Kenya, the following were hypothesized:

**Hypothesis 2a:** Board gender diversity positively affects the likelihood of ISO 14001 adoption

**Hypothesis 2b:** TMT gender diversity positively affects the likelihood of ISO 14001 adoption

**Hypothesis 2c:** Both TMT and Board gender diversity positively affect the likelihood of ISO 14001 adoption

**Hypothesis 2d:** Higher average years of experience of the women in TMT and board increases the likelihood to adopt ISO 14001

Hypothesis (2a) hypothesis posited that gender diversity on the boards has a positive correlation with the adoption of ISO 14001. The findings in Table 4.12 model 3 suggest that the marginal effects of the share of women on the directors' boards are significant and positive. Therefore, increasing female representation on the board of directors increases the probability of the firm adopting ISO 14001 by 22.2 percentage points, which supports what the first hypothesis predicts. The findings also concur with the views of Harjoto, Laksmana, and Lee (2015) who established a positive relationship between gender diversity on the board and the environmental policy of a firm.

Hypothesis (2b) postulated that gender diversity in TMT has a positive correlation with adopting ISO 14001. Model 1 in Table 4.13 suggests that the marginal effects of the share of women in TMT were not significant. Thus, increasing female representation in the TMT does not raise or reduce the probability of ISO 14001 adoption. These results do not support what hypothesis (2b) forecast. The previous studies by Harjoto et al. (2015) and Li et al. (2016) support the finding that having women in TMT increases both environmental outcomes according to Kinder, Lydenberg, Domini (KLD) score measures and environmental policy adoption. Moreover, these findings are supported by Palmer, Marquis, and Kimball (2012) who observed that female representation on boards compared to those in management supported better organizational environmental outcomes.

Hypothesis (2c) predicts that gender diversity of both the board and TMT has a positive correlation with the adoption of ISO 14001. Model 5 illustrates that the marginal effects of the share of women on both these fronts are insignificant with regard to adopting ISO 14001. Such findings do not support the third hypothesis when both variables are used in the same model for the sub-sample of firms with board of directors.

Hypothesis (2d) suggests that higher average years of experience of the women in both the board and TMT increases the likelihood of adopting ISO 14001. It has been shown that having women with a higher number of average years of experience in the TMT - the marginal effects of which are significant and negative - does not support the hypothesis 2(b). Therefore, the probability of adopting ISO 14001

decreases by 0.102 due to a 100% increase in the average years of experience of women on the directors' board. If women sit on boards for longer periods, they may adopt characteristics that are stereotypically masculine because they feel that doing this will make them feel valued in this top position: they may act in forceful or assertive ways that are not in line with feminine stereotypes regarding the board's CSR.

As a control variable, sustainability department had a strong correlation with ISO 14001 adoption. The marginal effects of having a sustainability department, which vary between 11.5 and 13.5 percentage points, are positively and strongly significant with regard to increasing ISO 14001 adoption. As reported by Ben-Amar et al. (2015), a standing environmental committee increases consciousness about possible climate change-related effects, and so does a sustainability department that seeks a proactive strategy to address potential liabilities.

The marginal effects of the number of employees are significant as well as positive across all six models. The likelihood of the adoption of ISO 14001 increases by between 0.025 and 0.035 due to 100% increase in the number of employees. This supports assertions by Ozusaglam et al. (2017) that a company's size in terms of the number of the employees is a critical driver of adopting ISO 14001. Additionally, the results are supported by those of the previous studies of Takahashi et al. (2001) as well as Videras and Alberini (2000), which report a positive correlation with a company's size and ISO 14001 adoption. Further, large firms have huge public visibility and have access to the capital, financial, and personnel resources that are necessary for ISO 14001 adoption (Mohana et al., 2018).

The marginal effects of being a Kenyan-owned firm are found to be negative and significant. Therefore, the probability that a firm owned fully by Kenyans adopts ISO 14001 decreases by between 10.0 and 11.7 percentage points. This finding is an alignment with that of Curkovic (2005), who posited that foreign-owned firms were more likely to be ISO 14001 certified than locally owned firms. There is no pressure on locally owned firms to adopt ISO 14001 and they think that environmental certification is irrelevant to them.

The marginal effects of pressure from stakeholders are significant. Therefore, the probability of adopting ISO 14001 increases by between 9.7 and 11.3 percentage points due to pressure from regulators. On the other hand, the likelihood of adopting ISO 14001 increases between 13.9 and 15.3 percentage points from the pressure from major customers. Media was found to have the least pressure to drive adoption of ISO14001 of between 6.9 and 8.8 percentage points.

In order to address the third objective that voluntary environmental management systems influences corporate environmental performance of Kenyan firms the following were hypothesized:

**Hypothesis 3(a).** Firms accredited with UNGC have more effective waste management practices.

**Hypothesis 3(b).** Firms certified with ISO 14001 have more effective waste management practices

Hypothesis (3a) purported that firms accredited with UNGC have more effective waste management. According to table 4.15, the bivariate waste management marginal effects for UNGC are both positive and significant. Thus, the probability to improve EP by adopting the three waste management proxies increases by 34.0 percentage points in case the company is a participant of UNGC. The results support affirms hypothesis (3a).

Hypothesis (3b) predicts that firms that have adopted ISO 14001 certification improve waste management. The bivariate waste management marginal effects for ISO 14001 adoption are positive and significant. Therefore, the probability to improve EP by adopting the three waste management proxies increases by 31.0 percentage points if the firm is ISO 14001 certified. The results support hypothesis (3b).

Notably and based on table 4.16, the bivariate waste management marginal effects for a firm's investment decisions are based on waste reduction and pollution, senior management rewarded based on environmental performance as well as the number

of employees are found to be positive and significant. Therefore, the probability for a firm to improve waste management increases by 17.0 percentage points if the firm aligns its investment decisions with reducing waste and pollution. Additionally, the probability that a firm improves waste management increases by 15.0 percentage points if the firms incorporate environmental performance when rewarding senior management. Moreover, the probability to improve waste management increases by 0.03 due to a 100% increase in the number of employees.

Further, the bivariate waste management marginal effects for the sustainability department and environmentally sensitive industries are positive and significant. Therefore, it can be seen that the probability of a firm improving waste management increases by 6.0 percentage points if a firm has a sustainability department. Additionally, the probability to improve waste management increases by 8.0 percentage points if the firm is environmentally sensitive. According to model 2 from Table 4, bivariate waste management marginal effects for stakeholders' pressure-regulators and community groups are positive and significant. This implies that the probability of improving waste management increases by 11.0 percentage points due to pressure exerted by regulators, while it increases by 14.0 percentage points owing to the pressure from environmental community groups.

### **5.3 Discussion**

#### **5.3.1 Stakeholders Pressure and CEP**

The results indicate that all types of stakeholders' pressure (coercive, normative and mimetic) positively and significantly impact CEP. Prior research posits that internal stakeholders exert more pressure on the firm as compared to external ones (Ramanathan, Poomkaew & Nath, 2014) since internal stakeholders (e.g. employees and shareholders) through their regular discussions and subsequent follow-ups in internal meetings stand a better chance of influencing management perceptions and policies (Ramanathan et al., 2014).

Stakeholder pressures are perceived differently based on the industrial sector wherein a firm operates as well as the sensitivity of its products/services. Internal as well as external stakeholders exert pressure on an organization to ensure it performs in accordance to the set rules and regulations. The government, for instance, drives

corporate environmental agenda by setting regulations and possibly enforcing them. Consumers, on the other hand, try to influence CEP by setting expectations for business behaviour and action. This has turned out more serious of late with consumers boycotting firms which are performing poorly. The emergence of internet also has created an interactive online forum between companies and consumers where consumers are enjoying the biggest share of the cake in the sense that they are able to express their concerns at a click of a button and as such mounting enormous pressure on companies to perform better on environmental management.

The study results are true to these sentiments where it was revealed that pressure exerted by customers positively influenced energy efficiency of an organization. This can be pinpointed on pressure from consumers, which impels companies to restructure their production management mechanisms in a bit to attain a sustainable environment conforming to the major customers' expectations. The results are in alignment with the findings of another study by Mendonca and Zhou (2019) where the performance of companies' environmental actions defined the quality and value perceptions of their customers and that customers are not only concerned with companies' environmental initiatives, but also with the CEP associated with those initiatives. The results also concur with the sentiment of a study conducted by Kumar et al. (2013) that there is increasing demand from the consumers of eco-friendly goods who prefer organizations with impressive environmental record and those with greener products.

On pressure from regulators, the study concurred with the general perception that regulators' pressure has positive influence on CEP. Regulators pressure as per results impels companies to enhance energy efficiency. The results are in agreement with those brought forward by Zhu and Sarkis (2007) who stated that coercive pressure forces companies to enhance environmental performance. Ramanathan et al. (2014) held a similar view that pressure from regulations enables company to enhance their EP. Further, the study results align with the views of Henriques and Sardosky (2007), as well as that of Johnson et al. (2007) who found out that regulators play a pivotal role in advocating for environmental responsible practices. Findings of the study are also in agreement with stakeholders' theory where it was postulated that environmental issues tend to be channelled through coercive institutional pressure

(Jamali, 2008). As clearly observed, organizations should at the least operate at the level outlined in law pertaining to their particular industry as firm survival 'legitimacy' is dependent on adherence to government regulations.

A significant and positive correlation was also found between pressure from employees (normative pressure) and a firm's efficiency of energy use. The finding pinpoints that pressure from employees obliges firms to be more efficient in their energy usage. This can be attributed to the employees' push for a conducive working environment, which consequently compels a firm's management to adopt better operational mechanisms. This is in line with the findings from a study by Ramanathan, et al. (2014) who posited that normative pressure is the strongest among all forms of pressures and compels organizations to make better environmental decisions.

Pressure from the community and employees was positively and significantly related to firms' resource management. The study observed that firms must be responsible in their operations to ensure that they don't spur negative externalities to the surrounding community else they risk legal action. In addition, the influence of the employee to resource management was evident. The influence from the community was however, not as strong as the one from the employees. This may be attributed to the delay on the part of the community members in preparing a concrete claim against an organization since they are first required to gather public opinion which could be in support or against the firm in question.

The results agree with sentiments echoed by Ramanathan et al. (2014) that external stakeholders make efforts to tilt public opinion either in opposition to or in favour of the company where they can stage their claim from. As such, pressure from the community might be massive if it happens, but the probability is minimal as compared to pressure from employees. Pressure from the community is expected to be greater in areas where industrial activities take place and where environmental pollution is prevalent (Kassinis & Vafeas, 2006). Firms therefore need to befriend the surrounding community by engaging the community members to elicit their views on what they perceive as best environmental practices. Finally, the companies

must be proactive in devising better mechanisms of reducing environmental pollution.

It is further observed that mimetic pressure exerted from the competitors has a significant and positive relation with a firm's resource management. Therefore, it plays a massive role in influencing firm's resource management practices in a bid to ensure they are at par with their competitors. The observations concurs with the findings of Darnall et al (2008) that mimetic pressure ensures organizations are aware of and make efforts to emulate innovation from their rival organizations for instance in production technology. Arguably, a firm that follows on the footsteps of a successful rival, it saves on exploration costs and minimizes experimentation costs (Wang et al., 2018).

### ***5.3.2 Gender diversity and Corporate Environment Performance***

This study findings support the contribution of gender diversity on the directors' adopting voluntary environmental measures by Kenyan firms. According to the study findings, a significant and positive correlation exists between gender diversity on the board of directors and ISO 14001 adoption. The study unveils the question on influence of gender diversity on firms' environmental management practices (EMPs) in developing countries. This study builds on the work of Post et al. (2014) among other scholars, who investigated the linkage between board composition and CEP, opining that increasing female representation on the board had a positive correlation with CEP.

The study points out that women presentation on corporate leadership -board - increases the probability of ISO 14001 adoption as well. Study results further posits that there was no significant impact of gender diversity in the TMT on the company's decision for adopting ISO 14001. These results concurred with the sentiments posited by Palmer et al. (2012), as per which when women serve in the board of directors as opposed to being on the TMT, they have had the strongest impact on a firm's CEP.

As per the findings, an increase in the number of years of experience for female members on the board tends to lower their influence in the long run. The study

attributes this phenomenon to the fact that years of experience of the women in TMT and board is positive and significant for much fewer variables than when the numbers related to women in Board and TMT are much less. The findings also reveal that the longer the female members remain in the board and TMT, the more they become assimilated away from environmental stewardship into the mindset of their male counterparts characterized by economic prioritizing. Lasma Sakkinen, and Turjanmaa (2000) concurred with this sentiment when they asserted that increased duration of women on board may have them adopt masculine-type characteristic, given that as they feel valued in top positions, they assert themselves, which contradicts feminine stereotype in CSR board responsibilities.

### ***5.3.3 Voluntary Environmental Management Systems and Corporate Environmental Performance***

This research contributes to the growing debate on voluntary environmental programs that advocate for sustainable production through resource management and sound waste management. Adoption of ISO 14001 and UNGC are viewed as environmental management actions focused on improving energy and water management collectively mitigating environmental impacts from waste. In relation to ISO 14001 as a VEMS, this study found that firms which had adopted ISO 14001 and UNGC were superior to their peers in matters of waste management. This concurs perfectly with the postulation of Arimura et al. (2007) that VEMS adoption reduces the impact of companies' solid waste and waste water generation. It was noted that UNGC had superior results compared to those under the ISO 14001. The results were also in alignment with the study conclusions by Fei-Baffoe et al. (2013) that ISO14001 implementation led to improved EP, particularly in waste management and energy efficiency.

The study also provides an important perspective on the role of ISO 14001 and UNGC as voluntary strategies from the standpoint of waste management. Additionally, the results are based on a developing economy that is responding to environmental challenge through the coordinated efforts of the National, County governments and the private sector, especially with the requirements of the national government to fulfil the requirement of the Paris Agreement. In its efforts to foster climate change adaptation and resilience, the Kenyan government enacted the

Climate Change Act in 2016. Subsequently, in 2018, a five-year National Climate Change Action Plan (NCCAP) was created as a climate change action strategy. The action plan underpins water, sanitation, and waste as areas of interest that have shaped the scholarship discussion in this study. NCCAP is in alignment with sustainable development goals as well as the Big four agenda of the Government of Kenya.

Kenya is gearing up towards a circular economy that is capable of diverting 90% of collected waste away from disposal sites. According to the findings, UNGC certified firms are more likely to recycle their waste. This factor may be attributed to the sharing of emerging best industrial practices that offer practical solutions and approaches to waste management. In response to growing water scarcity, the country intends to increase the availability of annual per capita water availability by developing the water infrastructure and coming up with ways to reducing waste, reusing, and recycling of water. According to the plan, firms in Kenya are adopting resource efficiency methods such as water efficiency planning and water audits. This is in consonance with the findings that firms that have adopted UNGC have a higher probability to recycle their wastewater. Again, the program may be interpreted to be allowing adopters to access extensive knowledge and experience with green growth issues through extensive partnership and networking. UNGC advances the idea of investing in new technologies and adopting quality management systems.

Contrarily, ISO 14001 certification was not found to significantly and positively result in better water and solid waste recycling with an inverse relationship with respect to environmentally safe waste disposal. However, both the UNGC and ISO 14001 indicate improvement in environmental outcomes among the adopters (Potoski & Prakash, 2005). Variations in developing and implementing both ISO 14001 and UNGC significantly influence EP outcomes. ISO 14001 and UNGC are similar and are advocating for continuous improvement; conversely, ISO 14001 is seen to focus on the process, unlike UNGC, that is known to put the emphasis on results. Thus, the adoption of ISO 14001 may not guarantee an observable increase in scores on earmarked EP indicators, such as the one considered as a proxy for this study- waste

The findings agree with those reported by Johnstone et al. (2007) and Henriques and Sadorsky (2007) that regulators play a leading role in advocating for environmentally responsible practices. Hence, ISO 14001 certification may be symbolic among Kenyan firms partly in the aspiration for legitimacy 'ritual integration'. As a reverberation of the ideals of institutional theory that conforms to environmental rules, our results show that firms attempt to allocate resources, customers, community and employees appropriately. That means that firms that are perceived to be better in terms of environmental performance are gaining the benefits. Such motivation is helping to influence the managers' attitudes, intentions, subjective norms and behavioural control towards the implementation of EMS.

#### **5.4 Summary of the chapter**

The aim of the chapter is to present and discuss the empirical results relating to the objectives of the study. The chapter has presented and the results emanating from the analysis primary data collected from sampled firms in an attempt to answer the research questions of the study. The chapter provided the summary of the findings based on each objective in relation to the drivers of CEP in firms in Kenya. This was followed by a discussion of the results based on each of the three objectives of the study. From the stakeholders perspective it was found that firms' adoption of a given environmental practice can be directly linked to a specific stakeholder pressure. Specifically, mimetic and coercive pressures were found to influence the adoption of resource management and energy efficiency respectively, whilst normative pressure from employees influenced the adoption of both. Community groups had an influence on how companies engage on resources management within their surroundings.

This study findings support the contribution of gender diversity on the directors' adopting voluntary environmental measures by Kenyan firms. According to the study findings, a significant and positive correlation exists between gender diversity on the board of directors and ISO 14001 adoption. The study unveils the question on influence of gender diversity on firms' environmental management practices (EMPs) in developing countries. In relation to ISO 14001 as a VEMS, this study found out that firms which had adopted ISO 14001 and UNGC were superior to their peers in matters of waste management. This concurs perfectly with the postulation of

Arimura et al. (2007) that VEMS adoption reduces the impact of companies' solid waste and waste water generation. It was noted that UNGC had superior results compared to those under the ISO 14001. The results were also in alignment with the study conclusions by Fei-Baffoe et al. (2013) that ISO14001 implementation led to improved EP, particularly in waste management and energy efficiency.

To arrive at the results' robustness, tests and consideration for endogeneity were carried out to ensure the validating of the research findings of this study. The control variables were also put in consideration to ensure that the results provided were not as a result of other factors not being investigated. The control variables included, firm size, form profitability, industry, age of the firm and presence of sustainability department.



## **CHAPTER SIX: CONCLUSION, RECOMMENDATIONS AND IMPLICATIONS OF THE STUDY**

### **6.1 Introduction**

As mentioned before, this study weighs in on the three growing debates on corporate environmental sustainability. The three debates include: the role of stakeholders' pressure on CEP; the influence of gender diversity on CEP and drive towards self-environmental regulation through the adoption of voluntary programs and the efficacy of the voluntary programs in managing firms' environmental performance. This section of the study starts by providing the conclusions and recommendations of the study based on the three objectives. This section is followed by a section that is providing the implications of this work. This chapter also provides the key contributions from a theoretical and an empirical perspective. The chapter concludes with the limitations and future research areas as recommended by the researcher.

### **6.2 Stakeholders Pressure and CEP**

This research contends on the premises of neo-institutional theory that organizations are 'systems' that depend on and relate with the 'surroundings' (stakeholders) and for their growth, stability and profitability firms have to integrate stakeholders' interest (stakeholder theory). The goal of this study was to primarily understand corporate environmental management practices as influenced by stakeholder pressure in the context of: developing economy, differing group preferences, across multiple industrial sectors in 852 small, medium and large firms in Kenya. The research developed and empirically tested simple probit models which environmental management practices-resource management and energy efficiency-mediates the relationship with stakeholders' environmental pressure.

Overall, it was found that firms' adoption of a given environmental practice can be directly linked to a specific stakeholder pressure. Specifically, mimetic and coercive pressures were found to influence the adoption of resource management and energy efficiency respectively, whilst normative pressure from employees influenced the adoption of both. Borrowing from the latter conclusion and viewing employees as a player 'within the firm boundary, it is resolved that internal stakeholders are a strong

drivers of corporate environmental management practices. Regarding the moderating effect of firm specific contingencies, profitability, firm size, sustainability department and industrial sector were found to have a strong impact on corporate environmental management practices. The results are in harmony with stakeholder theory that institutional pressure, in this case the competitors (mimetic), employees and the community (normative), regulators and major consumers (coercive) play an important part in influencing the operations of organizations. This study adds to the understanding of organizational performance by demonstrating that environmental management practices are as a result of response to stakeholder pressure.

The results offer evidence about the contribution of stakeholders in influencing CEP. The results resonate with stakeholder theory postulations that stakeholders like employees, regulators, consumers, and the community play an important part in influencing the operations of organizations. Regulators' pressure was found to have huge impact on CEP mainly due to the penalties that firms face when they violate the set rules and regulations on the expected level of EP. The findings agree with those reported by Henriques and Sadorsky (2007) and Johnstone et al. (2007) that regulators play a leading role in advocating for environmentally responsible practices. Nonetheless, there were instances where major firms recorded that their operations were environmentally friendly not because of fear of conviction by the authorities, but for their own benefits and their sense of humanity towards the community as well as future generation.

Employees were revealed to exert pressure on the management to be considerate on the environment for their own wellbeing-safety and health- and in so doing ensure resources are conserved for long term sustainability. As per the study survey, majority of employees showed willingness to come up with personal initiatives tailored towards the betterment of environment, which the study felt it deserved some recognition in terms of rewards. Major customers were also shown to be vigilant on environmental matters where the majority required the firms to reduce on their emissions, produce biodegradable products and make use of renewable sources of materials. Some firms recorded that despite being a rare phenomenon, they would expect community riots or risk being taken to court by the community over environment malfunction.

According to the results, mimetic pressure (competitors' pressure) had a noticeably huge impact on firm's environmental outcomes. To reinforce these findings, the study revealed that firms tend to mimic the behaviours of their competitors who seemed to do better in their environmental management. This, as shown by the study, would reduce costs of research on better ways of environmental management and innovation costs. Through mimicking their competitors, firms have ready strategies to capitalize on with the obvious benefits of saved time and resources. In general, all types of stakeholder pressures have been posited to play a huge role in influencing the way organizations carry out their operations and consequently driving CEP upwards.

### **6.3 Gender Diversity and Corporate Environmental Performance**

Findings of this study help develop a new sense of understanding on the composition of TMTs and board of directors, gender and their attributes influence CEP. Specifically, the findings are congruent with the postulation of the UET that managers and directors' personal attributes influence organizational outcome. In this case, adopting ISO 14001 is related to differences in leadership style and characteristics between men and women with women having different cognitive and social characteristics that make them have a higher sense of environmental stewardship.

This research weighs in on the growing debate on the role of women in the advocacy for self-environmental regulation through the adoption of voluntary programs in firms. It also offers insights into the complementary functions of women in the traditional approach of command and control. In particular, the study sheds light on the internal structure of organizations as a factor that can help enhance environmental protection through corporate leadership advocacy. The results provide a new understanding of how the composition of the TMT and Board in terms of gender and the attributes of directors and managers influence ISO 14001 adoption.

Specifically, the findings are consistent with UET postulations that managers' and directors' personal attributes influence organizational outcomes, in this case, the adoption of ISO 14001. According to feminist theory, there are differences in the

characteristics of the leadership styles of men and women, and they hold different views on environmental responsibility. Given that women are keener on CSR, they tend to influence the adoption of voluntary programs like ISO 14001. Additionally, in light of feminist theory, women allow for communal, participative, and democratic governance that facilitates communication and can further strengthen CER. In such a setting, firms that have female presence on their board also tend to use ideas they see in other organizations, embracing best business practices that mostly relate to social and environmental aspects. Therefore, there is a greater chance that women on boards will influence the decision to adopt ISO 14001.

However, the presence of women on TMTs may lack such influence due to their corporate role, which involves implementing decisions made by the directors. In this respect, a woman manager's influence in making decisions is limited to proposing the possible environmental initiatives that can be undertaken to the board. The board directors can accept or reject this advice, and their decision is based on their background characteristics. This explains why women's presence on TMTs has a relatively weaker influence on ISO 14001 adoption.

Secondly, seeking to further add to the CSR literature on the linkage between demographic factors and their interplay with the adoption of voluntary environmental initiatives, an examination of the average years of tenure of women on boards was explored. Against the hypothesis, it was found that an increased tenure of women on boards did not increase the chances of ISO 14001 adoption and had a negative effect instead. Arguably, women with extended years of tenure seem to be assimilated into the "old boys' network" that pays more attention to the immediate corporate priorities of profit making that justifies the tenure of board members to the investors. This is true, given that few women are in corporate leadership positions are male dominated.

Thirdly, the results indicate that there is a strong positive correlation between the presence of a sustainability department and the adoption of ISO 14001. In addition, firms that have women on the board and in TMTs are more likely to have a sustainability department than those that do not have women in these positions. To the best of our knowledge, this study is the first of its kind to offer evidence of such a

relationship. In addition, firms with a sustainability department are more likely to adopt ISO 14001. Palmer et al. (2012) observed that organizations with an environmental committee had higher Newsweek Green Rankings scores than those without. In my assessment, a sustainability department constitutes an organization's environmental strategy that advocates for environmental responsibility. The sustainability department can be thought of as an initiator of policies and programmes related to environmental responsibility and their subsequent implementation.

#### **6.4 Voluntary Environment Management Systems and Corporate Environmental Performance**

In response to the challenges of waste management, Kenyan Government has adopted the National Solid Waste Management Strategy as a guide to sustainable solid waste management to ensure a healthy, safe and secure environment for all. This has culminated into legislation on sustainable waste management, in form of a bill that is aimed to help Kenya achieve a green economy characterized by zero waste. Kenya as a green economy is envisioned in the country's Vision 2030 as well as in line with the Kenya's National Determined Contribution (NDC) commitment to the Paris Climate Agreement. The bill provides incentives aimed at the reduction of waste especially through the use of more efficient technologies. There are also incentives in the areas of sustainable product design, resource efficiency, re-using and recycling of materials (Government of Kenya, 2018). Due to the poor state of waste management in Kenya, the National Environmental Management Authority (NEMA) adopted the minimum requirements necessary for continuous improvement. They are based on waste collection, transportation, disposal and licensing.

The impacts of poor solid waste management and used water within the urban settlements, particularly cities and big municipalities can be disastrous. As such, there is a need for proper and efficient waste management. Kenya Vision 2030 recognizes the need for efficient and sustainable waste management systems to be established as the country develops into a newly industrialized state by 2030. Yong et al. (2016) affirm that waste management is an important way of achieving cleaner and sustainable production. The government has primarily focused on regulations as

a way of managing waste in Kenya and there is need for consideration for the voluntary mechanism.

This research contributes to the growing debate on voluntary environmental programmes that advocate for sustainable production through resource efficiency (such as water, energy and material resources) and sound waste management. In this context, the adoption of ISO 14001 and UNGC are viewed as environmental sustainability actions focused on improving energy and water efficiency while mitigating the environmental impacts of companies. Based on the conclusions, firms that are ISO 14001 certified are better in their resource management, a factor that may be attributed to the sharing of emerging best industrial practices that offer practical solutions and approaches to resources management. Again, the programme may be interpreted to be allowing adopters to access extensive knowledge and experience with green growth issues through extensive partnership and networking. Additionally, ISO 14001 certification did show a significant and positive association with better waste management, resource management and energy efficiency, whereas UNGC proved to have a significantly positive influence on resource management.

The study also offers a distinct perspective on the efficiency of ISO 14001 and UNGC as voluntary strategies to improve CEP for Kenyan companies. Hence, ISO 14001 certification may be symbolic among Kenyan firms partly in the aspiration for legitimacy 'ritual integration'. As a reverberation of the ideals of the institutional theory that conformity to environmental rules makes firms worthy of resources, customers, community and employees are observed to greatly influence environmental outcomes amongst firms. More so, rewarding senior management on EP scores has been concluded to have a positive effect on the EP of an organization. Probably, such a motivation helps influence the manager's attitudes, intentions, subjective norms and behavioural control towards the implementation of EMS guidelines.

### **6.5 Implications of the study**

The findings of this current study are crucial to managers, policy makers and the field of academia as discussed below.

### ***6.5.1 Implications of the study on management***

This study offers numerous contributions to the management of organizations around the world. The debate on gender diversity on boards has gained momentum over time. In Norway for instance, a gender quota has been mandated for board of directors. This quota has been set at 40% in Norway while Spain and Sweden have given quotas of 40% and 25%, respectively, gender representation on boards. This current study affirms that having women on boards is linked to corporate environmental performance. For managers, this study is quite informative on board gender diversity and the benefits that come with it. Also, according to the current study, as the average years of experience of women on boards increase, their influence on corporate environmental performance decreases. As such, the management should pay close attention to training women for better outcomes on corporate environmental performance.

From the current study, stakeholders' pressure has been cited as a key driver of corporate environmental performance. The management of different organizations are challenged to take advantage of this pressure to push the performance of their companies even higher. Notably, as an implication to the corporate management, there should be a reward system for the employees based on environmental performance. It is crucial for firms to understand that integrating employees' skills and knowledge on environmental management can greatly contribute to lower levels of energy consumption, lessen environmental impact risks, meet competitive threats, enhance brands can increase the firm revenues.

Managers serve the function of controlling performance in their respective organizations. They do so by developing score cards to assess the performance of the organization towards a particular target. For managers tasked with corporate environmental performance, this paper serves to inform on specific deliverables. Also, the paper points at the drivers of corporate environmental performance, hence informs the points of action for the managers. The study also informs human resource managers who are tasked with recruitment and selection process. In relation to stakeholders' pressure, human resource managers will be keen on identifying talent, knowledge and skill when selecting employees (Salminen et al., 2013). In

addition, as per the findings of the research, human resource managers will be keener on hiring a more diverse workforce in an effort to attain board gender diversity.

### ***6.5.2 Implications of the study on policy***

This current study provides several key insights for decision makers more so for policy development and strategy formulation. People tasked with policy formulation on environmental management systems in organizations have always been interested in coming up with policies that favour VEMs practices within their firms. The results of this study offer pointers to generate policies that favour voluntary environmental management systems. This study also challenges managers and policy makers to come up with strategies that lead to greater adoption of VEMs. Such strategies that promote adoption of VEMs include valuing customer satisfaction and developing a customer complaint resolution channel.

Adoption of these strategies could make it harder to ignore the opinion of customers, instil a culture of responding to customer views and in turn lead to greater adoption of VEMs. Also, the results of this current study are also useful for decision makers engaged in scenario planning and competitor analysis. The study results are mainly useful to anticipate the adoption of strategies that relate to VEMs by competitor firms. As such, these results may guide formulation of strategy more so in industries that favour the differentiation strategy.

This current study observes that women in boards offer numerous benefits to corporate environmental performance. The study informs policy makers on the benefits of including women in the board. Policies that relate to board gender diversity at the corporate and national level will benefit from the outcome of this research. The results of the study call for more board gender diversity implying the need for policies such as gender quotas. In addition, the study notes that the average years of experience of women on boards increase, their influence on corporate environmental performance decreases (Kakabadse et al., 2015). As such, policy makers ought to take into consideration policies that keep women in boards in touch with current developments through training, education workshops among other methods.

Stakeholders' pressure has been cited as a driver of corporate environmental performance in this current study. Policy makers concerned with corporate environmental performance are therefore challenged to pay close attention to different stakeholders to achieve better environmental performance. This study also highlights the different stakeholders that may influence the corporate environmental performance of organizations. Policy makers should be familiar with the different classes of stakeholders (both primary and secondary) as outlined in the current study. Primary stakeholders are seen to have a direct impact on the corporate environmental performance while secondary stakeholders have an indirect impact. Familiarizing with these stakeholders will inform policy and areas of action.

Environmental lobbyist needs to foster green consumerism through dissemination of information on sustainable consumption. This should be done with the aim of promoting the demand for green products by the consumers, greener technologies and green product line by the manufacturers. As an implication to the corporate management, there should be a reward system for the employees based on environmental performance. It is inherent for firms to understand that integrating employees' skills and knowledge on environmental management can greatly contribute to lower levels of energy consumption, lessen environmental impact risks, meet competitive threats, enhance brands can increase the firm revenues.

This study has a huge implication on policy makers in government. These policy makers will be more inclined to subsidize VEMS implementation to enable access to external expertise crucial in enhancing environmental management. Moreover, as per the results of the study, the policy makers are encouraged to develop fiscal and tax policies as incentives to promote voluntary culture in environmental protection among firms. This should be in line with enabling access to any sort of technical assistance. Again, there is an opportunity to introduce government sponsored voluntary programs, with the observed influence from both the regulators and communities and the insignificance of other stakeholders.

### ***6.5.3 Implications of the study on academia***

This current study makes numerous contributions to academia. The study is quite informative on the significance of stakeholders' pressure, gender diversity, and

voluntary environmental management practices on a firm's EP. This will offer a point of reference for future researchers in the field of environmental performance. This current study cites numerous academic materials ranging from books to articles and journals. The study acts as an affirmation of all these academic sources. It also critiques studies done by earlier researchers hence challenging future academicians to better their work.

In addition, this current study highlights the gaps by earlier studies and attempts to cover them. The field of academia will benefit from critiquing this current study and even filling gaps that may arise. To be specific, while this study acknowledges the benefits of board diversity there is little understanding of how women in boards deal with embedded norms and values, how they exercise their power and how they manage to act independently. Future studies are challenged to assess the real benefits of board gender diversity and recommend the processes or mechanisms that can help women identify and develop their abilities in corporate governance.

#### **6.6 Contribution of the study**

This study provides several contributions to the environmental management literature. Firstly, prior research posited that external stakeholders exert more pressure on the firm as compared to internal stakeholders. From this study, it is evident that internal stakeholders (in this study, employees through their regular discussions in internal meetings) stand a better chance of influencing management perceptions and policies (Ramanathan et al., 2014). In an attempt to contribute to the raging debate on the most salient stakeholders, the stakeholders were grouped based on mimetic, normative and coercive institutional pressures and inferred on their influence on resource management and energy efficiency.

Based on the findings, only employees (normative pressure-internal stakeholders) were reported to influence both resource management and energy efficiency. This is in agreement with Graham (2017), that directors, managers and employees are stronger drivers of environmental practices. This is therefore contributing to the stakeholders theory by calling out the need to minimize stakeholder marginalization (Bondy & Charles, 2020). Employees who have been less powerful stakeholders and forced to 'rely on the benevolence and voluntarism of the firm's management to

satisfy their demands are no longer on the sidelines. Management will need to consider their views when it comes to the corporate environmental management.

This study contributes to the neo-institutional theory as a result of the findings that firms that had adopted voluntary environmental systems performed relatively better on corporate environmental performance. It is consistent to argue that between an organization and environmental performance (which is the goal) there are mediating variables that shape organizational behaviour. Organizational behaviour is not only influenced by the goal, as presented by the conventional rational choice theory (Kelle & Lüdemann, 2019) but it also involves obtaining knowledge that result in a purposeful goal-directed behaviour (neo-behaviourism). This is achieved by empirically assessing the drivers of CEP in firms and showing that stakeholders, gender and VEMs are shapers of the environmental behaviour of firms. This contributes to a better understanding of how different factors will affect the organizational behaviour. How the external and internal factors are affecting the behaviour of firms also depends on the institutional voids such as government's power to regulate organizations, awareness of environmental matters and knowledge of the staff and management on CEP.

The study also delves into the relationship between firms' adoption of environmental management practices (resource management, energy efficiency) and stakeholders pressures (mimetic, normative and coercive). Using the stakeholder theory and neo institutional theory postulations, it is confirmed that a firm has to understand how engage its stakeholders such as: better work environment, environmental preservation, adherence to rules and regulations and management of the major customers as well as relations with competitors. For businesses to nurture stakeholders in these relationships, there is needed to effectively understand how the relationships and interests interact. This study provides some insights on what matters for each of the five stakeholders groups.

This study adds evidence to the theoretical argument of upper echelon theory. The study results are consistent with the majority prior findings that leader attributes (Palmer et al., 2012), in this case gender diversity, impact on corporate performance. Interestingly, with respect to corporate leadership, women on board showed more

significance in advocating for corporate environmental performance than those in top management team. Going beyond conventional upper echelon theory predictions, the study results predicts that for a meaningful organizational outcome as a result of women psychological characteristics, backgrounds, leadership styles, beliefs and values, they should be in a position of 'power'. More so, by the nature of being a woman, hence in possession of women specific attributes, it is not a guarantee that a leader's attribute progressively impacts on the organizational outcomes. This is an argument anchored on the study observations, that as the average years of experience of the women on board increases, their influence on better corporate environmental performance dwindles. Thus, this study concludes that between the relationship of leader attributes and organizational outcomes as proposed by the upper echelon theory, there are other intervening variables.

It is providing empirical contributions from an African perspective on environment management studies, an area that is unexplored. The results confirm that firms as result of normative and mimetic pressures will embrace resource management. In other words, mimetic pressure is as result of uncertainty, which lead firms to imitate norms or practices in the organisation's institutional field to lessen the threat of uncertainty in the environment. Under the normative pressure which emanates from employees and community groups, there will be influences on organizational norms, values, and beliefs leading the firms to implement more environmentally friendly resources management practices to be able to gain legitimacy.

In a world of dwindling natural resources and fierce marketplace competition, Kenyan firms are leaning towards learning on the best practices from peer industries and evidently using their internal human skills to enhance their productivity and efficiency. Neo-institutional theory through coercive isomorphism and normative isomorphism provides the basis on why firms will a adopt energy efficiency practices. Under the coercive pressure, which is as a result of government mandate as well as pressure from major customers, firms will operate in an energy efficient way in order to gain legitimacy. Under the normative pressure which emanates from employees, there will be influences on organizational norms, values, and beliefs leading the firms to implement energy efficient practices. These findings support the idea that stakeholder groups need to be analysed individually as they have different

orientations toward environmental management practices (Bett et al., 2015; Sarkis 2010).

The study confirms the relevance of the various firm attributes (control variables) on the stakeholders' pressures. Environmental sustainability pressure will be perceived differently based on the industrial sector wherein a firm operates as well as the environmental sensitivity of its products/services. Firms that are big in size – as measured by the number of employees- portray environmental pro-activeness in response to wide corporate publicity. In addition, the significance of a sustainability department in response to environmental demands from the stakeholder pressures can be understood in terms of: explicit definition of environmental policy, defined environmental responsibilities, long-term environmental plan and clear environmental objectives. Lastly, profitable firms may bear more pressure to the implementation of sound environmental management practices as profitability avails the required financial resources.

This research weighs in on the growing debate on the role of women in the advocacy for self-environmental regulation through the adoption of voluntary programs in firms. In answering the research question: *Do firms that incorporate women in their top management team and board of directors exhibit superior environmental performance?* This provides insights into the complementary functions of women in the traditional command and control approach. In particular, the study sheds light on the internal structure of organizations as a factor that can enhance environmental protection. Multiple studies have examined why firms opt to become certified and have identified several factors.

The study provides insights to the CSR and diversity fields. Firstly, the results provide a new understanding of how gender composition and tenure of the top management team and board influence ISO 14001 adoption (Burak Güner et al., 2008; Johnson et al., 2013). Specifically, the findings are consistent with UET postulations that managers' and directors' personal attributes influence organizational outcomes; in this case, the adoption of ISO 14001.

According to feminist theory, there are differences in the characteristics of the leadership styles of men and women, and they hold different views on environmental responsibility. Because women are keener on corporate social responsibility, they tend to influence the adoption of voluntary programs such as ISO 14001. Additionally, in light of feminist theory, women allow for communal, participative, and democratic governance that facilitates communication which can further strengthen corporate environmental responsibility. Therefore, there is a greater chance that women on boards will influence the decision to adopt ISO 14001.

However, women on top management teams may lack such influence due to their corporate role, which involves implementing decisions made by the directors. The board of directors are responsible for setting broad and long-term policies such as those related to environmental management. TMT is responsible for dealing with more immediate operational issues and primarily answers to the firm's stockholders, whose short-term investment decisions have a significant impact on top management tenure. In this respect, a woman manager's power to make decisions is limited to proposing to the board the possible environmental initiatives that can be undertaken. This explains why women's presence on TMTs does not mean that they have any influence on ISO 14001 adoption. Therefore, the Board has more impact on the business, a situation which is confirmed by this study in that women directors have more influence on ISO 14001 certification than women in top management (Stern et al., 1993).

The study is also adding to the CSR literature on the relationship between demographic factors and their interplay with the adoption of voluntary environmental initiatives as the study examined the average years of tenure of women on boards. Against the hypothesis, it was found that an increased tenure of women on boards did not increase the chances of ISO 14001 adoption but instead had a negative effect. Arguably, women with extended years of tenure seem disinterested in changing the status quo and hence less likely to adopt ISO 14001 in their organizations. This contradicts Diamantopoulos et al. (2003) who contended that old and experienced managers often support the implementation of strong environmental-related policies.

More importantly, however, managers and board members are adaptive social beings who make sense of situations by categorizing and re-categorizing themselves and others. This characteristic of humans is backed by the social categorization theory. In one way or another, individuals will have a sense of affiliation with the categories to which they belong and will be extrinsically motivated by the reward of affiliation with a certain social category. In this case, it was observed that in the long term, women representation in the board can impact the diversity power gains over time and can lead to group-thinking or even homogeneity due to this social categorization. For instance, researchers have concluded that such categorizations may result to negative behaviours such as decreased communication, stereotype-based role expectations, lack of cohesion, cooperation, and even increased conflict. Thus, in this case it is concluded that, the inverse relationship between the average years of tenure of female board members and adoption of ISO14001 is explained by the social-categorization theory.

The results indicate a strong positive relationship between the presence of a sustainability department and the adoption of ISO 14001. In addition, firms that have women on the board and in TMTs are more likely to have a sustainability department than those that do not have them in these positions. To the best of our knowledge, this is the first study to provide evidence of such a relationship. In addition, firms with a sustainability department are more likely to adopt ISO 14001. Kimball et al. (2012) observed that organizations with an environmental committee had higher Newsweek Green Rankings scores than those without. In this assessment, a sustainability department constitutes an environmental strategy of the organization that advocates for environmental responsibility. Thus, the sustainability department can be thought of as an initiator of policies and programs related to environmental responsibility and their subsequent implementation.

This research contributes to the growing debate on voluntary environmental programs that advocate for sustainable production through resource management and sound waste management. Adoption of ISO 14001 and UNGC are viewed as environmental management actions focused on improving energy and water management, while mitigating environmental impacts from waste. Past studies have examined the use of natural resources or singled out various measures of

environmental performance in their assessment of voluntary program- ISO 14001-effectiveness. However, the findings have been somewhat mixed and therefore this work aim to provide more clarity. Thus, this study provides an important perspective on the role of ISO 14001 and UNGC as voluntary strategies from a waste management approach. Additionally, the results are based on a developing economy that is responding to environmental challenge through coordinated efforts of the National, County governments and the private sector especially with the requirements of the national government to fulfil the requirement of the Paris Agreement.

### **6.7 Limitations and Areas for Further Research**

Critical mass theory postulates that there are a minimum number of managers or executives needed to influence decision of a firm. It is possible that in this study, boards that had a certain minimum number of women better influenced the decision to adopt ISO 14001 than those with one. That means that there could be a critical mass (number of women on the board or TMT) that would influence the decisions of a firm.

This study did not evaluate this point by considering the minimum number of women in Board or TMT that is required to make the difference in terms of the adoption of the ISO14001 in firms. For instance, this study did not scrutinize the effect of board and TMT sizes on environmental outcomes. Palmer et al. (2012) firms with large boards had a higher rating on the Newsweek report that meant a better environmental score. Presumably, large boards and TMTs may have more varied inputs translating them into wider business and environmental activities. This is an area which future research could possibly explore in relation to the developing countries.

This research work relied on specific proxies for measuring the CEP of a firm. There proxies included energy efficiency, resources management, waste management and certifications. Future research should consider other proxies for measuring the CEP to validate the results of this study. Under the four proxies, the study has also made assumptions on what consists each of the four parameters and this may vary from country to country, firm to firm, and time to time. This would therefore mean that

future research should also consider different measures and assumptions within the four measures of CEP.

It is possible that the observed relationship between the independent variables and dependent variables in this study may differ according to economic or legislative changes within a country. Such changes may encourage or deter environmental practices within firms such as better resources management, energy efficiency adoption of VEMs such as ISO 14001 certification. Future research carried out over a long period of time and using panel data may help to capture economic and political deviations that may have observable effects on CEP.

The validity of the results greatly hinges on the acceptance by the scholarly community whether the data collected from the survey method compared to secondary data and data based on databases such as the study by Glass et al. (2015) which used KLD data scores while Palmer et al. (2012) used Newsweek Green Ranking. In this case, the data for this research was self-reported data which has been ensured not to contain any biases for the validity of the results. However, it will be of importance that future research could consider having the self-reported data collaborated with some level of secondary data. This approach would offer a multidimensional and reproducible measure of environmental outcomes.

Methodologically, this research focused on the quantitative methodology and using survey method. This method has its challenges. For instance, reliability of data is very dependent on the quality of answers and on the survey' structure that is used for data collection. It is a method also faced with rigidity of the structure as the research will not be able to accommodate information beyond what is being collected using the questionnaire. The method has also been faulted to not capture emotions, behaviour and changes of emotions of respondents and hence limiting the richness of data collected. Based on these limitations, a consideration for a mixed method for future research would be useful to draw more insights in the relationships being investigated under this research.

Economic or legislative variations across countries may encourage or deter the implementation of environmental practices and subsequently derail the improvement

of firms CEP. A cross-country study could capture economic and political deviations that may have observable effects on drivers of CEP in different countries. There will be need to carry out a comparison study, or study including more than one country to validate the results of this study. Generalization of the study will be improved if more than one jurisdiction is considered for the study. Future research should consider having more than one developing country included in the study.

The validity of the findings partly hinges on the acceptance of the independent variables as measures of CEP. For instance, there is need for research confirmation, extension and elaboration using industry based or government sponsored VEMS. Both ISO 14001 and UNGC are third party programmes, a research into the efficacy of industrial and self-monitoring voluntary programs can further expound the understanding of VEMS in emerging economies. The VEMS used in this study are third party systems and hence the need to validate the results using other types of VEM will be crucial to enhance the generalizability of the results.

Firm approaches or strategies such as, training and capacity building of staff, internal policies in relation to different measures of CEP, rewarding the senior management based on merits of CEP and presence of a sustainability department would be drivers of environmental outcomes. It is also notable that this research did not identify if such strategies were effective in driving the CEP agenda in firms. Future research should consider such strategies within firms to explore what enablers may be useful to push the CEOP agenda in firms.

There will be need to explore combination of internal strategies/drivers and national policies that aimed at promoting CEP within firms. This research restricted itself to the organizational drivers of CEP and did not explore government or other third parties-driven strategies. There may be need to explore the combination of firm and policy driven strategies to provide more insights on what managers as well as policy makers may need to intervene on to enhance the level of CEP in firms. For instance, there could be the need to explore the combination effect of CEP strategies at the firm level and those at the county level, and evaluate if there are synergies or contradictions to enable CEP at the firms' level.

This research was undertaken in Kenyan urban zones-Nairobi, Thika and Machakos - whose agglomeration create networks and expertise concentration through subcontracting and specialization (Tatoglu et al., 2015). Conducive infrastructure and availability of support services within industrial intensive geographical locations call for an exploration in rural set-ups which might not have the same levels of infrastructure, and hence may have different results compared to those carried under this research work.



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## APPENDIX A: QUESTIONNAIRE

QUESTIONNAIRE NUMBER ID \_\_\_\_\_

STARTING TIME: \_\_\_\_\_ END TIME: \_\_\_\_\_

ENUMERATOR NAME; \_\_\_\_\_

### BACKGROUND INFORMATION

Background Information of Respondent:

1. What's your Gender? [1] Male [ 2] Female

2. What's your current position at the Company?

[1] CEO

[4] Environment Health & Safety (EHS)

[2] General Manager

[5] Corporate Social Responsibility (CSR) Officer

[3] Director Officer

[6] General Employee

[7] Others. Please specify.....

Name: \_\_\_\_\_

Company: \_\_\_\_\_

Telephone: \_\_\_\_\_

Email: \_\_\_\_\_

Date of interview: Day.....Month..... Year .....

### SUPERVISOR AND DATA ENTRY CHECKLIST

Date checked

Supervisor's name

Date entered

Entered by

### DESCRIPTION OF THE FIRM

*PLEASE RESPOND TO THE QUESTION BY REPORTING THE MOST APPROPRIATE BOX AND/OR GIVING THE RESPECTIVE FIGURE/NUMBER*

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**A01 Industry type: How would you best describe your organization's main area of activity?**

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	[1] Building, Mining & Construction	[9] Pharmaceutical; Health services & Medical Equipment	
	[2] Chemical & Allied	[10] Plastic & Rubber	
	[3] Energy, Electrical & Electronics	[11] Business Services – Consultancy	
	[4] Food & Beverages	[12] Financial Services,	
	[5] Leather & Footwear	[13] Textiles & Apparel	
	[6] Metal & Allied	[14] Timber, Wood & Furniture	
	[7] Automotive	[15] Agriculture – Farming, Fishing & Forestry	
	[8] Paper & Board	[16] Hospitality	
		[17] Other	
		(specify).....	
<b>A02</b>	Industry subsector		
<b>A03</b>	Location of the factory/firm (City/ Town/ County)		
<b>A04</b>	Business Operation Start Year		
<b>A05</b>	Number of employees:		
<b>A06</b>	<b>Ownership Structure</b>		
	[1] Kenyan fully owned		
	[2] Local & foreign owned		
	[3] Foreign fully owned		
<b>A07</b>	Is your company a listed company (NSE)	Yes= 1	No= 0
<b>A08</b>	Do you export your products?	Yes= 1	No= 0
<b>A09</b>	The firm is a participant of the UN Global Compact Sustainability Initiative	Yes= 1	No= 0

## MANAGEMENT AND LEADERSHIP

This section analyses the dynamism in the sustainability department, management and board firm.

	1: Top Management Team	2: Board of Directors	3: Sustainability Department
<b>B01</b>	Size (Total number of people)		
<b>B02</b>	No of Women in the team		
<b>B03</b>	Average years of experience of team		
<b>B04</b>	Average years of experience of women in the team		

## INSTITUTIONAL PRESSURE

To what extent does each of the following institutional groups influence your firm's environmental management practices. (1 = Not at all 2= To a small extent 3 = To a moderate extent 4 = To a great extent)

Extent	1	2	3	4
<b>Influence of Employees on Firms Environmental Management Practices</b>				
<b>CO1</b>	Employees expect the firm to implement environment management practices			
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>CO2</b>	Employees voluntarily engage in corporate environmental management activities			
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>CO3</b>	Employees monitor whether the promises on environmental management are fulfilled			
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Influence of Customers on Firms Environmental Management Practices</b>				
<b>CO4</b>	My firm's major customers frequently require my firm to adopt environmentally responsible business			
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>CO5</b>	My firm's major customers would withhold their contracts if my firm did not meet their environmental performance requirements.			
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>CO6</b>	My firm receives requirements from consumer associations to be more environmentally conscious firm.			
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Influence of Regulators on Firms Environmental Management Practices</b>				
<b>CO7</b>	Regulators have passed laws to increase environmental accountability in our sector			
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>CO8</b>	Regulators enforce rules to increase environmental transparency in our business			
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<b>CO9</b>	Regulators try to initiate environmental activities of companies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Influence of Competitors on Firms Environmental Management Practices</b>					
<b>C10</b>	Our strongest competitors take a leading role in environmental responsibility	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>C11</b>	Our competitors communicate openly about their environmental management performance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>C12</b>	Our strongest competitors invest regularly in environmental responsibility	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Influence of Trade Associations on Firms Environmental Management Practices</b>					
<b>C13</b>	Trade associations have passed guild lines to increase environmental accountability in our sector	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>C14</b>	Trade associations closely monitors our firms' environmental practices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>C15</b>	We have to cope with trade associations regulations on environmental practices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Influence of Community Environmental Groups on Firms Environmental Management Practices</b>					
<b>C16</b>	Community environmental groups are likely to file a law suit against our firm in the event of an environmental misconduct	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>C17</b>	We have to cope with community environmental groups campaigning against our firm products/services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>C18</b>	We foster partnerships with community environmental groups relevant to our firm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Influence of Media on Firms Environmental Management Practices</b>					
<b>C19</b>	Our company often appear in the media headlines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>C20</b>	Our firm's activities are closely monitored by the media	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>C21</b>	Various media portray our environmental management practices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>C22</b>	Others – Please specify.....				

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#### **ENVIRONMENTAL MANAGEMENT PRACTICES**

Using a 4- Point Scale (*1 = Not at all 2 = To a small extent 3 = To a moderate extent 4= To a great extent*) **rank** the environmental good practices adopted by the firm in the past three years

		1	2	3	4
<b>DO1</b>	Overall environmental performance of the firm has improved.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>DO2</b>	The firm saved significant amount of resources due to its environment management practices.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<b>D03</b>	There are considerable resources devoted to environmental impact reduction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>D04</b>	The firm use renewable sources of materials for its business operations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>D05</b>	The firm undertakes due diligence measures to avoid and / or mitigate adverse environmental impacts within its operations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>D06</b>	The firm has realized a decline in the firm's environmental impacts on nature	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>D07</b>	The firm invests in Environmental Research and Development annually	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>D08</b>	The firm is more concerned about the environmental impact of the firm's activities in addition to the competition and profitability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>D09</b>	(Senior) management is rewarded based on the environmental performance of the firm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>D10</b>	Procurement procedures involve environmental criteria	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>D11</b>	To what extent does your company comply with environmental regulations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<b>D12</b>	The firm has an environmental policy	Yes= 1	No= 0
<b>D13</b>	The firm has product standards that include criteria on environmental impacts and standards	Yes= 1	No= 0

### **BARRIERS TO ENVIRONMENTAL MANAGEMENT PRACTICES**

Using a 4-point scale (1 = Not at all 2 = To a small extent 3= To a moderate extent 4= To a great extent), kindly rank the extent to which the following barriers limit the firm's environmental practices in the last three years

		<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<b>EO1</b>	Lack knowledge on how to incorporate environmental management practices in our business plan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>EO2</b>	Regulatory Constraints - environmental regulations are too complex	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>EO3</b>	Lack of Support Services by the relevant institutions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>EO4</b>	Limitation of financial resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>EO5</b>	Limitation of human resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>EO6</b>	Limited returns from environmental management investment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## ENERGY EFFICIENCY

Using a 4-point scale (1 = Not at all 2 = To a small extent 3 = To a moderate extent 4= To a great extent) kindly indicate the extent to which your firm is involved in energy efficiency in the last three years:

		1	2	3	4
<b>F01</b>	The company is aware of the Energy Management regulations of 2012				
<b>F02</b>	The company has a written energy policy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>F03</b>	The firm has been successful in implementing energy efficient polices.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>F04</b>	The company has sufficient technical expertise to identify, develop and implement energy efficiency	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>F05</b>	The firm conduct energy trainings, campaigns and awareness programs for all staff on energy management?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>F06</b>	Energy savings have resulted in a decrease in energy use intensity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>F07</b>	The firm invests in renewable energy options (solar, wind, Briquettes, etc)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>F08</b>	Is your company planning to invest in renewable energy options (solar, wind, Briquettes, etc)	YES <input type="checkbox"/>	NO <input type="checkbox"/>		
<b>F09</b>	Energy Audit was undertaken in the last 3 years	YES <input type="checkbox"/>	NO <input type="checkbox"/>		
<b>F10</b>	If Yes in F09 to what extent has the firm implemented the recommendations of the energy audits	< 10% <input type="checkbox"/>	10 - 20% <input type="checkbox"/>	21% - 40% <input type="checkbox"/>	41% - 70% <input type="checkbox"/>
		11% <input type="checkbox"/>	21% <input type="checkbox"/>	41% <input type="checkbox"/>	>71% <input type="checkbox"/>

## WASTE & POLLUTION MANAGEMENT

Using a 4-point scale (1 = Not at all 2 = To a small extent 3 = To a moderate extent 4= To a great extent), kindly indicate the extent to which your firm is involved in waste and pollution management in the last three years:

		1	2	3	4
<b>G01</b>	The firm is committed to better waste and pollution management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>G02</b>	The firm informs customers of the environmental impacts of the products marketed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>G03</b>	The firm undertakes waste recycling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<b>G04</b>	The firm reduces and control the use of [ ] inputs that cause environmental damage-	[ ]	[ ]	[ ]
<b>G05</b>	The firm reduces and control the release of [ ] any substance that may cause environmental damage	[ ]	[ ]	[ ]
<b>G06</b>	Disposes physical waste through [ ] environmentally safe methods	[ ]	[ ]	[ ]
<b>G07</b>	Investment (R&D, processes, products, [ ] machinery, etc.) decisions are also based on reduced waste and pollution	[ ]	[ ]	[ ]

### **WATER & MATERIAL MANAGEMENT**

Using a 4-point scale (1 = Not at all 2 = To a small extent 3 = To a moderate extent 4 = To a great extent), kindly indicate the extent to which your firm is involved in the following material management practices in the the last three years

		<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<b>H01</b>	The firm uses recyclable materials	[ ]	[ ]	[ ]	[ ]
<b>H02</b>	The firm uses biodegradable materials	[ ]	[ ]	[ ]	[ ]
<b>H03</b>	The firm has a collection policy on its sold [ ] materials for products that are discarded by customers	[ ]	[ ]	[ ]	[ ]
<b>H04</b>	The firm substitutes toxic raw materials with non- [ ] toxic materials	[ ]	[ ]	[ ]	[ ]
<b>H05</b>	The firm has realized an improvement in water [ ] efficiency	[ ]	[ ]	[ ]	[ ]
<b>H06</b>	The firm undertakes wastewater recycling	[ ]	[ ]	[ ]	[ ]
<b>H07</b>	Water Audits was undertaken in the last 3 years	<b>YES [ ]</b>	<b>NO [ ]</b>		
<b>H08</b>	If Yes in H07 to what extend has < 11% the firm implemented the recommendations of the water audit	<b>11% - 20%</b>	<b>21% - 40%</b>	<b>41% - 70%</b>	<b>&gt;70%</b>

### **CERTIFICATION, COMPLIANCE & REPORTING IN THE LAST THREE YEARS**

<b>I01</b>	The firm has a sustainability unit/ environmental management unit	<b>YES [ ]</b>	<b>NO [ ]</b>
<b>I02</b>	<b>If Yes in I01</b> what is the job level of the environmental specialist?		
	Top level management [ ]	Middle level management [ ]	Junior employee [ ]
<b>I03</b>	The firm has an environmental policy	[ ]	[ ]

	statement outlining commitment to environmental stewardship		
<b>I04</b>	The firm is ISO 14001 (Environment Management System) certified?	<input type="checkbox"/>	<input type="checkbox"/>
<b>I05</b>	The firm publishes an annual report that includes environmental impact?	<input type="checkbox"/>	<input type="checkbox"/>
<b>I06</b>	The firm keeps track of the legal requirements for the environmental issues, and ensure that they are adhered to?	<input type="checkbox"/>	<input type="checkbox"/>
<b>I07</b>	The firm had government inspections/ audits on my firm to ensure that the firm in compliance with environmental laws and regulations for the past 3 years	<input type="checkbox"/>	<input type="checkbox"/>
<b>I08</b>	Has there been any civil action in respect of environmental non-compliance, or has your firm been convicted of breaking any environmental legislation in the last:		
	1 year	<b>YES</b> <input type="checkbox"/>	<b>NO</b> <input type="checkbox"/>
	3 years	<b>YES</b> <input type="checkbox"/>	<b>NO</b> <input type="checkbox"/>
	5 years	<b>YES</b> <input type="checkbox"/>	<b>NO</b> <input type="checkbox"/>
<b>I09</b>	Number of fines over the last five financial years		
<b>I10</b>	Did you experience any revocation of licenses due to non compliance issues in the last 5 years?	Yes= 1	No= 0

### DRIVERS OF ENVIRONMENT MANAGEMENT PRACTICES

To what extent do each of the following drive the firm's Environmental Management Practices? (Scores go from 1 to 4: 1 = Not at all, 2 = To a small extent, 3 = To a moderate extent, 4 = To a great extent)

		<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<b>J01</b>	Voluntary business initiatives to contribute to a more sustainable world by reducing environmental impact	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>J02</b>	Management need to control significant environmental costs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>J03</b>	To improve the organization's public reputation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>J04</b>	To improve relations with the local community	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>J05</b>	To satisfy employee expectations on environmental performance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>J06</b>	To build long term good relations with suppliers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<b>J07</b>	To meet requirements by trade associations regulations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>J08</b>	To meet legal compliance requirements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>J09</b>	To satisfy a requirement by corporate headquarters	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>J10</b>	To satisfy requirement by customers/clients	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>J11</b>	To have a uniform environmental management standard that is recognized across the globe such as ISO 14001	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>J12</b>	To keep up with main competitors and/or with the other members of trade associations to which the organization belongs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>J13</b>	To increase the organization's chances of gaining access to or obtaining competitive advantage in public procurement procedures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>J14</b>	To gain benefits from regulatory relief or other policy measures (e.g. tax breaks, less frequent inspections by authorities)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### PERCEIVED FINANCIAL PERFORMANCE

As compared to similar firms within your industry, how will you please rate your firm's performance on the following financial indicators for last financial year?

	Much worse	Worse	Similar	Better	Much better
	1	2	3	4	5
<b>K01</b> Return on assets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>K02</b> Return on sales	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>K03</b> Return on investments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>K04</b> Profit margins	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>K05</b> Sale growth	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>K06</b> Market share growth	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>K07</b> Profit growth	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### ORGANISATIONAL CULTURE

To what extent do each of the following represents our firm's organizational culture? (Scores go from 1 to 4: 1 = Not at all, 2 = To a small extent, 3 = To a moderate extent, 4 = To a great extent)

		<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<b>L01</b>	We value loyalty and tradition in our organization.	[ ]	[ ]	[ ]	[ ]
<b>L02</b>	Our people are willing to stick their necks out and take risks.	[ ]	[ ]	[ ]	[ ]
<b>L03</b>	We are committed to innovation and development	[ ]	[ ]	[ ]	[ ]
<b>L04</b>	Our organization emphasizes growth through developing new ideas	[ ]	[ ]	[ ]	[ ]
<b>L05</b>	Our organization follow formal rules and policies	[ ]	[ ]	[ ]	[ ]
<b>L06</b>	Our organization values permanence and stability.	[ ]	[ ]	[ ]	[ ]
<b>L07</b>	Our organization is output driven i.e. results driven	[ ]	[ ]	[ ]	[ ]
<b>L08</b>	Our organization places high importance to accomplishing goals.	[ ]	[ ]	[ ]	[ ]

#### **REALIZED ABSORPTIVE CAPACITY**

To what extent do you agree or disagree with the following statements on the realized absorptive capacity in your organization 1 = Strongly disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly agree).

		<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>M01</b>	We regularly consider the consequences of changing market demands, in terms of new ways to provide environmental products and services	[ ]	[ ]	[ ]	[ ]	[ ]
<b>M02</b>	We quickly recognize the usefulness of new external knowledge for existing knowledge	[ ]	[ ]	[ ]	[ ]	[ ]
<b>M03</b>	Employees hardly share practical experiences on environmental issues	[ ]	[ ]	[ ]	[ ]	[ ]
<b>M04</b>	We laboriously grasp opportunities for our unit from new external knowledge on environmental issues	[ ]	[ ]	[ ]	[ ]	[ ]
<b>M05</b>	We periodically meet to discuss the consequences of market trends and new service and product development	[ ]	[ ]	[ ]	[ ]	[ ]
<b>M06</b>	It is clearly known how activities within our unit should be performed to achieve environmental sustainability	[ ]	[ ]	[ ]	[ ]	[ ]
<b>M07</b>	We have a clear division of roles and responsibilities on environmental issues	[ ]	[ ]	[ ]	[ ]	[ ]
<b>M08</b>	We constantly consider how to better exploit our environmental knowledge	[ ]	[ ]	[ ]	[ ]	[ ]
<b>M09</b>	We have difficulties implementing new environmental services and products	[ ]	[ ]	[ ]	[ ]	[ ]

## APPENDIX B: ENVIRONMENTAL LAWS IN KENYA

<b>Legal, Policy, Regulatory and Institutional Framework.</b>	<b>Role and Responsibility</b>	<b>Scope of Application</b>
Article 42 of Constitution, 2010	Legal framework for environmental management and governance in pursuit of sustainable development	<ul style="list-style-type: none"> <li>• Right to clean and healthy environment</li> <li>• Environmental legislation, agreements and obligations</li> <li>• Enforcement of environmental rights</li> </ul>
Environmental Management and Coordination Act, 1999 (EMCA)	Establishment of appropriate legal and institutional framework for environmental management.	<ul style="list-style-type: none"> <li>• National Environmental Management Authority</li> <li>• National Environment Council</li> <li>• Provincial and District Environmental Committees</li> <li>• Public Complaints Committee</li> </ul>
Environmental Impact Assessment Regulations (EIA), 2003	Environmental Audit and impact assessment	<ul style="list-style-type: none"> <li>• Conformity of projects to approved environmental management plan.</li> </ul>
Noise Regulations, 2009	Noise production	<ul style="list-style-type: none"> <li>• Prohibit production of unreasonable and unnecessary loud noise</li> </ul>
Wetlands Regulations, 2009	Wetland resource management.	<ul style="list-style-type: none"> <li>• Empowering the District Committee to coordinate, monitor and advise on wetlands.</li> </ul>
Water Act 2002 (Water Quality Regulations)	Protection of sources of domestic, industrial (effluent discharge) and agricultural use	<ul style="list-style-type: none"> <li>• Standards and monitoring of sources of domestic water</li> <li>• Standards and monitoring of effluent discharge into the environment and public sewers</li> </ul>
Waste Management Regulations, 2006	Requirements for handling, storing, transporting, treatment and disposal of all waste types.	<ul style="list-style-type: none"> <li>• Industrial waste</li> <li>• Hazardous and toxic wastes</li> <li>• Pesticides and toxic substances</li> <li>• Biomedical wastes</li> </ul>

		<ul style="list-style-type: none"> <li>• Radio-active substances</li> </ul>
The EMCA Regulations of 2006.	Conservation of Biological Diversity Resources, Access to Genetic Resources and Benefit Sharing.	<ul style="list-style-type: none"> <li>• Introduction of exotic species</li> <li>• Unsustainable use of natural resources</li> </ul>
Plastic bag ban, 2017	Waste management	<ul style="list-style-type: none"> <li>• Ban on the manufacture, importation, supply, distribution and use of non-woven polypropylene</li> </ul>
National Climate Change Action Plan (2018-2022)	Five-year plan on low carbon climate resilient development goals	<ul style="list-style-type: none"> <li>• Adaptation, mitigation and enabling climate change actions</li> </ul>
National Sustainable Waste Management Policy, 2018	Waste management	<ul style="list-style-type: none"> <li>• Efficient and sustainable management of waste</li> </ul>
National Adaptation Plan (2015-2030)	Priority adaptation actions	<ul style="list-style-type: none"> <li>• Climate hazard and vulnerability assessment.</li> </ul>
Kenya's Nationally Determined Contribution (NDC) (2016)	Climate Change Medium Term Plans	<ul style="list-style-type: none"> <li>• Climate Change mitigation and adaptation</li> </ul>
Climate Change Act (No.11 of 2016)	Climate Change governance in Kenya	<ul style="list-style-type: none"> <li>• Climate change resilience and low carbon development</li> </ul>
Climate Risk Management Framework (2017)	Integrated climate risk management	<ul style="list-style-type: none"> <li>• Disaster risk reduction</li> <li>• Climate change adaptation</li> <li>• Sustainable development</li> </ul>
National Climate Change Framework Policy (2018)	National and County level climate change action	<ul style="list-style-type: none"> <li>• Planning, budgeting, implementation and decision-making</li> </ul>
National Climate Finance Policy (2018)	Access and management of climate finance	<ul style="list-style-type: none"> <li>• Legal, institutional, and reporting frameworks</li> </ul>
Green Economy Strategy and Implementation Plan (GESIP 2016-2030)	Sustainable economic growth	<ul style="list-style-type: none"> <li>• Green economy- low emissions, resource efficiency, higher economic growth.</li> </ul>
Kenya Strategic Investment Framework on	Sustainable land management	<ul style="list-style-type: none"> <li>• Investments, interventions and actions on Kenya's natural</li> </ul>

Sustainable Land Management (2017-2027)		capital.
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## APPENDIX C: ETHICAL APPROVAL

### SU-IERC0397/19 - ASSESSMENT OF DETERMINANTS OF CORPORATE ENVIRONMENTAL PERFORMANCE OF FIRMS IN KENYA



23<sup>rd</sup> April 2019

Mr. Mungai, Edward  
P.O. Box 9647-00200  
Nairobi.  
emungai@kenyacic.org

Dear Mr. Mungai,

**REF Protocol ID:** SU-IERC0397/19

#### **ASSESSMENT OF DETERMINANTS OF CORPORATE ENVIRONMENTAL PERFORMANCE OF FIRMS IN KENYA.**

We acknowledge receipt of your application documents to the Strathmore University Institutional Ethics Review Committee (SU-IERC) which includes:

1. Study Protocol submitted 11<sup>th</sup> March 2019
2. Cover letter listing all submitted documents 11<sup>th</sup> March 2019
3. Proposal declaration Page signed by supervisors 11<sup>th</sup> March 2019
4. Questionnaire for the Study 16<sup>th</sup> April 2019

The committee has reviewed your application, and your study "*Assessment of determinants of corporate environmental performance of firms in Kenya*" has been granted **approval**.

This approval is valid for one year beginning **23<sup>rd</sup> April 2019** until **23<sup>rd</sup> April 2020**

In case the study extends beyond one year, you are required to seek an extension of the Ethics approval prior to its expiry. You are required to submit any proposed changes to this proposal to SU-IERC for review and approval prior to implementation of any change.

SU-IERC should be notified when your study is complete.

Thank you

Sincerely,

Prof. Florence Oloo  
Secretary

Strathmore University Institutional Ethics Review Committee



# APPENDIX D: ORIGINALITY REPORT

Stakeholders' Pressure, Gender Diversity, and Voluntary  
Environmental Management Systems as Drivers of Corporate  
Environmental Performance of Firms in Kenya

Edward Mbucho Mungai



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