Research Report

Environmental Management Systems As A Business Idea To Attain Sustainability: A study of Swaziland Electricity Company (SEC)

By:

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DECLARATION

I, Nozipho Nomzana Mziyako, do hereby declare that this research is my own work submitted by myself as my research. I fully acknowledge the rules of the University with this regard and will abide by the consequences of being in breach of the rules and regulations with regards to plagiarism.

13 June 2019

Signature & Date

ABSTRACT

The business environment is rapidly changing owing to increased access to information and resources like information and technology improvements. This is especially true for the developing African continent. Not only does this change come with increased competition between businesses, but there is also tighten legislation seeking to promote adequate business governance. To maintain market advantage, businesses need to swing into new perspective and adopt sustainable strategies that will improve their economic performances and quality production and delivery of goods and services, while protecting society and the environment.

As part of such sustainable strategies, many businesses have taken heed to adopting the implementation of the Environmental Management System (EMS), based on the ISO 14001 standard. However, although the EMS is ideal for assisting businesses to manage their impacts on the environment, it does not directly consider the socio-economic aspects of being sustainable. This research therefore explored the use of the EMS to attain business sustainability, paying particular attention to how the tool can be strengthened in order to increase its use as a sustainability tool in businesses that have adopted it and those yet to. Information used to achieve the research aim was collected and analysed using a qualitative approach, within a pragmatic perspective. Participants for the research were purposively sampled from the research study focus area, Swaziland Electricity Company (SEC). In summary, fifty (50) participants responded to questionnaires and five (5) were interviewed.

Results of the research indicate that participants at SEC considered the EMS to be a sustainability tool based on their singular understanding of the sustainability concept; environmental protection. This understanding was noted to have resulted from the fact that the EMS at SEC was introduced as a sustainable strategic business practice. The high investment on one aspect of sustainability, however, has created an overshadowing of the other aspects of sustainability at the company. While participants indicated that they were satisfied with the implementation of the EMS at SEC, challenges of the tool such as no evident financial benefits and lack of human resource consideration were highlighted.

To strengthen the tool's use therefore as a sustainability tool, the research concludes that the EMS's role and purpose must be structured to holistically encompass all sustainability aspects. This will entail that businesses clearly define and formalise sustainability throughout their processes and ensure that the concept is understood by all employees across the hierarchical structure. Furthermore, in consideration of various tools employed by businesses towards sustainability, the research determined that it would be beneficial to integrate shared elements and use one model to drive towards sustainability attainment. This can promote shared understanding of the company's sustainability objectives and promote involvement of multiple sustainability roles in a business, thus reducing lack of morale.

Key words:

Sustainability, Environmental Management Systems (EMS), Sustainability principles, Management Systems, Strategy, ISO 14001.

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LIST OF ABBREVIATIONS

Abbreviation	**Explanation**
BEMPs	Best Environmental Management Practices
BRF	Business Review Forum
CSR	Corporate Social Responsibility
EMS	Environmental Management System
Eskom	Electricity Supply Commission
GDP	Gross Domestic Profit
IPP	Independent Power Producer
ISO	International Organisation for Standardisation
OH&SMS	Occupational Health and Safety Management System
OHSAS	Occupational Health and Safety Assessment Series
PDCA	Plan Do Check Act
PESTEL	Political, Economic, Socio-Cultural, Technological, Environmental and Legal
QMS	Quality Management System
SEC	Swaziland Electricity Company
SHERQ	Safety Health Environment Risk and Quality
SWOT	Strengths, Weaknesses, Opportunities and Threats
WCED	World Commission on Environment and Development

CHAPTER ONE

FRAMES OF REFERENCE

1.1 Introduction

Over the decades, business economic growth has been triggered by the unsustainable use of non-renewable resources, biodiversity loss, and the emission of greenhouse gases which has led to environmental degradation (Martine and Alves, 2015). This has contributed to global dissatisfaction as businesses were noted to be focusing on increased GDP at the expense of environmental and human health (Institute for International Urban Development (I2UD), 2015). In response, the United Nations (UN), introduced in their Brundtland report: Our Common Future 1987, a concept of sustainable development that needed to be adopted by entities in order to link wealth, the people and the environment (I2UD, 2015). Accordingly, this was defined as "*development that meets the needs of the present without compromising the ability of future generations to meet their own needs*". Since then, the realisation that negative impacts of businesses needed to be addressed pushed for tightened environmental legislation with the aim of improving environmental quality and caused businesses to rethink their approaches to economic development in light of the environment's limitations (European Commission, 2004; Martine and Alves, 2015).

With the United Nations coining the concept of sustainable development, there has been a demand for businesses to be more socially considerate and environmentally ethical (Wales, 2013). The business market has also become stricter, requiring businesses to aim at achieving sustainability by demonstrating strengthened environmental protection in their operations while aspiring towards economic and social progress (Pogutz, 2007; World Economic and Social Survey, 2013). The concept of sustainability, meaning 'to hold', has thus become very common in the business world (Jeronen, 2013). It is seen as a paradigm for recognising the environment as a scarce resource in economic terms and a finite key to development,

hence it is widely used interchangeably with the concept of sustainable development conceptualised by the United Nations (Cistulli, 2002; Bina, 2013; Jeronen, 2013).

Sustainability guides businesses to think about the future, whereby environmental, societal and economic considerations are balanced in search of increased profits and an improved quality of life (Jeronen, 2013). This thus highlights that sustainability encompasses economic, social and environmental aspects as well as the interaction and equity of these aspects. The interaction and aspect of equity is usually described using the capital[1] approach concept, where the amount of capital a generation has in its disposal is decisive for its development, that is, development is called sustainable when it leaves the capital stock at least unchanged (Figge and Hahn, 2005). Such expansions on the definition of sustainability acknowledge that economic development must endure, seeing as the world's largest population lives in poverty. However, this must be done in a way that preserves the environment as we find it today, in all its forms in order to not limit the options of future generations as aligned to the Brundtland Report's concept of sustainable development.

Sustainability has therefore become a guiding influence for all work undertaken in organisations and a lot of businesses are actively trying to go beyond economic performance by also actively incorporating environmental performance in their policies in order to remain sustainable and respond to global and local environmental issues (Wales, 2013; Fet, 2014). To ease the process towards improved environmental performance, there are now several environmental management tools developed in the business marketplace (Fet, 2014).

[1] Capital is used to produce other goods. Unlike raw material is not immediately used in the production process. It can be categorised into manufactured capital (aka economic capital/ human-made): tools, infrastructure etc.; human capital: labour, human health, skills, knowledge etc.; natural capital: environmental assets (biodiversity, fossil fuels etc.); and social capital (human relationships, welfare etc.)

One such tool is the Environmental Management System (EMS). An Environmental Management System is adopted either at industry or company level and it is intended to increase environmental consciousness (awareness on environmental issues and the willingness to take positive action) by formalising procedures for managing and reducing environmental impacts such as wastes and pollution, with the aim of contributing to continuous improvement of a business' environmental performance (Saha and Seal, 2011; Fet, 2014; Merli et al., 2016). Studies on the EMS present it as a powerful tool for planning and implementing for continual improvement towards complying with environmental regulations and conserving natural resources (Haldar, 2013; Fet, 2014). There remains, however, an underlying question: Can environmental management tools such as the EMS be used by businesses to improve economic growth as well as environmental and social quality for the present and future generations as means to attain sustainability?

To address this question within the context of this research, focus will be based on the Swaziland Electricity Company (SEC), the sole power generator, transmitter and distributor in the Kingdom of Swaziland. According to Salim et al., (2018), there has been a growing trend of research on the use of the EMS by businesses over the years, however a lot of research is done in developed countries like Europe, North America and China, with poor research representation in developing countries. This research therefore engages with existing research on the EMS and business sustainability and seeks to contribute to the body of knowledge on these concepts in a developing country.

1.2 Thematic Considerations

Swaziland Electricity Company (SEC) is involved in the business of generating, transmitting and distributing electricity in the Kingdom of Eswatini and has been enjoying monopoly status since 1963. The company is one of the leading economic enables in the country; employing over 800 Eswatini people, providing employment to numerous electrical and other contractors as well as service provides in the country and a key player in ensuring that the country reaches 100% electrification by

year 2022 as part of the Country's Vision 2022[2]. In the context of managing sustainability, the company does not have a single department dedicated to sustainability issues but rather has various departments that are embedded within different divisions functioning separately to either manage the environment, implement corporate social investments, manage human resources and the financial aspect of the company. This makes it difficult to adequately report, track and review the company's sustainability profile.

With the introduction of renewable Independent Power Producers: IPPs - *non-governmental companies that can produce electricity and/or power through alternative energy sources such as solar, wind, biogas etc., for inclusion into the national grid*-, the company faces an increasing competitive environment. Hence swinging into new perspective is very essential if they are to maintain a majority market share in the country. In addition, unpredictable and severe weather conditions due to climate change, such as the 2015 Southern Africa drought which saw the country's water bodies drying up, are causing financial strains for the hydro power generating utility and need to be strategically managed if the company is to survive.

In order to succeed in a growing, unpredictable and competitive environment, not only in Swaziland but also within the Southern African Development Community (SADC) region as a member utility of the Southern African Power Pool (SAPP[3]), the company has taken certain strides. In its 2015-2020 Strategy, aligned with the company's vision and mission[4], the company announced its desire for a sustainable

[2] Swaziland Vision 2022 is part of the country's efforts towards sustainable development and is aligned to the long term National Development Strategy that was rolled out in 1999.

[3] Southern African Power Pool (SAPP) Environmental Sub-Committee has developed a number of environmental guidelines to ensure member utilities are up-to date with international and regional matters relating to environmental management and requires that all SAPP utilities develop Environmental Management Systems, as means of ensuring sustainability (SAPP, 2016).

[4] Vision: To be a major player in Energy Sector development, nationally and regionally.

approach to business, that no longer focused only on profit to secure the future but was more considerate of all aspects of sustainability; that is society, the environment and profit. As a sustainable business practice, the company adopted the implementation of an Environmental Management System (EMS), a practice being adopted by many businesses who aim to capacitate their paths towards sustainable strategies and operations.

An EMS is a voluntary, systematic and preventative tool that aids entities to deal with their activities' impacts on the environment (Saha and Seal, 2011). It is entailed in a framework that assists businesses to manage environmental aspects[5] of their activities in terms of human, financial as well as technical resources and guide them to manage, monitor and effectively improve their environmental performances (Biondi et al., 2000; Darnall and Edwards, 2006). Although the tool is based on a well renowned *Plan-Do-Check-Act* continuous improvement model, conceptualised by Deming (1986), it is more about managing environmental issues rather than all three sustainability dimensions. If the EMS is considered as a way to advance sustainability at SEC, it must therefore interconnect the environmental, social and economic performance goals of the company.

To ensure that the concept of sustainability is actually achieved, four common sustainability principles were published together with the Brundtland report (see WCED, 1987 in Davies, 2013):

i. Holistic planning and strategy making;

Mission: To meet the needs of our customers in a sufficiently profitable and environmentally sound way through providing a reliable and safe power supply of acceptable quality.

[5] An element of a business' activities, products or services that can interact with the environment (Ganguly, 2017). These can be direct (which a business can be excepted to have influence and control over) or indirect (which a business can be excepted to have influence but no control over)

ii. Preservation of ecological processes;
iii. Protection of heritage and biodiversity; and
iv. Development that can be sustained for future years.

These provide a framework to advance understanding of what must guide entities' actions if they intend to implement and advance sustainability. Sustainability principles are however merely high value statements which are not practical and are difficult to implement. Research by Shrivastava and Berger (2010) has suggested that they can be made more practical by taking an administrative approach that will:

i. Improve clarity and specificity of principles;
ii. Eliminate loopholes and enhance consistency;
iii. Include performance metrics and track implementation; and
iv. Reduce implementation barriers by making resource commitment a requirement.

These suggested improvements are evident in the administrative nature of the EMS tool, which through its framework provides means of planning, implementing plans, tracking implementation and improving where there is a need to.

With SEC adopting the implementation of the EMS as a shift to attain sustainability and remain relative in the energy market, not only in Swaziland but also within SAPP, it is important for the company to understand that sustainability is not an Environmental Management System but has further socio-economic dimensions that are not included in the tool.

This research therefore *explored the use of the EMS, in particular the ISO 14001 EMS standard as used by SEC, to attain ultimate business sustainability and success in the Southern African region*. Particular attention was paid *to the ways in which the tool can be strengthened in order to increase its use as a sustainability tool seeing that it is one of the leading tools adopted by businesses towards attaining sustainability* (Oliveira et al., 2016; Kasim, 2015).

1.3 Research Questions

The following main question guided the research process:

How can principles of sustainability be incorporated in an EMS tool to help Swaziland Electricity Company (SEC) attain sustainability?

To respond to the main question, the research further examined the following secondary questions:

i. In what ways is sustainability considered in SEC's business success definition?
ii. What methods, tools and/or concepts are used to justify SEC's strategic decision making towards sustainability?
iii. What are the implications of the findings of the research in a wider context; particular in the Southern African Power Pool (SAPP)?

1.4 Aims and Objectives of the Research

The main aim of the research was to explore the view of implementing the administrative Environmental Management System (EMS) tool as an idea to attain sustainability at the Swaziland Electricity Company.

The research objectives were to:

i. Evaluate the purpose and role of Environmental Management Systems at the Swaziland Electricity Company.
ii. Determine and define principles of business sustainability for the Swaziland Electricity Company.
iii. Determine commonalities between principles / frameworks of sustainability, Environmental Management System elements and business strategic decision-making tools employed by the Swaziland Electricity Company.

1.5 Preliminary Literature Review

In a market that now has strict requirements for development due to the global outcry on industries' negative impacts on the environment and society, environmental management has become a paramount field of focus for many businesses towards sustainability. By operating an Environmental Management System towards improved environmental performance, a number of businesses think they are headed towards the attainment of sustainability. Over the years, a number of studies have investigated this notion. This section highlights findings from previous research, in order to gain insight into sustainability and the use of Environmental Management Systems to attain it in the business world. Key findings based on the research's title are further examined and presented in Chapter two.

1.5.1 Business Sustainability

When publications like the 'Silent Spring' book by Rachel Carson surfaced in the 1960s, the world became aware of the relationship between adverse environmental impacts caused by industry activities, which then inspired a global call for environmental stewardship (Ahmad et al., 2009). Subsequently in 1987, the United Nations held a convention to address the evident relationship between increasing negative impacts development the environment and on society (Martine and Alves, 2015). In this convention, the Brundtland report: *Our Common Future* was developed. The Brundtland report founded the concept of sustainability, introducing it as the consideration of environmental, economic and social aspects and their interaction thereafter, in all developments.

The Brundtland report further introduced business sustainability as 'adopting business strategies and activities that meet the needs of the enterprise and its stakeholders today while protecting, sustaining and enhancing the human and natural resources that will be needed in future' (I2UD, 2015). This definition encouraged the business shift from not only focusing on economic profits but also on environmental and social aspects, in order to avoid disruptions, collapses,

instabilities and business discontinuities (Constanza and Patten, 1995). The definition of business sustainability from the 1980s remains relevant even to date, whereby the interaction and consideration of economic, social and environmental aspects is still underlined. The King IV report (2016) for instance, defines business sustainability as businesses intentionally taking an integrated approach that includes and considers economic viability of an organisation, the natural environment and corporate social responsibility.

1.5.2 Environmental Management Systems: *Emergence* and use in the business

Environmental Management can be described as the long-term objectives set by entities in order to succeed in their business by minimising the damage caused by its processes to the environment. It can be through activities such as waste reduction, efficient natural resource use, biodiversity protection and through mitigating climate change impacts (Lapcik et al., 2015). The growing need to minimise business impacts on the environment was emphasised during the 1992 Earth Summit in Rio de Janeiro which called for international environmental management tools to be developed (Ahmad et al., 2009; Salim, et al., 2018). Environmental management tools are voluntary mechanisms that can be adopted by entities to apply environmental management activities described by Lapcik et al., (2015). They provide a framework for businesses to develop methods, procedures and behavioural change controls in order to protect the environment. These controls can be viewed as necessary steps to attain sustainability (United Nations Development Programme (UNDP), 2002; Fet, 2014).

The Environmental Management System (EMS) is one such environmental management tool that is adopted by businesses for environmental management (Salim et al., 2018). The EMS has been operational in the business world since the mid-1990s when the need for standardised processes towards environmental management arose following the Rio de Janeiro Earth Summit in 1992 (Steger, 2000; Labuschagne, 2007; Salim, et al., 2018). A need that was more intensified by extensive

environmental legislation, constant environmental awareness and educational programs which pushed businesses to rethink the role their operations had on the environment and adopt best environmental practices (Labuschagne, 2007; Salim, et al., 2018). This propulsion was also increased by market and societal pressures for businesses to demonstrate environmental stewardship while developing (Chen and Torstensson, 2015). Environmental Management Systems can be viewed as the catalyst needed to demonstrate environmental stewardship for businesses. They implant environmental values within a business structure and are driven by a transparent and systematic approach to planning and implementing environmental goals, policies, responsibilities and other elements which are regularly audited (Chavan, 2005; Perez et al., 2007 in Ahmad et al., 2009; Chan, 2008).

Businesses also use Environmental Management Systems to stimulate sustainability. However, while these tools are good for protecting the environment, Roome (2008) argues that they do not fully meet the sustainability definition which holistically considers the economy, society and environment as well as their interaction thereafter. Roome (2008) further argues that businesses must understand that sustainability has further socio-economic dimensions which are not underpinned in Environmental Management Systems. This view is supported by Calub (2015) who suggests that for Environmental Management Systems to be aligned with the sustainability concept, they need to interconnect the environmental, social and economic aspect of a business.

1.6 Methodology

Information for the research was collected, gathered and analysed using a qualitative approach within a pragmatic perspective. In alignment with the exploratory nature of the research aim and questions, the research employed an exploratory research design to address how the EMS can be strengthened in order to improve its use as a sustainability tool at SEC.

A purposively sampling technique was used to seek out personnel across SEC's organisational hierarchical structure in order to provide information and perspective on the use of the EMS at the organisation. Due to the company having various workstations across Swaziland, questionnaires were dispersed and used as primary data sources to gain perspective from a group of sixty (60) individuals across SEC's hierarchical structure. To further gain perspective and detailed information from individuals in the company regarding the research problem and question, the research targeted ten (10) interviews which included members of SEC Executive, the Head of Strategy, the Systems Operations Control and Compliance Officer, the Business Analyst and SHERQ department personnel, who are responsible for the effective implementation of the EMS in the company. Out of the ten (10) targeted individuals for interviews, five (5) contested to participate in the research, while out of the sixty (60) targeted questionnaire individuals, fifty (50) contested to partake in the research.

For secondary data, relevant literature focusing on views, studies and opinions of different researchers on the research topic was reviewed. Sources of the reviewed literature include journals and other academic materials. These were used to form a theoretical consideration and framework for the research. To analyse data collected from the interviews and questionnaires, the research cleaned, and coded information sourced in order to describe results. Further discussion about the methodology used for the research is presented in Chapter three.

1.7 Participant information sheet and consent

Participants were requested to read a participation information sheet that was emailed and attached with the questionnaire and interview guideline, respectively. The participation information sheet highlighted the research title and aim and also stressed that the research was only for academic purposes, that participation was strictly voluntary and that there would be no compensation for participation in the research. Furthermore, within the participation information sheet, confidentially and anonymity were underpinned. Participants were also notified of the types of

questions that were to be answered as well as the envisioned time it would take to complete the questionnaire. For any concerns or complaints, contact details for the supervisor and the University Human Research Ethics Committee (Non-Medical) were provided for participants. The two participation information sheets for the different target groups used for the research are provided as appendices (Appendix i and ii).

The questioning of participants required first a written consent which was attached to emails sent to SEC staff requesting participation. The participant consent form provided a statement of consent that demonstrated that the participants read through the participant information sheet and agreed to being audio recorded (for interviews). Consent forms were signed and safely maintained by the research according to ethical considerations. The consent forms for the different target groups used for the research are provided as appendices (Appendix iii and iv).

1.8 Scope and Limitation of the Study

The covered scope of the research has a strict focus on the use of the EMS as a business tool to attain sustainability within SEC. The results obtained therefore will be a reflection on the company and may not represent all businesses, however, may have implications for SEC and other power utilities especially those in the Southern African Power Pool. Data was acquired from a total of fifty-five (55) SEC personnel, all of whom are permanently employed at SEC. These consented out of an initially seventy (70) selected individuals (60 questionnaire participants and 10 interviews); creating a response rate of 78.6%.

The research notes that the use of human participants as a data source can be a limitation due to the fact that human beings sometimes cannot be able to articulate their feelings, assumptions and behaviour, which may result in the research not being able to accurately capture results compared to quantitative studies that are more confirmatory (Atieno, 2009). Furthermore, the chosen research design (exploratory) has limitations like generally using small sample sizes which may not develop

definitive conclusions about findings; however, it is best suitable for this research as it is flexible and assists in establishing further research priorities.

1.9 Ethical Considerations

Due to the nature of the research being undertaken in a qualitative approach, it involved the participation of human beings using questionnaire forms and/or oral conversations. According to the Centre for Innovation in Research and Teaching (2017), any research that involves participation of individuals, requires an ethical principal 'to do no harm'. Before conducting the study, therefore, ethical clearance from the University of Witwatersrand was applied for and obtained (ethics protocol number: GAES2017-35) in order:

i. For participants to give formal consent to partaking in the research and being audio recorded where applicable, voluntarily;
ii. To assure participants of confidentiality and anonymity;
iii. To ensure compliance to the University of Witwatersrand's policy on plagiarism; and
iv. To ensure that permission for conducting the study at SEC has been obtained.

All participants were given a participation information sheet prior to signing a consent form. The participating sheet highlighted:

i. The purpose of the research and its intended outputs;
ii. The research being only for academic purposes;
iii. A right to participate voluntarily and to withdraw at any time;
iv. No remuneration for their participation; and
v. A right to ask questions as well as to skip questions they may not want to answer.

1.10 Structure of the Research Report

This section aims to describe how the research was formally structured into descriptive and analytical Chapters. **Chapter One** introduces the research by providing frames of reference for conducting the study. The main aim of this chapter is to conceptualise the research focus by highlighting the importance of doing the research and it presents an overall explanation of what methods were used to access, collect and analyse data for the research. The Chapter further provides the boundaries and limitations of the study.

In **Chapter Two**, the literature review, the research reports on work that has been done specific to the research's focus area, the use of Environmental Management Systems to attain sustainability. Findings from journals, publications and other academic literature are used to show the relevance of this research and how the reviewed information has informed the study. Lastly, Chapter two presents gaps between existing literature and what the research seeks to achieve are provided.

Chapter Three details the methodological considerations the study adopted in order to answer the research's questions. The Chapter is factual and descriptive of why the chosen methods or techniques were applied, how data were analysed, who was involved in the research and why the research selected the chosen participants.

The subsequent Chapter, **Chapter Four** is aligned with the research's questions and presents the research's findings as derived from the data collected in Chapter three.

In **Chapter five**, the research answers the research's aims by analysing and discussing the research findings in consideration of existing literature (Chapter two) and key findings derived in Chapter four.

Lastly, the research will give conclusions of the research's findings and what they imply, in **Chapter six**. This Chapter will give further give recommendations for the research study area and in a wider context as well as feature suggestions for further research regarding the research topic.

CHAPTER TWO

THEORETICAL CONSIDERATIONS AND LITERATURE REVIEW

2.1 Introduction

With the continuously increasing human population and rapid industrialisation, which place a growing demand on natural resources, the earth is no longer able to sustain a healthy and balanced ecosystem (Goosen et al., 2014). According to Ahmad et al., (2009), the world became aware of the relationship between the increasing severe negative environmental impacts and destructive human developments in the 1960s following publications like the 'Silent Spring' book by Rachel Carson. To curtail the occurrences of environmental problems, while developing, corporates across the globe placed environmental management as an agenda in their day to day business management. Literature also shows that environmental management was greatly emphasised by global conferences, such as the 1987 World Commission on Environment and Development (WCED), which stressed the need for environmental protection as well as management and conservation alongside human development (I2UD, 2015). During the WCED, the Brundtland Report, *Our Common Future*, was developed; calling for a worldwide agenda for change by interlinking the environment (nature), society (human beings) and the economy in order to ensure sustainability – *that is, avoiding disruptions and collapses as well as evading instabilities and discontinuities* (Constanza and Pattern, 1995).

In light of this, different business stakeholders have put pressure on businesses to demonstrate responsibility to the environment and society while maintaining competitive economic advantage over others. The theme of sustainability has become a critical theme that leads many businesses to adopt environmental strategies as a shift towards attaining sustainability. The underlining aim is to interconnect the environment, society and economic performance according to

the Brundtland Report and stakeholders' sustainability requirements (Vnouckova et al., 2014; Calub, 2015). Among these strategies, businesses have been observed setting an Environmental Management System (EMS) tool, which aims for continuous improvement of environmental performance (Merli et al., 2016). However, the EMS, as argued by Roome (2008), only focuses on one aspect of sustainability (i.e. environmental performance) yet sustainability, as underpinned, has further socio-economic dimensions that are not included in the tool.

The attainment of sustainability is also widely debated in literature, with research by Sharpley (2000) arguing that the concept is impractical and loosely defined. To ensure that the sustainability concept is adequately put in practice by firms, sustainability principles were developed. However, Shrivastava and Berger (2010) argue that these only represent high value statements which lack an administrative approach that can be offered by strategies such as the EMS tool. This Chapter makes a discourse of what is academically known about sustainability and environmental management in the business world using Environmental Management Systems. It will critically present arguments and findings from existing literature based on the research question. Literature engaged for this Chapter was sourced from journals and other published academic literature grounded on the following key words: *sustainability, environmental management, Environmental Management Systems and ISO 14001.*

2.2 Understanding Sustainability within the context of the EMS

Sustainability can be defined as adopting business strategies and activities that meet the needs of the enterprise and its stakeholders today while protecting, sustaining and enhancing the human and natural resources that will be needed in future or ensuring economic growth that strikes a balance between conserving the environment and maintaining prosperity while achieving social development (Jeronen, 2013). From this notion, it is clear that sustainability is an integral part of an organisation's daily management and operation. Montiel (2008) underpins

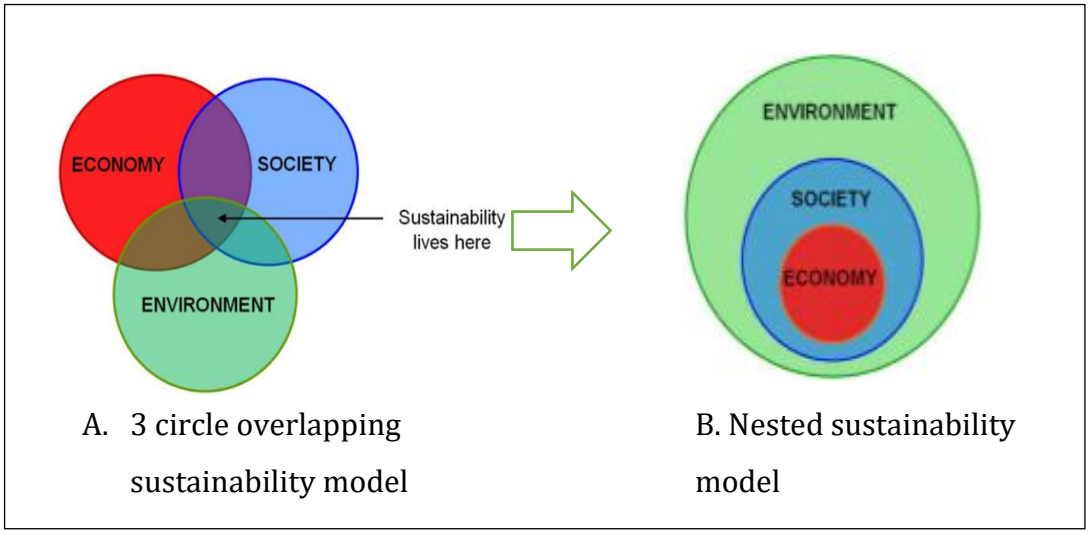
the concept as a core business issue, highlighting how almost all business decisions in the new age involve social, environmental and financial issues, such as how much to pay executives, what technologies to install that will have minimal effect on the environment and when to retire old machinery. This, evidently, shows how the concept has become an integral part of businesses' day-to-day activities. However, in spite of this prevalence, many businesses remain confused about the meaning of sustainability (Montiel, 2008); leaving one to question how practical it is to attain sustainability in the business world.

While it is clear to businesses that ensuring economic growth greatly involves maintaining the planet's ability to restore its natural system, which is also essential to human health and survival, the confusion is due to the fact that, historically, the management of sustainability aspects (i.e. the environment, society and finance) has been disjointed in the corporate world through a division of labour and separate roles acting as 'checks and balances' (Percy, 2000; Montiel, 2008). Social issues, for instance, have been grounded in management tools known as Corporate Social Responsibility (CSR), while environmental issues are engulfed in the field of corporate environmental management. Strategic direction, which is key for businesses, has been achieved through different strategic management and planning tools that strive for creating value and need for business products and services in order to remain sustainable (Calub, 2015).

The problem with this disjointed management of sustainability pillars is that it creates focus on one out of the three, thus shadowing the others and in the long run causing failure to deliver on the sustainability concept itself (Percy, 2000). CSR for instance is more of a business marketing tool that seeks to improve a business' reputation, increasing visibility and financial success without clearly alleviating environmental issues or directly benefiting communities (Sharma and Vredenburg, 1998). With CSR being used as a marketing tool, it unintentionally draws attention from the other pillars of sustainability. Although, to some degree, as noted by Sheikh and Beise-Zee (2011) in Mutumi and Simatele (2017) there can be some alleviation of environmental degradation from the adoption of CSR.

The shadowing of the importance of sustainability pillars, which contributes to the confusion surrounding sustainability, can be attested to the overlapping model of sustainability presented in Figure 1 (A) below.

Figure 1: A shift from sustainability model A to B



A. 3 circle overlapping sustainability model

B. Nested sustainability model

Source**:** Montiel (2008)

The three (3) overlapping circle model of sustainability in Figure 1(A) is exposed to subjective interpretation in the business world, where the aspects of sustainability can be re-sized to indicate a more dominant aspect than the others, thus deviating from the ideal theme of sustainability coined in the Brundtland Report (Willard, 2010). This statement is supported by Carter and Rogers (2008), who further highlight that because of this vague understanding of the concept, businesses find it difficult to determine their role within the far reaching definition of sustainability as their mandate revolves around remaining financially viable. A nested model of sustainability is more favoured in literature, without discounting the interconnectedness of sustainability pillars (Montiel, 2008). In this nested model (Figure 1(B), the economy is recognised as part of society, which in turn is part of the ecosystem (natural environment). In view of this, it is, therefore imperative to note that as much as economic prosperity is important for businesses, there is a need for businesses to apply and ensure social and environmental responsibility towards sustainability.

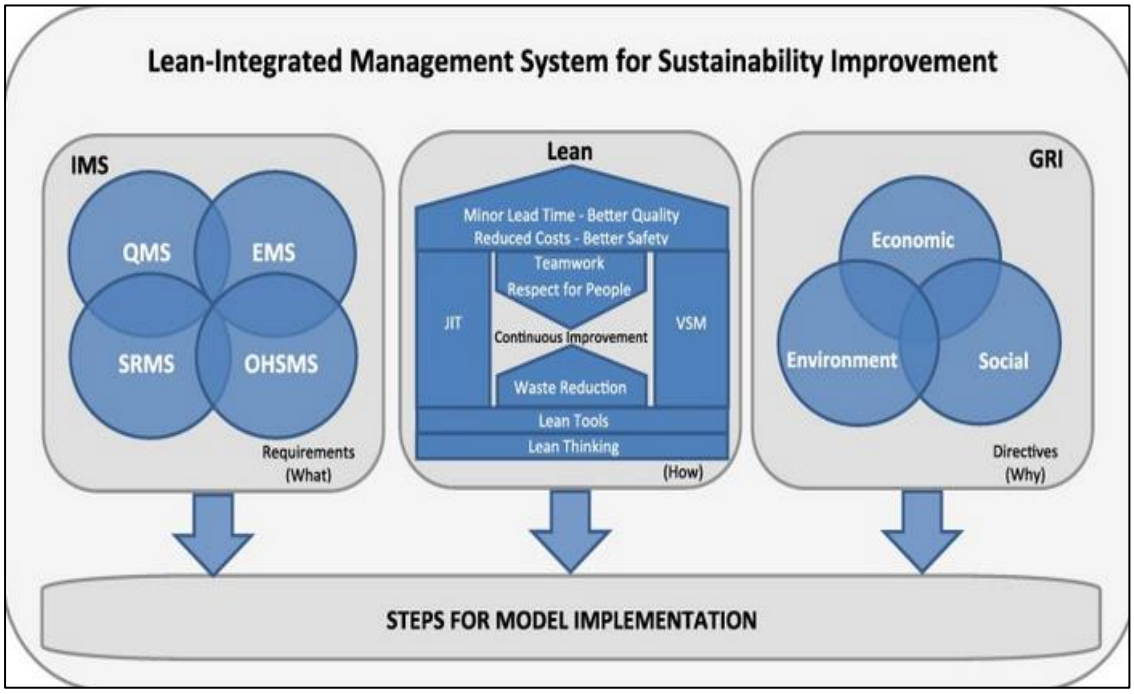
There are a lot of management system approaches, besides the aforementioned, that are used by companies to allude to social, economic and environmental responsibilities. These are, for example, risk management systems, information security management systems, quality and occupational health and safety management tools (Rebelo et al., 2014). These are a few, among others, which all seek to improve the reputation of companies based on trust that comes from delivering on promises and culture (Percy, 2000; Rebelo et al., 2014; Vnouckova et al., 2014). The commonly adopted ones – Environmental Management Systems (EMS), quality management systems (QMS) and occupational health and safety (OH & SMS) - tend to be demonstrated through worldwide standards like ISO 14001, ISO 9001 and OHSAS 18001, which are developed by the International Organisation for Standardisation (ISO) and all encourage continual improvement of business performance within a persepctive of sustainability (Rebelo et al., 2014).

Quality Management focuses on sustaining a business' customers, being founded on the notion that there is no viable business without customers; thus, excellent service, product delivery and customer satisfaction are put at the forefront. Occupational Health and Safety Management, on the other hand, underpins that necessary attention should be given to the quality of life of workers by preventing risks at the workplace (Boileau, 2016). Most businesses typically implement two or more of the above management tools towards sustainability. With a variety of management tools being employed in businesses, all seeking to increase the performance of one or two sustainability pillars, consideration can be given to intergrating these management tools into one sustainability model, especially having noted with the views expressed above that these are implemented disjointely (Rebelo et al., 2014; Calub, 2015).

In Figure 2 below, Souza and Alves (2018) present a model called the Lean-Integrated Management System for Sustainability Improvement (LIMSSI). The model is formed on the basis of integrating the aforementioned management systems in consideration of a business' resources and empowered personnel, which Souza and Alves (2018) propose as an innovative model to improve

business sustainability. Whichever model is used by a business however, what is underlined by Percy (2000) is that without the nested approach towards attaining sustainability, i.e. collaborative implementation of management tools, the use of different management tools in business will become increasingly ineffective, counterproductive and irrelevant.

Figure 2: The LIMSSI model based on the integration of management systems in order to improve business sustainability



Source: Souza and Alves (2018)

Integrating different management tools towards attaining sustainability, however, still remains a problem due to the different perspectives of what sustainability is, especially in the business context. Different perspectives, according to Gibbs et al., (1998) and Dietz and Neumayer (2007), arise from the

concept being categorised as either weak or strong according to a capital [6]theory approach (Table 1). This approach considers decisions on developments on the amount of capital a generation has in its disposal. Decisions on developments are made on whether natural capital can be substituted by other forms of capital or whether natural capital should be afforded special protection (Figge and Hahn, 2005; Dietz and Neumayer, 2007).

Table 1: The range of sustainability

Version	Definition
Weak Sustainability	-Complete substitution between human, natural and manufactured capital as long as overall stock capital assets remain stable over time. -Considers environmental concerns, however, does not specify the environmental quality to be achieved.
Strong Sustainability	-Advocates for almost no substitution between natural, human and manufactured capital as means of ensuring that the quality of environmental functions does not decline, even though economic activity may be beneficial in other ways.

Source: Adapted from Turner (1993) in Gibbs et al., (1998); Malovics et al., (2008)

Recognising sustainability as either weak or strong hinders the integrative activity of the concept and leads to poor understanding of what sustainability is, as well as trivialisation in the business world (Gibbs et al., 1998; Ben-Eli, 2005 and Ahmad et al., 2009). Although strong sustainability is more welcomed by literature, it still supports shadowing of other sustainability pillars by focusing more on environmental stability compared to others. Davies (2013) argues that

[6] Capital is used to produce other goods and unlike raw material is not immediately used in the production process. It can be categorised into manufactured capital e.g. tools and infrastructure (also known as economic/human made capital), human capital e.g. labour and skills, natural capital e.g. biodiversity and fossil fuels, and social capital e.g. human relationships and welfare.

there cannot only be environmental sustainability as sustainability has to be implemented in conjunction with socio-economic sustainability, especially in a continent like Africa. The continent has over the years experienced a surge in social and economic growth due to significant improvements to her regulatory, legal and business systems; however, it still remains unstable because of being underdeveloped and the never ending socioeconomic and environmental challenges (Stringer, 2014). Most countries in Africa suffer from poverty and economic development is unquestionably necessary to avoid misfortune.

Consequently, regardless of what perspective of sustainability is adopted, businesses have to ensure competitive advantage over others and economic growth while demonstrating reduced or zero impact on the environment or society, due to continuously increasing global and market pressures. Appeasing the attainment of sustainability in the business world thus requires clear understanding of the concept. In this view, Isa et al., (2014) suggest that the concept be framed not only to describe what needs to be done*, i.e. ensuring economic growth that strikes a balance between conserving the environment and maintaining prosperity while achieving social development,* but also provide a 'how' it should be done. This 'how', according to Davies (2013), is provided by sustainability principles, which are provided in the 1987 Brundtland Report as:

i) Holistic planning and strategy making;
ii) Preservation of ecological processes;
iii) Protection of heritage and biodiversity, and
iv) Development that can be sustained for future years.

They ensure that the concept of sustainability does not remain theoretical but practical regardless of its varying definitions. It is, however, essential that sustainability principles are contextualised for different industries, and are made familiar with business leaders and employees in order to be better understood and applied effectively (IISD, 1992; Morelli, 2011).

2.3 Sustainability and the Business World

Sustainability in the business world involves meeting the business needs, both now and in future, without degrading the environment and causing harm to society (Fisher and Rucki, 2017). It has become very common vocabulary for decision makers in the business and is underpinned in many strategies as an objective (Steurer et al., 2005). Sustainability in the business world entails a business' ability to pay, for example, taxes, suppliers, employees, creditors, regulators and legislators as well as dividends to shareholders (Steurer et al., 2005). If a business is not sustainable, it not only loses its surviving power but also loses its ethical obligations in the long run. The relationship between ethics and sustainability is thus evident, and it prompts various business stakeholders from financial (*governments and revenue authorities*), social (*communities and customers)* and environmental (*environmental NGOs and governments*) dimensions of sustainability to demand that businesses demonstrate integrity and win them over (Percy, 2000; Steurer et al., 2005).

Stakeholder interests and the business' ethical obligation requires businesses to report on their financial, social and environmental performance to interested parties. This is known as sustainability reporting (Rossouw, 2010). Sustainability reporting can be through corporate governance tools such as the King Integrated Report on Corporate Governance. The King Integrated Report is a South African developed requirement that underpins businesses to provide reliable, comprehensive and a holistic overview of their performance from both a financial and non-financial perspective (all three (3) spheres of sustainability) based on a notion known as the triple bottom line (Percy, 2000; Rossouw, 2010). The triple bottom line, developed by John Elkington, is a business principle that urges businesses to be responsible through understanding the shared zones between economic, environmental and social aspects (Elkington, 1998).

The Report requires businesses to demonstrate ethics in consideration of the triple bottom line principle through implementing best practices and reporting on what has been done against key components such as: *Effective ethical*

leadership and corporate citizenship, *governance of risks*, *governance of information technology*, *compliance with laws, codes, rules and standards and governing stakeholder relationships* (Rossouw, 2010). While the idea of businesses reporting about their sustainability performance is applauded since it helps businesses comply with legislation, reduce future compliance costs and improve stakeholder relationships; research by Morhardt et al., (2002) indicates that many stakeholders tend not to be pleased with the silo reporting of sustainability dimensions, that is, business finances, the environment and social aspects. This, they argue, underpins that there is a lack of interaction or balance between the three spheres; opposing what sustainability entails. Dissatisfied groups are in-particular environmental groups who call for deeper consideration of environmental issues by business especially in light of climate change and its drastically negative impacts (Percy, 2000).

Pressure from stakeholders has urged business to not only report about their sustainability performance, but to also demonstrate that their (stakeholders) needs and expectations are being proactively considered in the business (Gerolamo, 2016). Many businesses attempt to meet this requirement through the implementation of various business management systems/ models such as the quality management system, health and safety management system, environmental management system and social management system (Gerolamo, 2016). Business management systems are applauded for being adaptable for any industry or business and for being simple enough to be implemented as their implementation is guided by a set of requirements known as standards (Azapagic, 2003). Common management systems standards adopted by businesses in consideration of the triple bottom line include ISO 9001 (quality management system standard), OHSAS 18001 (occupational health and safety management system standard), ISO 14001 (environmental management system standard) and NBR 16 001 (social management system standard).

Nonetheless, research on the above-mentioned management systems and their contribution to sustainability show that there are weak to moderate relationships between management systems and business sustainability (Ferreira and

Gerolamo, 2016). In their research Ferreira and Gerolamo (2016), the quality management system (ISO 9001) and the occupational health and safety management system (OHSAS 18001) are found to have a weak relationship with business sustainability as they do not directly address economic, social and environmental issues. On the other hand, the environmental management system (ISO 14001) is found to have a moderate relationship with business sustainability but only considers environmental issues, not directly considering economic and social issues. The social management system (NBR 16001), is reported by Ferreira and Gerolamo (2016) to have a strong relationship with business sustainability as it touches on all principles of the triple bottom line. Unfortunately, the social management system is not popular in Africa and its relevant standard, NBR 16001, is a Brazilian standard not subject to a more international market compared to the ISO standards. In this view, the environmental management system, is more considerable as a sustainability tool however cannot be used as a stand-alone tool to guarantee business sustainability (Saha and Seal, 2011; Ferreira and Gerolamo, 2016).

Another relationship when it comes to sustainability and the business world that is explored in literature is that between top management and sustainability. Research findings by Alolayan et al., (2013) in Rebelo et al., 2014 indicate that there is a correlation between top management and sustainability. They strongly underpin that business sustainability is the combination of management theory and the concept of sustainability. That is, to achieve sustainability, businesses through top management should ensure that the concept of sustainability is not only engraved and maintained within its mission and vision but is also understood, accepted and supported by workers of the business and relevent interested parties.

Top management involvement thus becomes very key when discussing sustainability in the business world because the concept of sustainability is not a mere add on but a strategic integral part of the business which must be managed in the best way possible, like all other business processes (Azapagic, 2003). However, as Azapagic (2003) underpins, conceptulising sustainability into the

business is not an easy task nor trivial as it requires understanding and commitment. Unfortunately with more than seventy (70) different definitions of the concept, understaning sustainbility becomes problematic for businesses (Sharpley, 2000). This as Sharpley (2000) points out, rises from the concept being defined to suite the many diverse field of study. This challenge, together with the different ranges of sustainability (weak vs strong) highlighted in section2.2., further complicate the understanding of sustainability and give rise to broad views in which the concept is conceptualised. Miller (2012) in Fisher and Rucki (2017), for instance presents three ways to conceptualise sustainability; i)Universal sustainbilty: sustainability that aims at stabilizing human population growth, improved quality of life and maintaining the planet's life support system for the current and future generations, ii)Thick sustainability: sustainability that involves tradeoffs which comewith compromise ,diasgreement and complexity, and iii)Procedural sustainability: sustainability that is underpinned by adaptation to socio-environmental conditions.

Nevertheless, even with such challenges, what is clear from literature is that at the core of conceptualising sustainability is the protection of the environment and society as well as economic development. Business thus need to translate their understanding of sustainability into their business and demonstrate the continuous improvement of all three pillars of sustainability (Azapagic, 2003).

2.4 Environmental Management and the Business World

The scope and scale of environmental problems has expanded considerably over the past three (3) decades from local pollution to regional deforestation, soil erosion and global concerns such as climate change as well as the deteriorating ozone layer (Colby, 1991). Following conventions such as the WCED that established the relationship between development and environmental degradation, it has become commonplace that environmental problems are extensive and that economic growth indeed contributes to them (Roome, 2008). With social forces as well as stringent environmental legislation put in place to

curb rising environmental issues, perceived environmental visibility became a norm to gaining competitive advantage for businesses (Morhardt et al., 2002). This led to a global response for a specialised field known as environmental management to be formed and adopted in order to assess and understand potential impacts of human developments or business activities so that appropriate control strategies could be applied (Chavan, 2005; Labuschagne, 2007; Ahmad et al., 2009).

Environmental management is the management of an organisation's operations and activities that have or may have an impact on the environment with an aim of preserving the natural environment and human health (Okwiet, 2012). For so long, businesses have been purely for-profit making purposes, disregarding and in denial of environmental issues. However, due to environmental management, which entails the enforcement of law, businesses that ignore environmental legislation find themselves liable for costs and thus lose their competitive advantage over others (Okwiet, 2012). Being conscious of how business' activities and operations affect the environment, is informally referred to as going 'green'; a term that is gaining much popularity for the business world and its customers (Cekanavicius et al., 2014). To demonstrate how 'green' they are, businesses adopt practices, such as spending less on raw material, energy and water, using environmental and worker-friendly chemicals and voluntarily implementing environment management system standards, as well as being certified to them by external bodies, among others. These practices seek to reduce the negative impacts of businesses on the environment. In addition, businesses publish or report on how such practices have improved their triple bottom line; in consideration of sustainability (Burja, 2012; Cekanavicius et al., 2014).

Environmental Management is closely related to the concept of sustainable development, since the inception of the concept was birthed by growing industrial resource exploitation and environmental damage that negatively impacted on society (Steurer et al., 2005; I2UD, 2015). Because of this relation, environmental management is subjected to the capital theory approach perspective. The capital theory approach creates room for different

interpretations of environmental management. While environmental management encourages responsible use of natural resources and avoidance of environmental damage, the capital theory approach asks 'to what certain degree' considering that social development and economic growth have to continue? This is also so for sustainability, where the concept can be differentiated into weak or strong as previously stated. In as much as there exists a relationship between sustainability and environmental management, the two words cannot be substituted or used interchangeably (Bebbington and Gray; 2001).

Nonetheless, environmental management is paramount and there have been growing interests in strategies worldwide to promote for environmental management in business (Berchicci and King, 2007; Labuschagne, 2007). Such strategies include the development of extensive environmental legislation as well as constant environmental awareness and education on how human developments negatively affect the environment (Labuschagne, 2007). Although environmental management may be defined as a *broad term* that deals with environmental impacts, the management of natural resources and pollution (Kirk, 1995 in Lillah and Struwig, 2016), other scholars focus it more on the identification of processes, tools and instruments that may be used to manage natural resources use better (Lillah and Struwig, 2016). With markets and societies also contributing to this field by pressurising businesses to demonstrate environmental stewardship, businesses have to take a proactive strategic approach and rethink the role of their operations on the environment by adopting environmental management practices if they are to maintain customers as well as exist and thrive in a global business world (Morhardt et al., 2002; Chavan, 2005; Labuschagne, 2007). In the business context therefore, environmental management can be defined as a methodology used by businesses to adopt formal environmental commitments and set objectives to ensure environmental legitimacy of their operations in order to minimise damage caused on the environment (Morhardt et al., 2002; Rowland-Jones et al., 2005*;* Lapcik et al., 2015).

Berry and Rondinelli (1998) show how the field of environmental management in the business world has gone through different phases. At first, as a passive concept in the 1960s and 1970s it was used to deal with environmental issues as they came and correcting the resultant environmental damage. Then as a reactive concept in the 1980s, were environmental legislation tightened and businesses had to reduce compliance costs, and lastly as a proactive concept in the 1990s where by businesses began anticipating their environmental impacts on the environment and instead looked for ways to reduce them ahead of regulatory compliance as means of improving their environmental performance. Looking at the evolution of the environmental management field, Lillah and Struwig (2016) underline that the field has an overall objective of reducing or preventing harm to the environment. The field is, according to Psomas et al., (2011), a vehicle that introduces sustainability in entities and in response therefore businesses have found themselves adapting management practices and implementing what is known as Environmental Management Systems (Lillah and Struwig, 2016).

Environmental Management Systems (EMS) are the most popular tools used in environmental management (Lillah and Struwig, 2016). As with the concepts of sustainability and environmental management seen in this Chapter, Environmental Management Systems have been defined in many ways. In one definition by International Institute for Environmental Development (2017), an Environmental Management System is defined as a framework for managing an entity's environmental impacts. In support of his definition, Scroufe et al., (1998) underline EMS as a structure for planning activities, responsibilities, practices and procedures for developing, achieving, reviewing and maintaining continually improved environmental performance. Chavan (2005) and Chan (2007), also in alignment describe EMS as a transparent and systematic tool for managing impacts of an organisation's activities on the environment by structuring a planning, implementing and regular auditing process to ensure environmental protection. While Darnall et al., (2008) reiterate by emphasising that EMS are a collection of policies, assessments and action plans to improve the relationship of businesses with the natural environment. Watson et al., (2004), however describe an EMS differently by stating that it as a systematic tool that is applied by

businesses to environmental issues in order to develop processes and products that will not only improve the entity's environmental performance, but also improve its competitive advantage over others thus enhancing overall financial performance . In a study by Watson et al., (2004) they conclude however, that most adopters of the management system do not experience superior financial performances due to failure to fully exploit the framework of the Environmental Management System.

From the many definitions of an Environmental Management System (EMS) presented by literature, what is clear to observe is that unlike sustainability and environmental management which are philosophies, an EMS is a structure, a framework or system that is used as an instrument to drive environmental management within businesses (Lillah and Struwig, 2016). The EMS has been used in the business world since the mid-nineties and is a catalyst for change within a business structure towards environmental performance (Steger, 2000; Perez et al., (2007) in Ahmad et al., (2009)). The keystone of the EMS according to IIED (2017) is that it follows a Deming Cycle (Plan-Do-Check-Act) of: Planning (what is to be done); Doing (what you have planned to do); Checking (to ensure that you did what you have planned) and Acting (to make improvements), that allows for an on-going improvement towards environmental performance (Muzaimi et al., 2016). It can thus be assumed, that the PDCA is critical for continual improvement of business performance and incremental problem solving especially since it is underpinned in a number of management systems, in particular those belonging to the ISO standards family (Morhardt et al., 2002).

Management systems, in general, can be used by businesses as a strategic direction to achieve competitive advantage by enhancing management efficiency, improving culture and in the long run, as the culture improves, contributing greatly to business growth (Muzaimi et al., 2016). The EMS in particular, contributes to environmental performance, improved environmental compliance, customer attraction and retention, enhanced employee environmental morale through awareness raising and enhanced public image of the business through stakeholder engagement and relations management (Watson et al., 2004; IIED,

2017). The development and implementation of an EMS in a business is however attached to costs, which gives rise to a reluctance from management to financially commit to the management system, thus businesses tend to only invest enough to meet minimum requirements (Watson et al., 2004). This brings to light other drawbacks of the EMS such as political and/or administrative barriers, (especially if the EMS is being implemented according to options such as standards[7]), lack of technological advancement and lack of appropriate knowledge to implement (Scroufe et al., 1998; Neugebauer, 2012).

There are different types of Environmental Management Systems, with options including the European Eco-Management and Audit Scheme (EMAS), Total Quality Environmental Management and the ISO 14001 framework among others (Lillah and Struwig, 2016). These most likely emerged from the growth of environmental legislation and lessons learnt on how entities contribute to environmental degradation and how they then respond to environmental risks following global conferences on environmental issues and development (Scroufe et al., 1998). The first environmental standard that emerged is a British standard, BS 7750, that then gave birth to the two most common EMS tools being implemented by businesses; the ISO 14001 and EMAS (Scroufe et al., 1998). While the EMAS is commonly implemented among European businesses, ISO 14001 is more international (Chavan, 2005).

The ISO 14001 management system standard, developed by the International Organisation for Standardisation (ISO) is a voluntarily implemented standard that specifies actual requirements of an EMS to which businesses can then be assessed by external bodies (Chavan, 2005; Chan, 2007). According to Daughtry (2014), ISO 14001 is the most prominent EMS tool being adopted globally. However, there is an uneven implementation of the EMS when comparing

[7] pieces of general advice offered to a general large number of potential adopters

developed countries to those still developing (Salim et al., 2018). European countries, for instance, have a higher adoption rate of the management system (Salim et al.,2018), hence most case studies presented in existing literature emanate from such countries. One such study, is one conducted by Poksinska et al. (2003) cited in Daughtry (2014), who investigates why the EMS as implemented through the ISO 14001 gained popularity among businesses in Sweden. Results of this research bring about the conclusion that companies feel that the standard not only allows them to demonstrate commitment to environmental protection but also creates perceived improved stakeholder relations and boosts marketing advantage by allowing companies to be certified to it.

Fet (2014), also presents case studies in Norway from the furniture industry, shipbuilding industry and shipping industry. In her findings, Fet (2014) shows that the adoption of the EMS increases a company's environmental performance over time, however she underpins that increased environmental performance as a benefit requires that businesses have enough knowledge of their environmental issues and adequately plan possibilities of managing them. This, as underlined in the study, results in higher level of awareness and knowledge of environmental issues among employees.

2.5 Conclusion

Sustainability has become a fundamental business terminology owing to the Brundtland Report's call for sustainable development. Interlinking environmental and social issues with a business' mandate to remain financially viable has become fundamental, especially with various stakeholders calling for corporates to demonstrate sustainability owing to evident industrial impacts on the natural and social environment.

With that underpinned, literature has highlighted uncertainty when it comes to understanding, implementing and measuring the concept in the business world.

With many definitions of sustainability being adopted across various disciplines, it becomes difficult for businesses to determine and define sustainability (Carter and Rogers, 2008). Some studies have attested this uncertainty to the differences in sustainability models which demonstrate pillars of sustainability as having an overlapping relationship as a result shadowing one or more of the other pillars and also creating a condition where one pillar of sustainability becomes more dominant than the others (Willard, 2010).

The lack of clarity in defining the concept of sustainability has also prompted the use of different strategic sustainability tools to be employed in implementing and measuring the concept in the business world. These tools as shown in reviewed literature include management system standards like the; ISO 14001 Environmental Management System, ISO 9001 Quality Management System, OHSAS 18001 Occupational Health and Safety Management System as well as the Corporate Social Responsibility tool. These although providing a vehicle for businesses to drive towards sustainability, do not cater for all sustainability aspects as required by the nested sustainability model that is favoured by literature. With uncertainty surrounding the concept's definition and with various tools being employed by businesses to demonstrate sustainability in their day to day activities, the question that thus arises is '*can businesses really attain sustainability*?'

Businesses are being prompted to report on their sustainability journey, demonstrating how they manage the triple bottom line in annual reports like the King Integrated report on social governance and therefore must apply tools that will enable them to implement and measure their sustainability progress. In relation to sustainability, the EMS has been suggested as having a moderate correlation with sustainability compared to other common management systems like the quality and occupational health and safety management systems (Ferreira and Gerolamo, 2016; Merli et al., 2016). However, the tool is not favoured by some studies. One argument against the use of the EMS tool as a guiding principle to attain business sustainability is that it does not directly

consider economic and social issues thus cannot be used as a standalone tool (Ahmad et al., 2009; Saha and Seal, 2011).

What is clear however is that sustainability in the business world is about long-term foresight and businesses must ensure that they apply strategies to secure or improve competitiveness while considering social and environmental issues. Sustainability principles have been presented in literature as providing guidance towards attaining sustainability, however as argued by some scholars, these merely represent high value statements which lack connectedness to the real world and need an administrative framework in order to be practically employed (Shrivastava and Berger, 2010). Considering that the EMS has been studied as having a moderate correlation to the sustainability concept and that through management system standards like ISO 14001, an administrative framework: Plan Do Check Act (PDCA) is provided; the use of the EMS in businesses can be further studied to explore its maximum effectiveness towards businesses attaining sustainability.

Businesses play a huge role in influencing sustainability and remain key contributors as to what sustainability should entail (Mutumi and Simatele, 2017). It is of pronounced significance also that businesses in Africa consider the concept of sustainability if they are to strive and bring financial, economic and social value in the continent especially in plight of Africa's fiscal challenges and socio-environmental degradation (Haman et al., 2008). Consequently for a business like SEC, in the energy sector, meeting the needs of Swaziland in a profitable and environmentally sound manner is of great prominence, and thus maximising the effectiveness of tools currently employed in the business towards considering one pillar of sustainability can be explored to ensure ultimate business sustainability.

This report, therefore, in consideration of the literature review above, investigates how the administrative EMS tool can be improved to maximise its effectiveness towards business sustainability, by studying SEC. The research seeks to contribute to environmental management and business sustainability literature by exploring the integration of sustainability principles into the EMS.

The aim is to improve its relationship with the sustainability concept and make it a good business proxy for attaining sustainability. To achieve this, a qualitative coverage of SEC employees' insight and viewpoint on sustainability and the Environmental Management System, implemented through the ISO 14001 standard is used to present the research findings and conclusions.

CHAPTER THREE

METHODOLOGICAL CONSIDERATIONS

3.1 Introduction

Methodology is defined as both "the collection of methods or rules by which a particular piece of research is undertaken" and the "principles, theories and values that underpin a particular approach to research" (Somekh and Lewin, 2005 in Mackenzie and Knipe, 2006). It consists of what decisions were taken in order to address the research problem and presents, as well as demonstrates a good fit between processes adopted for the research, with the research's aim, objectives and questions.

This Chapter is dedicated to a discussion of what decisions, assumptions, practices and methods were employed by the researcher in order to attain the research aim and objectives and answer the research's questions. It is divided into sections that respectively:

i. Provide detail on what philosophical assumptions or approach the research adopted in order to demonstrate the researcher's viewpoint;
ii. Provide a recap of the research's aim and objectives in order to maintain the research focus;
iii. Describe what procedures of inquiry or strategy was adopted to guide the research; and
iv. Provide detail of the study population, how the population was sampled and what research methods were used to capture and analyse information for the research.

Before the conclusion, which summarises all the aforementioned sections, the Chapter then reflects on the practicality of the methodologies that were chosen and

applied for the research. In addition, therefore, Chapter 3 also seeks to justify, where applicable, why the methodologies applied for this research were chosen.

3.2 Research Philosophy

Research philosophy is a belief that a researcher adopts about how their research should be undertaken. It is a theoretical approach to research that portrays the worldview norms a researcher assumes when conducting their research and deals with the nature and development of research knowledge (Mackenzie and Knipe, 2006; Dudovskiy, 2011). There are various research philosophies that can be adopted for the purposes of research, but all underpin how a researcher interprets the world. Common philosophies for research purposes as provided by Saunders et al., (2012) are:

i. Positivist/Post-positivist;
ii. Interpretivist/constructivist;
iii. Transformative; and
iv. Pragmatic philosophy.

In brief description, the positivist philosopher believes in testing a theory based on experiments, while the interpretivist relies on social and historic ideas to develop a theory, the transformative philosopher is critical in thought and intertwines studies with politics and lastly the pragmatic philosopher is one that is not committed to any one system of philosophy but focuses on the 'what and how' of a research problem (Mackenzie and Knipe, 2006). The research chose to adopt the pragmatic research philosophy, for the reason that the approach recognises multiple ways of interpreting data and undertaking research within one study; thus, creating many realities for the research (Saunders et al., 2012). Furthermore, by adopting pragmatism, the research question is placed at the forefront, allowing the research to explore best various ways to answer the research question (Giacobbi et al., 2005).

The main focus of this research was to ascertain how the administrative EMS can be improved in order for businesses, like SEC, who implement it, to attain

sustainability. This involved deriving viewpoint, assumptions and understandings of different resources involved in the implementation of the EMS at SEC. While pragmatism seeks to understand real world practices and situations which fit well with the fact that the research was conducted for purposes of understanding the implementation of an existing Environmental Management System (EMS) within a given organisation, Biesta (2010) points out, however, that pragmatism tends to make a lot of diverse assumptions in research which tends not to allow for conversation across various research approaches.

3.3 Research Approach

There are three common research approaches that can be applied in research: quantitative, qualitative and mixed methods approach. They underpin how data should be collected, analysed and used (Mackenzie and Knipe, 2006). Quantitative research is founded on a measurement of quantity and involves experiments and data manipulation techniques while qualitative research is more concerned about an issue being expressed in meaning and significance of human behaviour and the mixed method incorporates both elements of the qualitative and quantitative approaches (Kothari, 2004; Alzheimer Europe, 2017). This basically means that in research, an issue can either be expressed in terms of measurement (quantity), expressed in kind (descriptions) or reside in the middle where both quantities and descriptions are used.

As detailed in Chapter 1, the underlying question for this research is – *how can sustainability principles be incorporated in an EMS tool, in order for businesses to successfully attain sustainability*? This research wanted to assess the implementation of the EMS tool by gaining opinions and attitudes of human resources who are users of the Environmental Management System at SEC. It is because of this reason, therefore, that the qualitative research approach was chosen. The qualitative research approach was seen as a best fit as it provides for studies to be done in their natural settings as a means of making sense or interpreting

phenomena in terms of the meanings people bring to them (Mackenzie and Knipe, 2006).

An advantage of adopting the above mentioned theoretical and practical approaches for the research is that they each underpin the importance of the 'what' and 'how' of the research problem in order to solve the research phenomena.

3.4 Recapping Research Aim and Objectives

The main aim of the research is to explore the view of implementing the administrative Environmental Management System (EMS) tool at Swaziland Electricity Company (SEC); for the purposes of forming an idea of what the EMS is used for at SEC, ascertaining what principles the company adopts towards being sustainable and describing similarities between principles / frameworks of sustainability, Environmental Management System elements and business strategic decision making tools employed by the company.

3.5 Research Design

A research design outlines the research structure and links all the elements of the research together. This section provides details on what strategy was employed for deciding on what data to collect, where to collect data and from what/whom (Creswell, 2014). It can be viewed as a procedure for research inquiry which integrates the research philosophy and approach discussed in Section 3.3 and Section 3.4. According to Mouton (2013), there are three main research designs that can be employed by research:

i. Exploratory design;
ii. Descriptive design; and
iii. Explanatory research design.

The exploratory design addresses a phenomena that has high level of uncertainty and ignorance, while the descriptive design is more structured and provides a valid

and accurate representation of factors about a research question, and lastly the explanatory design identifies causal links between factors and variables of a research question thus being more suitable for experimental studies (Labaree, 2009; Creswell, 2014).

Due to the exploratory nature of the research topic, the research adopted an exploratory research design in order to bring all research components together and address the research problem, aim, objectives and the research questions. The research recognises that the exploratory design has limitations like generally using small sample sizes and not developing definitive conclusions about findings. However, this type of design is suitable as the research is exploring the research topic and seeks to assist in establishing further research priorities for the EMS and business sustainability.

In linking all the research elements together, this section describes data sources for the research and provides details on the study area where the research was conducted (section 3.5.1); the study participants engaged for the research, how they were selected (section 3.5.2), what type of data was collected and how it was collected (section 3.5.3).

3.5.1 Study Site Description: Swaziland Electricity Company

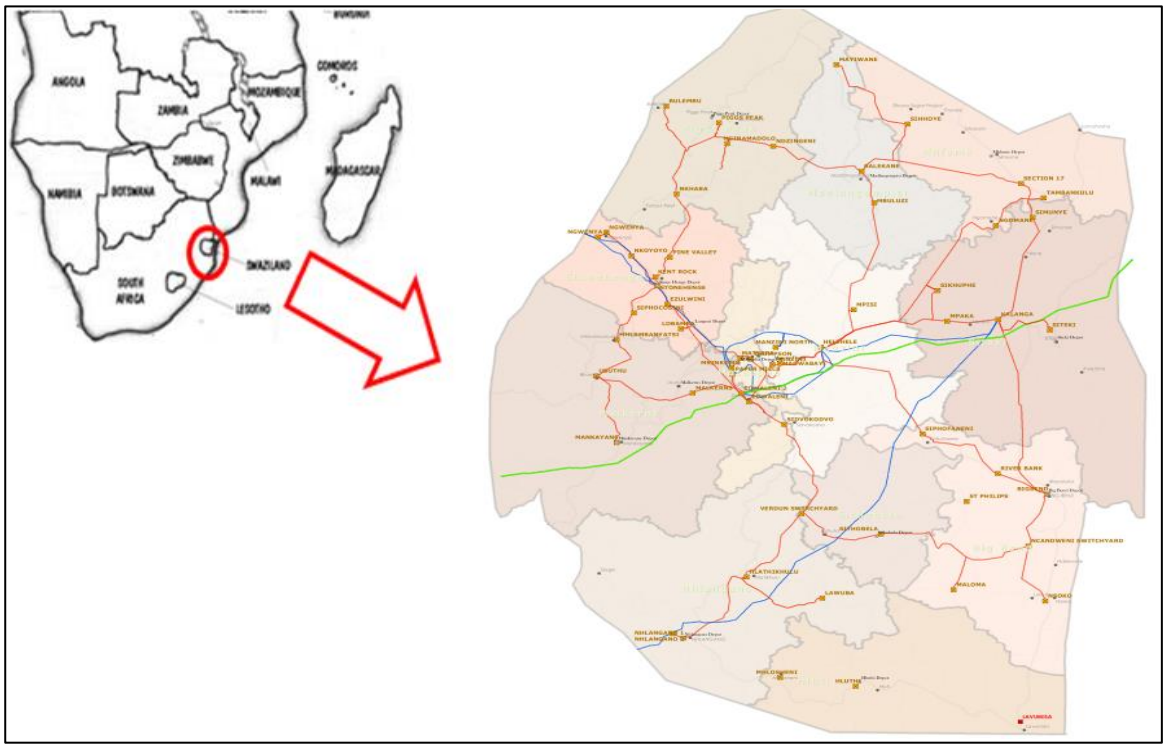
Swaziland is a landlocked country, officially known as the Kingdom of Eswatini, located in Southern Africa (26.5225°S, 31.4659°E). It is bordered by South Africa to the North, South as well as West and Mozambique to the east (Figure 3). The country has a total area of 17 363 sq km. and as of 2018 United Nation data, the population of the country stood at 1.132 million[8]

[8] The World Bank (2017) World Population Prospects, https://data.worldbank.org

Swaziland Electricity Company (SEC)'s primary mandate is to the Swazi nation. The company was initially established in 1963 with the objective of providing energy for economic growth and social improvement (Swaziland Parliament Archives, 2012 in Dlamini, 2012). It generates, transmits and distributes electricity across the whole country; running a total of four (4) Hydro-Electric Power Stations. These, unfortunately, do not meet the country's demand, therefore, SEC imports approximately 80% of electric energy from South Africa, through Eskom, and also buys a small percentage from Renewable Energy Independent Power Producers (IPPs) in the country (SEC Annual Report, 2017).

SEC operates the national electricity grid across the country and thus its workstations are located all over the country. In total SEC has 19 work sites, made up of a mixture of management and operational functions and processes (SEC HSE Manual, 2018).

Figure 3: Map showing Swaziland in relation to Southern Africa (the four regions of the Kingdom where SEC controls the transmission and distributing network of electrical power are also presented).



Source: Makhanya (2017)

3.5.2 Study Population and Sampling Procedure

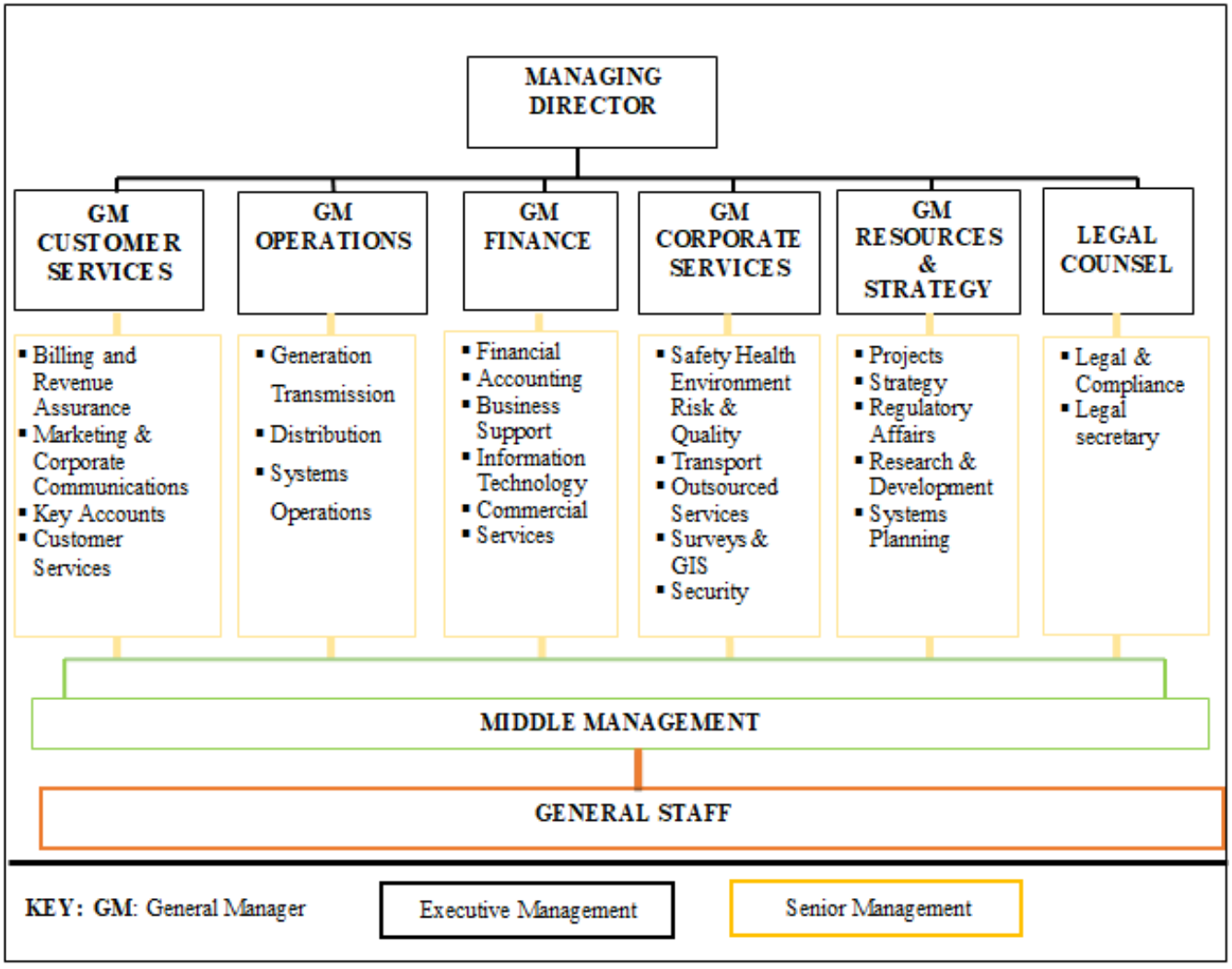
A population refers to the elements – *individuals, organisations, processes, objects or substances* – that meet a certain criterion for inclusion in a given study (Blackstone, 2012). For this research, the population comprised of SEC employees across the country's four regions and across all core processes of the company. Sampling is a process of selecting a number of participants in such a way that they represent the target population of a research (Hajimia, 2014). As of March 2018, SEC had a staff compliment of 888 employees; therefore, sampling in order to get a maximum representation of SEC's population was very important in this regard as it can be very impractical and difficult to investigate a whole target population (Robson et al., 2006). There are two types of techniques widely used in research for sampling purposes: probability sampling and non-probability sampling, where the main difference is that in the former, the likelihood of a participant is known compared to the latter (Klopper, 2008).

This research employed the non-probability sampling technique due to its exploratory research design. With the chosen sampling technique, the research was able to purposively seek out elements that met specific requirements. This is known as purposive sampling (Blackstone, 2012). Through purposive sampling, the research made judgement sampling by selecting a sample population based on the important information that could only be provided by them or was specifically associated with answering the research questions (Hajimia, 2014). Sampled individuals were a representation of all levels of SEC's hierarchical structure, a representation of the different SEC workstations and could provide key information and perspective on the use of the EMS at SEC as decision makers of the company.

The hierarchical structure of SEC (Figure 4), is organised into high level Executive Management Committee (EXCO), Senior Management who report directly to EXCO, Middle-Management who report directly to Senior Management (middle management includes supervisors and senior personnel) and General Staff. The

EMS is implemented across the hierarchical structure of SEC where EXCO and Senior Management are involved in management functions while general staff are involved in operational functions and middle management is involved in both. For the purpose of this research the Board of Directors was exempted due to availability and time constraints.

Figure 4: SEC organisational structure

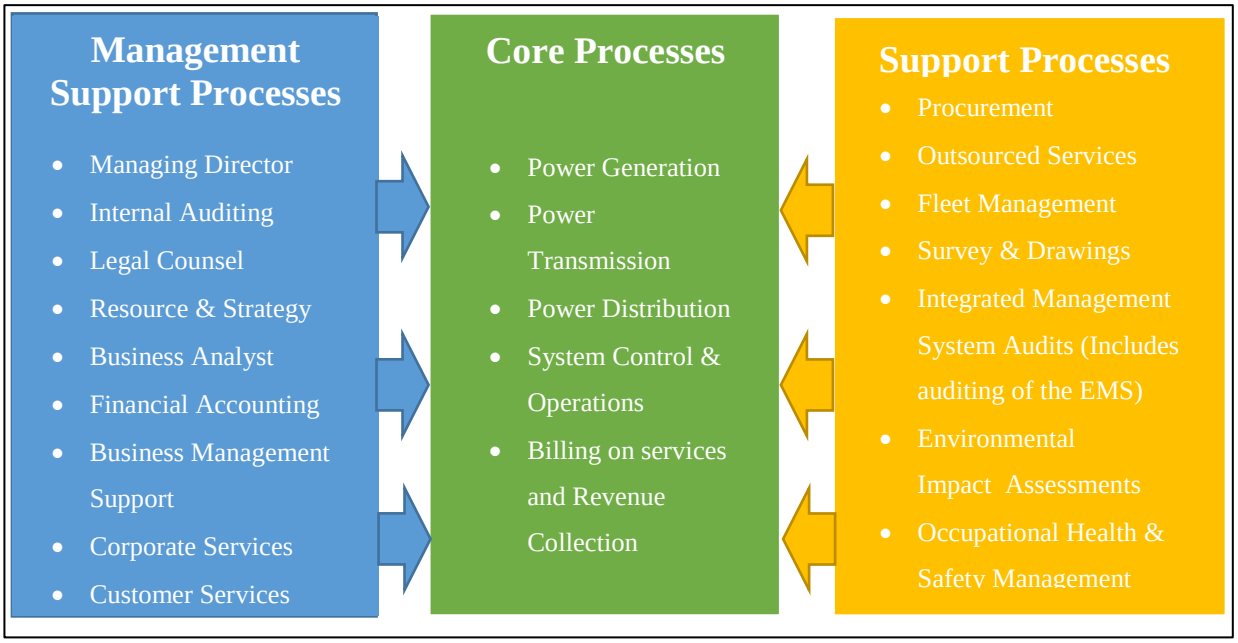


Source: SEC Organisational Chart (2015)

In addition, SEC has an existing Environmental Management System (EMS), which is aligned with the ISO 14001 standard. The company has made no exclusions for its EMS; therefore, the tool is applicable to the company's twenty-two (22) main processes which are categorised under core, management and support processes (Figure 5). These have been mapped at divisional; department and/ or functional

unit level (SEC HSE Manual, 2018). In order to get include all processes the EMS is involved in, the research sampled individuals with different roles, have served for various periods and who have different qualifications and experiences across these processes.

Figure 5: Processes mapped for the EMS scope at SEC



Source: SEC HSE Manual (2018)

The research selected 10 participants in executive and senior management positions based on important information that could only be provided by them. The group entailed 5 (out of 7) EXCO members, an Assistant Strategy Executive who runs the Strategy Office, a System Operations Planning & Compliance Engineer and a Business Analyst who is involved in analysing and reporting on the company's strategic business processes in alignment with statutory and other requirements, the SHERQ Manager who is involved in the management and operation of the EMS at SEC and an Environmental Officer involved in monitoring and maintaining the implementation of the EMS at SEC. In addition, 60 employees involved in various processes and with different roles and responsibilities at SEC (that is from senior management, middle management and general staff), were selected for inclusion in the research. The selected 60 individuals were based on 22 processes that have been

mapped for the EMS at SEC (Figure 5), 19 workstations and a group of 20 (out of 40) internal auditors who are responsible for periodically evaluating the company's environmental performance through the EMS standard ISO 14001.

In total, the research selected a total of 70 participants. For qualitative research, saturation (deep understanding) is the objective and understanding the phenomenon is more important (Green and Thorogood, 2009; Mason 2010). Although purposive sampling has a disadvantage of potential biasness in the researcher's selection criteria, the technique has benefits of reaching targeted populations quickly and is free to involve multiple phases of the research which made it suitable and commended for this research (Teddlie and Yu, 2007). It must be recapped that for this particular research, the researcher employed a pragmatic philosophy as a result placing the research problem at the fore-front and reducing biasness.

3.5.3 Data Collection Tools/ Data Instrumentation

Research relies greatly on the data collected and the choice of techniques must result in high quality research and credible findings (Oun and Bach, 2014). Three data collection techniques were adopted for this research: questionnaires, interviews and gathered information through secondary data collection. Harrell and Bradley (2009) define questionnaire data collection as the administration of questions to the sampled population via a document, while interviews are defined as discussions (usually one on one) between the researcher and the sampled individual and secondary data collection as gathering information from existing documentation and records, etc.

For secondary data collection, document analysis was used to collect background information on the use of Environmental Management Systems in businesses and business sustainability. SEC's annual and strategy reports as well as other documented information relating to the Environmental Management System together with published public documents on the internet relating to the subject

matter were used to collect data and feed it to the research for the purposes of answering the research questions. The secondary data collection method is relatively inexpensive and can be used to support findings from the questionnaire and interview data collection techniques. The overall process of distributing the questionnaires and receiving responses as well as interviewing of participants took eight (8) months. A detailed description of the data collection techniques used for the research is presented in the following sections.

3.5.3.1 Interviews

Ten (10) employees strategically involved in the decision-making process with regards to the implementation of the EMS were selected for the interview data collecting technique. Out of the targeted 10 individuals, only 5 consented to being interviewed; two in top management positions, one in a senior management position and 2 in middle management positions. This is slightly below the approximate 60% response goal for research suggested by Fincham (2008). Interviews tend to be time consuming, hence a small sample size is more practical (Oun and Bach, 2014). Questions presented for interviews were mostly open questions in order to allow for in depth explanations and insight on the research matter. A few closed questions were also used for the participants to respond to pre-coded answers with an option of answering yes or no. The questions were asked in both English and SiSwati, and responses, which were audio recorded, were also given in either English or SiSwati. Responses to questions were recorded in English. An interview guideline used for the data collection through interviews is provided as an appendix to this research (Appendix v).

3.5.3.2 Questionnaires

The questionnaire method to collect data was preferred for this research on the basis that SEC has 19 work sites located across Swaziland and questionnaires are suitable for such geographic constraints. Questionnaires were sent via email. This method of distribution was preferred due to geographic barriers and on the notion

that postal transfers take longer to be delivered. Where possible however, physical hand delivery of hard copies was conducted. Questionnaires were distributed to the larger group of 60 sampled participants who were sampled across SEC's hierarchical structure based on 22 core EMS processes, 19 workstations and a group of 20 (out of 40) internal auditors. Out of the sampled of 60 however, only 50 participants returned questionnaires for the research. This resulted to a response rate of 83%, which is above the approximate 60% response goal for research suggested by Fincham (2008).

By using questionnaires, data is collected at a reasonable cost and unlike interviews questionnaires tend not to be time consuming as they give the participant the flexibility to complete the questionnaire at their own time (Hair *et al.,* 2003). Questions presented on the questionnaires were worded to ensure clarity and prevent any confusion. Jargon or technical terminology was kept at a minimal; however, were used, explanations or definitions of words were given in order to ease response. The questionnaire was developed to capture the participants' view of the title and was sectionalised into four segments aligned with the research questions. Section A was formulated to gain participants' details (i.e. gender, age, educational background, area of qualification, level in SEC's hierarchical structure and years of service in the company), while Section B questioned the participants' knowledge of sustainability. Section C asked focused questions on the participants' attitude and understanding of the sustainability and the EMS at SEC, while the last section asked participants to be more elaborative on the same topic.

The questionnaire format was kept simple, easy to navigate and all questions were formulated in English. For closed questionnaires, participants were given a choice of three to five pre-coded responses. A *neutral* response indicated that the participant either did not know, was satisfied or neither agreed/disagreed with the posed question or statement. Semi opened questions were used to enable participants to provide more detail for their chosen responses, while open ended questions were used to allow for the research to gain detailed answers from participants. These (open ended questions) were however kept at minimum. The questionnaire is provided as an appendix to this research (Appendix vi).

3.5.3.3 Secondary data

Sources of secondary data collected for the research included SAPP Annual Report (2006), SEC's 2015-2020 Strategy, SEC's Annual Report (2017), SEC HSE manual and SEC's Human Resource data base which was used to inform the research of SEC's staff compliment.

3.6 Data analysis

Data analysis is the process of forming a research opinion based on data collected. For audio recorded interviews, the recordings were listened to and transcribed word for word according to the questions asked. No exclusions were made, as this may led to biasness (Mathers et al., 2007). Questionnaires received from participants were filed as hard copies. It must be noted that although the research had two sets of data collected, that is, from interviews and questionnaires; both sets were collecting the same information on the perspective of sustainability and the EMS at SEC. For this reason, both sets were similarly structured in terms of sections and were aligned with the research's questions. For analysis, the two sets were merged and a form of analysing data that forms categories and themes based on participant responses was then used, on Microsoft Excel 2013; to collectively examine both forms of data collected (i.e. through direct conversations and questionnaire). This technique is known as coding and assists in presenting analysed qualitative data into charts and graphs (Theron, 2015). Important themes that emerged from the analysis are presented and discussed in detail in Chapter 4.

3.7 Data Reliability

Since the research participants, as well as the researcher, are employed at the subject company, the research employed the following techniques to ensure trustworthiness of data collected and analysed:

i. The research applied clarification and justification for the methodology used to collect and analyse data;
ii. During data analysis constant data comparison through coding was used to clean data and form similar themes formed from responses, thus providing consistency of the data obtained;
iii. Selected participants represented all levels across SEC's hierarchical structure, workstations and core processes. Out of 60 questionnaires distributed, 50 were returned which is above the approximate 60% response rate standard suggested by Fincham (2008); and
iv. A comparison of findings from the interviews and questionnaires with existing published information was also employed in order to validate the understanding of the data. This is known as triangulation analysis.

3.8 Methodological reflections

The research approach allowed the researcher to use various methodologies to gain insight on the research question from different individuals with an actual experience on the implementation of the EMS tool across SEC. Through conducting interviews and distributing qualitative questionnaires, the researcher developed a better understanding of participants' views, beliefs and attitudes therefore allowing the research to maintain its focus on the research topic within a reality setting. Being an employee of the study company, participants were familiar with the researcher and were able to be truthful in their responses without being intimidated. Being close to the research setting and subjects, however, meant that the researcher had to ensure that their own views on the research topic did not influence the study's findings when analysing data; more especially as they are involved in designing and safeguarding continuous improvement of the EMS tool.

Collecting data across SEC's organisational structure proved to be difficult as most selected participants underscored that they felt that the researcher, as an employee of the study company, should have been more understanding of their time constraints and various business commitments which resulted in response delays

and numerous rescheduling of interviews. This called for the researcher to make site and office visits, were possible, in order to remind selected participants to complete questionnaires or confirm interview times; in order to get rich information and adequate representation of SEC's population for the research.

Although the questionnaire was user friendly and sent to participants via emails as well as allowed participants to respond on a soft copy format in order to resend to the sender immediately, this method of gathering information was a slight setback as it was discovered that most participants either preferred hard copy questionnaires, supporting them to easier to quickly complete compared to soft copies. Some participants underlined that they got a lot of emails a day/ week and forget about earlier received emails. It was also discovered that email sent questionnaires were also not ideal for workers who tend to be outdoors as they do not access their emails frequently. The researcher thus had to print hard copies and physically deliver questionnaires to them, which resulted in delayed responses as questionnaires were either sent back via posts or whenever the researcher and participant meet at a central location for work.

Getting time for interviews with selected executive and senior management members, also proved to be very difficult as they tended to be either away on international business or booked for other meetings. After months of data collection, the researcher, when analysing the collected data, realised that the research posed a lot of questions for participants and some questions required long responses. Shorter questions would have been better to prevent participants from being uninterested in the research. Lastly, to encourage participation, the researcher could have considered giving incentives, for example, to the first 30 questionnaires received.

CHAPTER FOUR

EMPIRICAL EVIDENCE

4.1 Introduction

In Chapter one, the main research question is underlined as *how can principles of sustainability be incorporated in an EMS tool to help Swaziland Electricity Company (SEC) attain sustainability*? To respond to the main question, the research further examines these secondary questions: i) In what ways is sustainability considered in SEC's business success definition?, Ii) What methods, tools and/or concepts are used to justify SEC's strategic decision making towards sustainability?, and What are the implications of the findings of the research in a wider context; particular in the Southern African Power Pool (SAPP)?

In Chapter four, the research presents the findings of the research based on the data collection process explained in Chapter three and aligns them to the research questions recapped above. Findings of the research are presented purely as the views obtained from the research participants. The Chapter is thus guided by sections as follows:

i. The perspective on sustainability and business success at SEC;
ii. SEC's methods, tools and/or concepts used to drive sustainability; and
iii. The perspective on the use of the EMS at SEC.

Based on the sections listed above therefore, Chapter four begins by detailing the participants' perspective on sustainability and business success at SEC. Subsequently, it then details findings of the research based on methods, tools and/or concepts that are used to drive SEC's sustainability and the perspective on the use of the EMS tool at SEC. Lastly, the Chapter concludes by presenting key findings based on what was presented by each section. The importance of this

Chapter is that it gives the empirical evidence that will form the basis for the research discussion, from which key conclusions on how principles of sustainability can be incorporated in an EMS tool to help the company attain sustainability, are drawn.

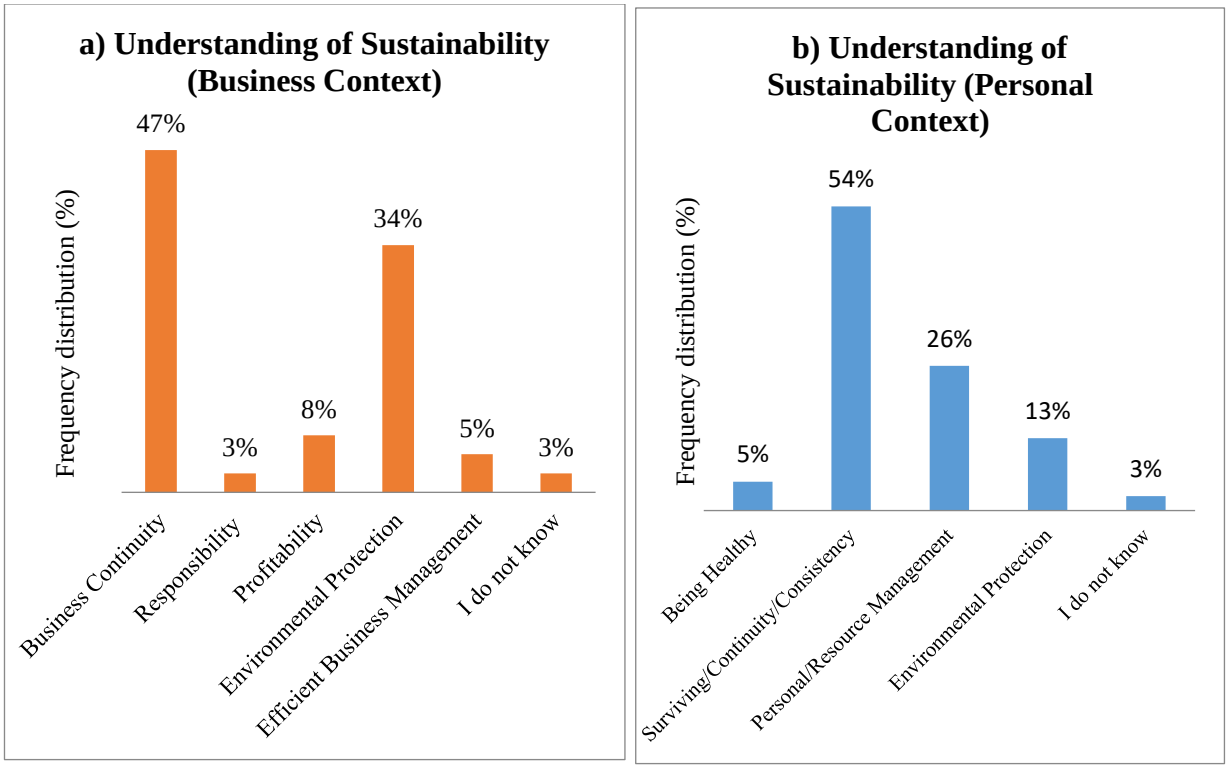
4.2 The perspective on sustainability and business success at SEC

One of the issues that the research was interested in was to understand how SEC understands sustainability and how it incorporates the concept in its success definition and in its business operations. In view of this, the research questioned the research participants' perspective on sustainability and business success. Questions engaged participants on their understanding of sustainability, the perspective on the inclusion of sustainability within SEC's strategy and the perspective on the adoption of sustainability principles by SEC. The findings are presented in the following sub-sections.

4.2.1 Understanding of sustainability at SEC

Participants were questioned on their knowledge and understanding of sustainability in the business. Figure 6(a) shows that the majority of SEC employees understand sustainability as being about business continuity (47%) and environmental protection (34%), while 8% consider it to be purely about profitability. Other views of sustainability considered it to be about efficient business management (5%) and very few participants considered it to be about responsibility while 3% stated that they did not know how to define it. When comparing these findings with those obtained from a different question, that is, what is sustainability from a personal perspective (without the business in mind); Figure 6(b) shows that the themes formed are similar. In an interview, one participant stated that sustainability at SEC speaks to '*things that enable SEC to continue operating in the future; that being the human resources, the environment SEC operates in and the customers SEC has*. This indicates that most SEC employees consider sustainability as key for business continuity and environmental protection.

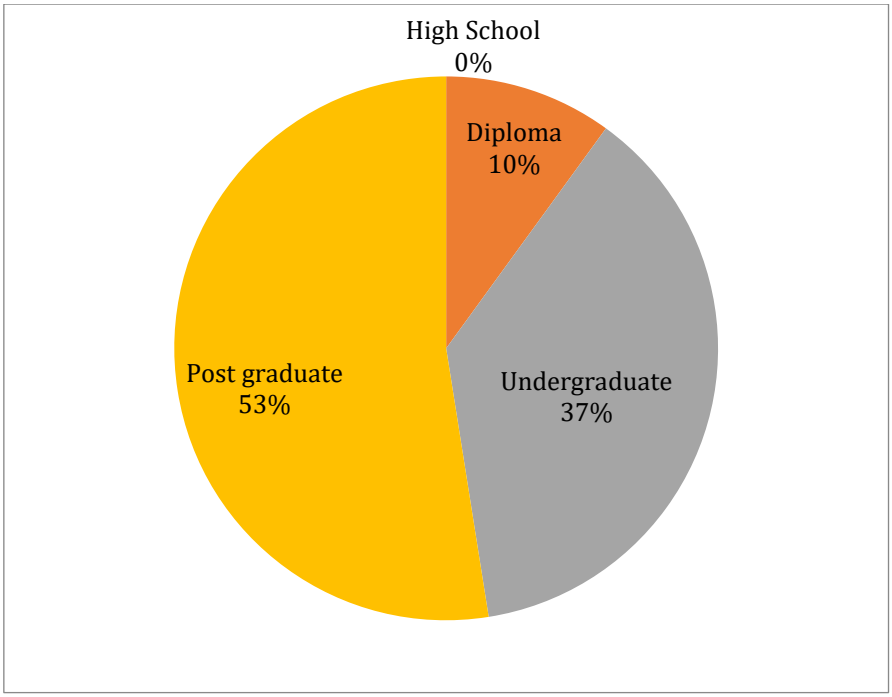
Figure 6: Frequency results on the understanding of sustainability by participants (a) business context (b) personal context



Source: Fieldwork materials (2018)

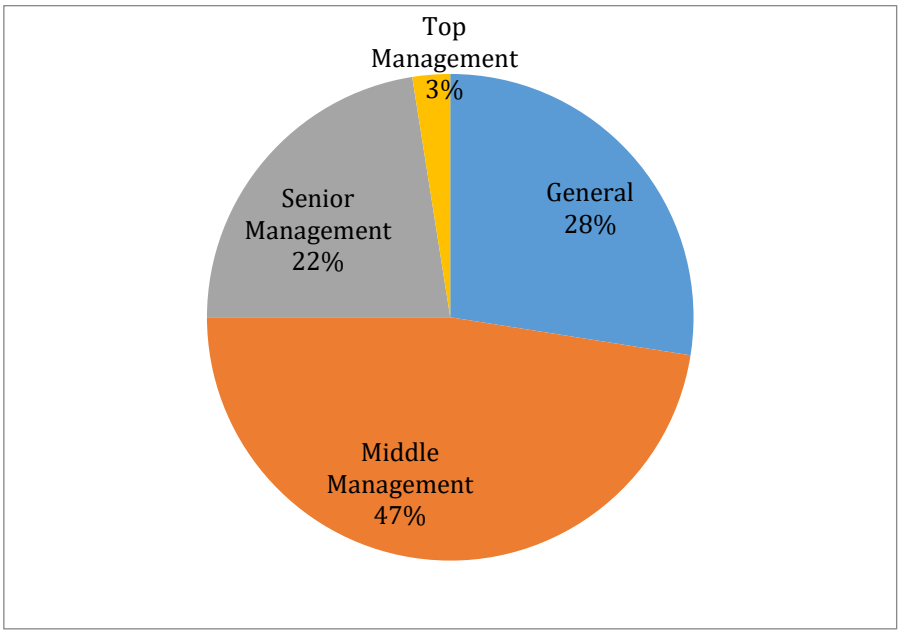
To appreciate participants' understanding of the concept, the research required participants to indicate their level of education. In figure 7, the results indicate that all participants were found to have undergone higher education, with majority (53%) holding post graduate degrees while 37% hold undergraduate degrees and 10% hold diploma certificates. Furthermore, the research requested participants to indicate their level of responsibility in the company. Figure 8 shows that majority of participants, 47%, are in middle management, while 28% are general employees, 22% are in senior management and 3% are in top management.

Figure 7: Participants highest level of education



Source: Fieldwork materials (2018)

Figure 8: Hierarchical level of participants



Source: Fieldwork materials (2018)

4.2.2 Inclusion of sustainability in SEC's strategy

When questioned whether, in their opinion, the strategy at SEC integrates sustainability, Figure 9 indicates that 90% of participants who responded to the questionnaire agreed, while 7% disagreed and 3 % did not know. All interviewed participants, referred to SEC's vision and mission statements [9] as setting the tone for the strategy. One participant was recorded saying:

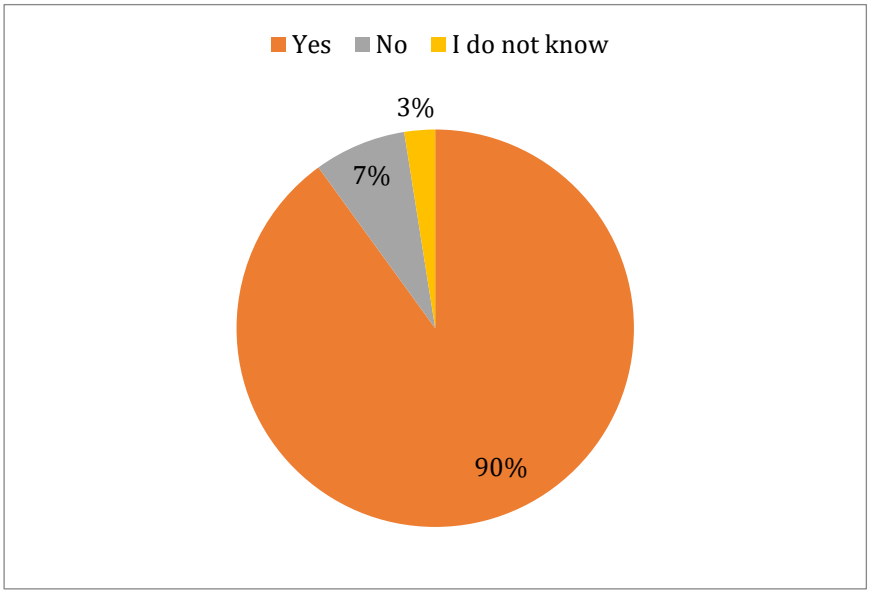
> ''I*f your mission statement mentions that you want to meet your customer's needs in a sufficiently profitable manner, you aim to keep your customers even tomorrow and if the environment you use to supply your service does not exist, then the company also does not exist*'' (Fieldwork materials, 2018)

An interviewed participant mentioned that:

> ''*Sustainability remains an integral part of the company, as through its vision, the company aims to be a major player in the Southern African region, hence the company needs to consider elements that may distract it from attaining that objective such as environmental legal fines and community disputes when supplying power to people*'' (Fieldwork materials, 2018).

[9] Vision: To be a major player in Energy Sector development, nationally and regionally.
Mission: To meet the needs of our customers in a sufficiently profitable and environmentally sound way through providing a reliable and safe power supply of acceptable quality.

Figure 9: Results on the integration of sustainability in SEC's Strategy



Source: Fieldwork materials (2018)

The above results are similar to responses participants gave when engaged on a different question to attain their views on whether the company had a formal strategy that focuses on all three pillars of sustainability, that is, the economy, environment and society (see Table 2 below). From the findings, majority of SEC employees consider the company's strategy, as driven by the mission and vision (which are paramount to drive business success), to fully integrate sustainability.

Table 2: Questionnaire responses on the perspective on the integration of sustainability in SEC's strategy

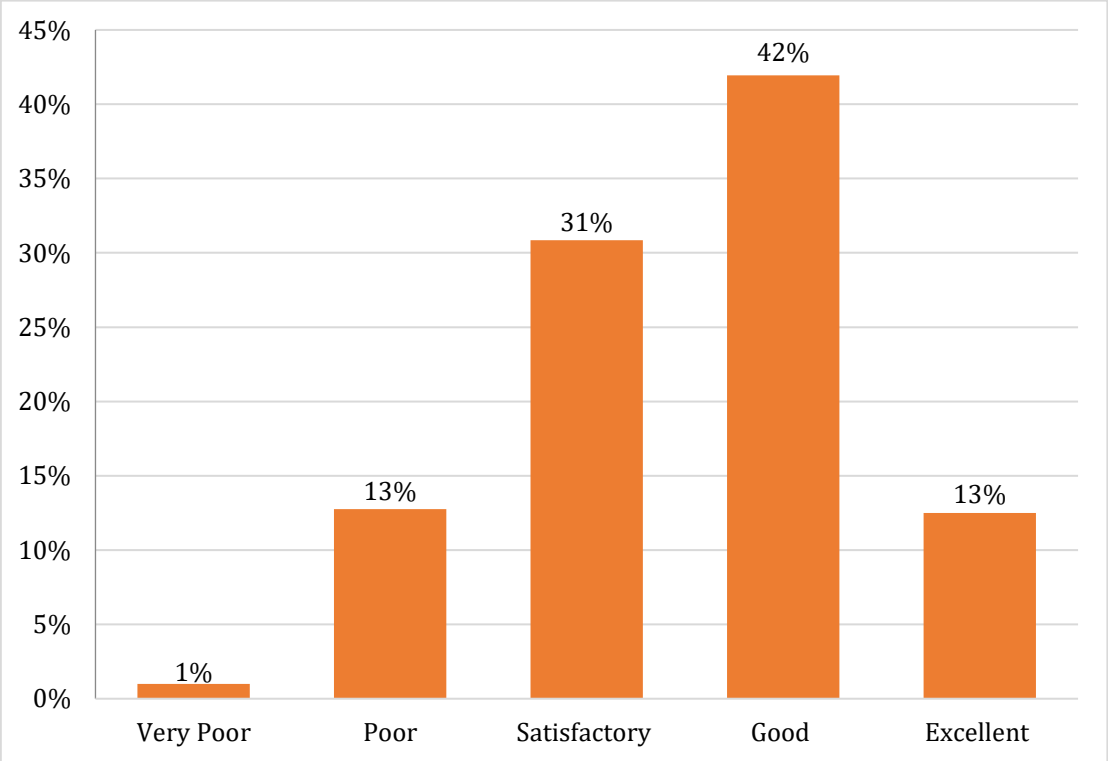
Question: SEC has a formal strategy that focuses on all three pillars of sustainability, that is, the economy, environment and society		
Pre-coded response	**Count**	**Frequency Distribution**
Strongly disagree	0	0%
Disagree	1	2%
Neither agree/ disagree	9	18%
Agree	23	46%
Strongly agree	17	34%
Total	**50**	**100**

Source: Fieldwork materials (2018)

4.2.3 Perspective on the adoption of sustainability principles by SEC

Participants were further engaged to find out whether common sustainability principles, as highlighted in Chapter two, were adopted by SEC's operations. 42% of participants gave a good indication of sustainability principles being adopted by the company's operational EMS, while 37% considered sustainability principles as adopted in a satisfactory manner and 12% considered sustainability principles to be excellently adopted by the operational EMS tool at SEC (Figure 10). 13% gave a poor indication and 2% thought the EMS tool did very poor in adopting sustainability principles.

Figure 10: Participants' perspective on the adoption of sustainability principles by SEC's EMS



Source: Fieldwork materials (2018)

When questioned on whether the operational EMS could be used as a tool to attain sustainability at SEC, majority of participants agreed at 75%, while 9% disagreed and 16% did not give a response (Table 3).

Table 3: Responses on the perspective on the EMS as a sustainability tool

Question: Do you think the company can use ISO 14001 as a tool towards attaining sustainability		
Pre-coded response	**Count**	**Frequency Distribution**
YES	41	75%
NO	5	9%
No Response	9	16%
Total	**55**	**100%**

Source: Fieldwork materials (2018)

The findings presented in Table 3 can be used make understanding of Figure 10, where majority of SEC research participants consider the EMS as having a good or satisfactory adoption of sustainability principles. When asked to motivate their choice of response, indicated in Table 3, research participants who agreed gave motivations based on themes presented in Table 4. An interviewed participant was recorded stating that:

> ''*Environmental adverse impacts affect communities, they affect people. If there are no measures put in place to avoid them, mitigate them or manage them they tend to be very costly for the company. The EMS, I believe, helps us manage our environmental risks. As a result the company doesn't lose money*'' (Fieldwork materials, 2018).

Table 4: Themed motivations agreeing that the EMS can be used as a sustainability tool

Theme	**Count**	**Frequency Distribution**
Minimises environmental risks	10	24%
Promotes the preservation of natural resources used by company	5	12%
Requires top management commitment	8	20%
Reduces resource wastage	8	20%
Increases competitive advantage	2	5%
Continual improvement is underlined	2	5%
Measures performance	3	7%
Emphasises on Compliance	3	7%
Total	**41**	**100%**

Source: Fieldwork materials (2018)

Motivations from participants who did not agree with the EMS being applicable as a sustainability tool at SEC are presented in Table 5. One questionnaire participant recorded the following motivation:

> "*It is not the tool that determines success of a company attaining sustainability, it is rather the people and how well they embrace the tool. SEC still needs to improve staff culture in accepting the EMS standard requirements as part of their day to day activities*" (Fieldwork materials, 2018)

Table 5: Themed motivations disagreeing that the EMS can be used as a sustainability tool

Theme	**Count**	**Frequency Distribution**
Lack of awareness	2	40%
It has no financial benefits	2	40%
There's poor culture in accepting standard requirements as part of day to day activities	1	20%
Total	**5**	**100%**

Source: Fieldwork materials (2018)

4.3 SEC's methods, tools and/or concepts used to drive sustainability

In this section, the research engaged participants to attain what methods, tools and/or concepts were used at SEC to drive the attainment of sustainability. Different questions were posed for the two focus groups: interview and questionnaire participants. Interestingly, the results from interviewed participants present differing views (Table 6). These participants, who all have managerial positions, are key personnel at SEC and are all involved in the company's business decision making process.

Table 6: Responses from interview participants on methods, tools and/or concepts used to drive SEC towards sustainability

Interview Participant	Response
1	I don't know if we have a tool or not, but I think the company is forced by events like politics and the economy to then think out of the box in order to get out of negative situations. These events then make it strategize ways to being more sustainable.
2	We have a combination of tools. We go through stakeholder engagement processes to find out what they want to see in the future and then we do SWOT and PESTEL analysis. This also involves change management and objective setting. What is an important aspect however, is going through an in-depth reading of the company information.
3	We use various management systems in an integrated approach, which tie everything together as they give a focused and transparent view to running the company's mission to be economically efficient while protecting the environment and delivering our product in a safe manner to both the customer and the environment we work in. These are the quality management system, the Environmental Management System and the occupational health and safety management system among other systems.
4	I only know of SWOT and PESTEL which is done by the Strategy Office.
5	Consultants are called in to analyse how the company is doing and where it is falling short. I think they must use a risk management framework.

Source: Fieldwork materials (2018)

When participants who responded to the questionnaire were asked to indicate awareness of tools employed by the company to establish its strategic objectives; majority (80%) answered that they were aware of these (Table 7), while 20% however mentioned that they were not. Regarding the communication of SEC's objectives to staff; majority (80%) of participants indicated they these were often communicated, while 10% indicated that communication was only done once and 10% indicated that SEC's strategic objectives were only briefly communicated to

them (Table 8). The high frequency can be attested to the notion that there are a lot of participants who are in management roles, as seen in Figure 8 (previously presented), and attend SEC's business review forums (BRF) held every month. These findings were confirmed by the Strategy Officer, who when interviewed, mentioned that the company's objectives are communicated monthly during BRF meetings and attendees, who are in managerial positions, get to be informed on the company's progress towards established goals.

Although the questionnaire did not ask participants to go into detail to find out which tools, they were aware of, findings in Table 6 imply that although there may be a presence of sustainability tools in the company, these are implemented in a disjointed manner.

Table 7: Participants responses to the awareness of methods, tools and/or concepts used to drive SEC towards sustainability

Awareness of strategic tools used at SEC	**Count**	**Frequency Distribution**
Yes	40	80%
No	10	20%
I do not know	0	0%
Total	**50**	**100**

Source: Fieldwork materials (2018)

Table 8: Participants responses to the frequency on communication of SEC's objectives towards attaining sustainability

Communication of SEC Objectives	**Count**	**Frequency Distribution**
Often	40	80%
Once	5	10%
Briefly	5	10%
I do not remember	0	0%
Never	0	0%
Total	**50**	**100%**

Source: Fieldwork materials (2018)

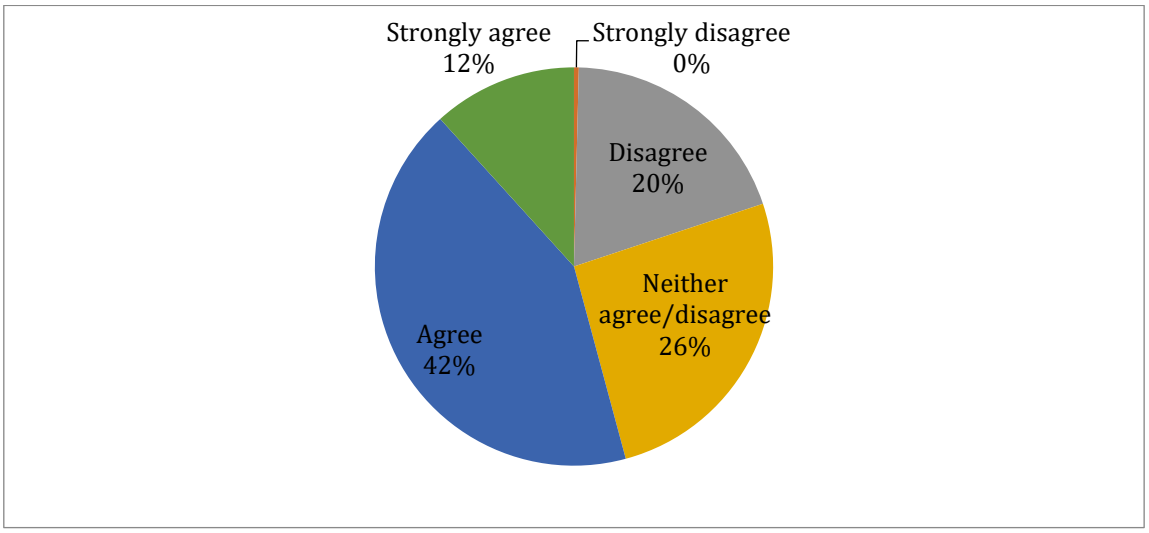
4.4 Participants' views on the implementation of the EMS at SEC

The research also engaged participants to gain their views on the use of the EMS as currently implemented at SEC. The questions were based on best environmental management practices (BEMPs) embodied by the EMS; whether the tool allows for enhanced corporate performance; what challenges the EMS as currently implemented at the company faces and the participants overall satisfaction with the EMS tool. Findings from participants are presented in the following sections.

4.4.1 Environmental management best practices embodied by the EMS

When questioned whether the EMS as currently implemented at SEC addresses a set of BEMPs; Figure 11 presents that 42% of research participants agreed, 12% strongly agreed, 20% disagreed, 0% strongly disagreed and 26% neither agreed nor disagreed. An interesting finding based on the views of the participants however is that out of the 55participants; when it came to whether the EMS addresses the purchase of eco-friendly materials and supporting local products at SEC; majority of the participants (45% and 55% respectively) were of the view that it did it not (Table 9).

Figure 11: SEC Research participants' perspective on environmental management best practices embodied by the EMS



Source: Fieldwork materials (2018)

Table 9: Participants' low perspective on environmental management best practices embodied by the EMS at SEC

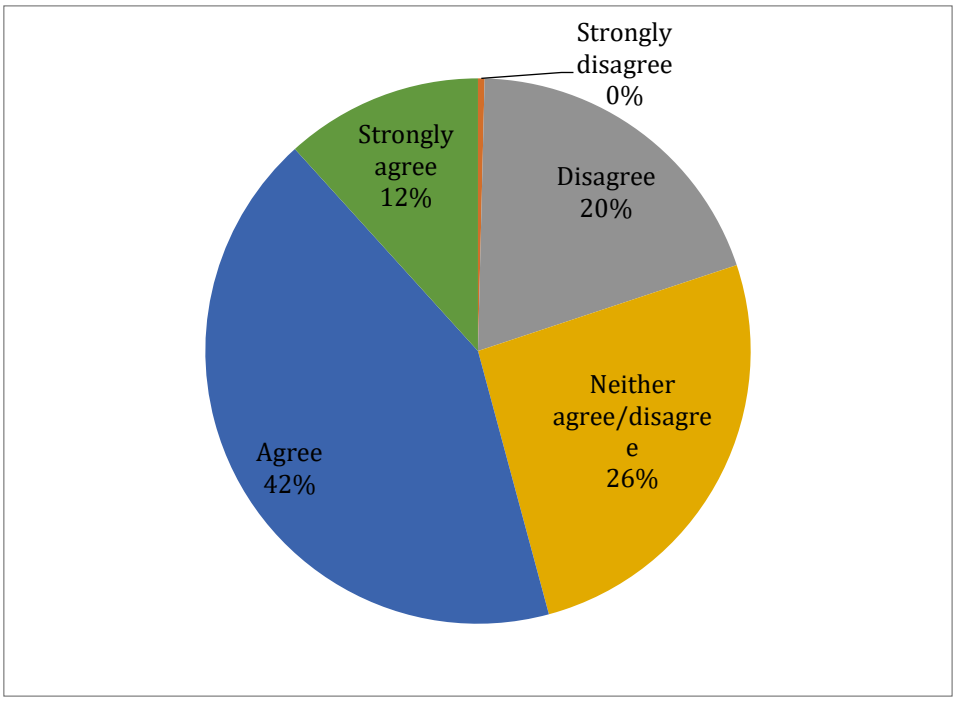
Perspective	Purchase of Eco- Friendly Materials		Supporting Local Products	
	Count	Frequency Distribution	Count	Frequency Distribution
Strongly disagree	0	0%	0	0%
Disagree	25	45%	30	55%
Neither agree/disagree	17	31%	15	27%
Agree	13	24%	10	18%
Strongly agree	0	0%	0	0%
Total	**55**	**100**	**55**	**100**

Source: Fieldwork materials (2018)

4.4.2 The EMS's Use to Enhance Corporate Performance

Research participants were also asked to indicate their perspective on the EMS tool's use to enhance corporate performance based on: compliance; improving environmental performance; reducing business costs; enhancing company reputation and image; improving relationships with stakeholders as well as interested parties and increasing employee culture and satisfaction. Figure 12 presents an overall participants' perspective on the aforementioned performance areas.

Figure 12: Participants' perspective on the EMS's Use to Enhance Corporate Performance at SEC



Source: Fieldwork materials (2018)

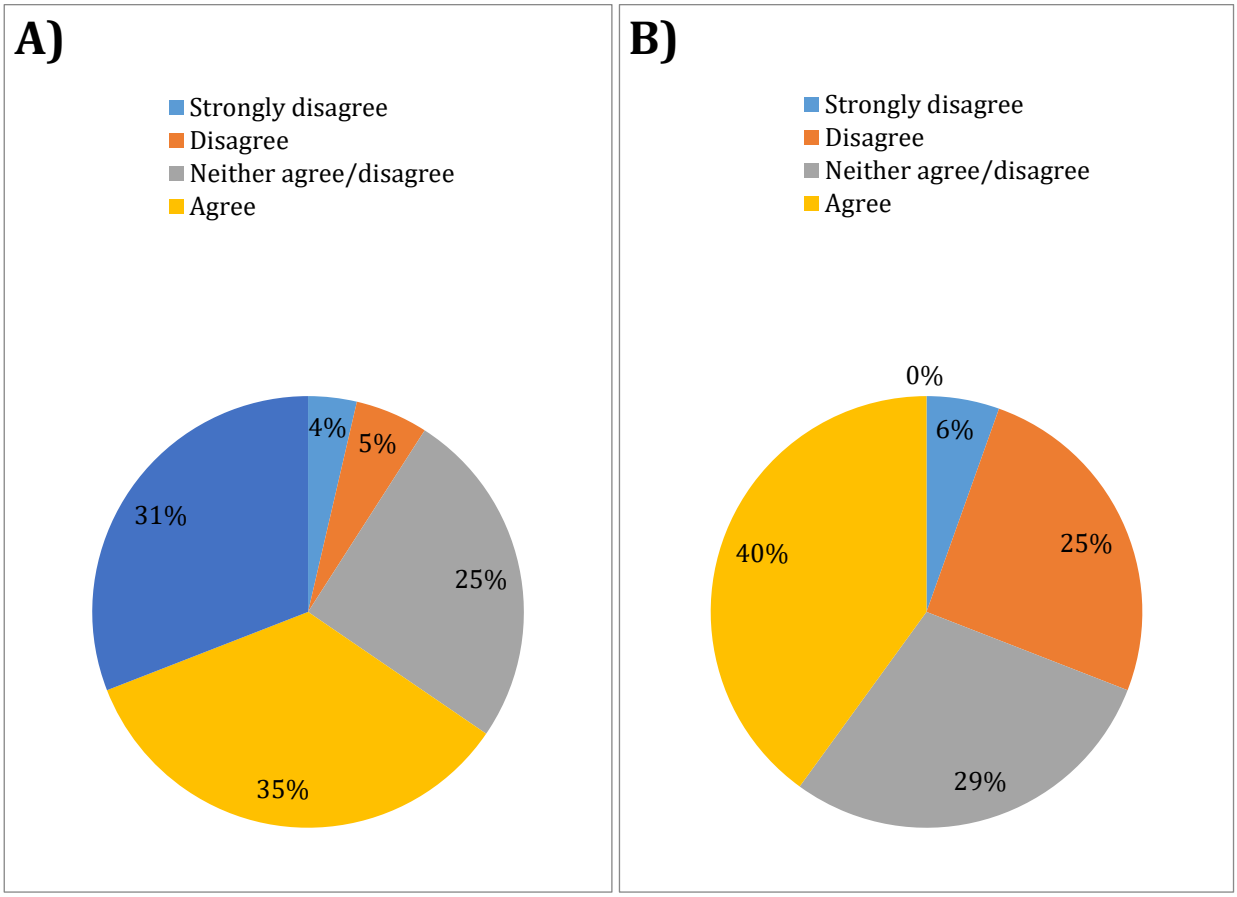
Majority of participants (42%) as indicated in Figure 12 above agreed that the EMS enhances the company performance. However, when it came to two performance areas; reduced business costs and increased employee culture and satisfaction, Table 10 indicates that majority of research participants (29% and 47% respectively) gave disagreeing viewpoints. When compared to similar questions posed to participants' opinions on the implementation of the EMS at SEC, akin viewpoints were shared by majority of participants. Figure 13(A) indicates that 35% agreed, while 31% strongly agreed that the EMS is a high company cost. In Figure 13(B) the findings indicate that 40% of participants agreed that the tool lacked support from employees. All interview participants however, who have key roles in the decision making, disagreed with the above majority perspectives.

Table 10: Research Participants' Common Challenges Affecting the Implementation of the EMS at SEC

Themes	Count	Frequency Distribution
Lack of adequate awareness and understanding	15	27%
Lack of integration into purchasing requirements	1	2%
Tool is used as a compliance tool rather than an improvement tool	3	5%
Lack of commitment from employees	15	27%
Implementation is left only to the environment office	1	2%
Not prioritized compared to other management systems	3	5%
Poor culture in accepting standard requirements as part of day to day activities	7	13%
The country's legislation also has its flaws	1	2%
Third party concerns are not well incorporated in the system	1	2%
Lack of change management	2	4%
Lack of staff/ resources	1	2%
Financial challenges	5	9%
Total	**55**	**100%**

Source: Fieldwork materials (2018)

Figure 13: Research participants' opinions on the implementation of the EMS at SEC A) High Cost to the Company, B) Lacks Support from Employees



Source: Fieldwork materials (2018)

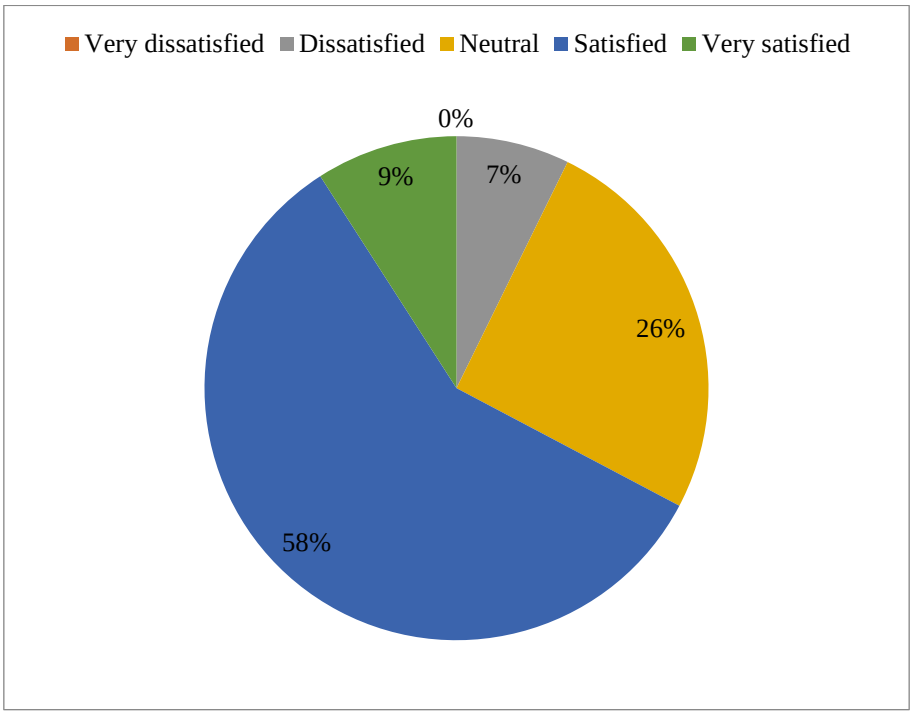
4.4.3 Challenges of the EMS at SEC and Users Satisfaction

In Table 10 above, views of participants, when asked to indicate challenges that affect the implementation of the EMS at SEC, are presented. The top three common views shared by majority of participants indicate that:

i. The implementation of the EMS tool lacks adequate awareness and understanding (27%);
ii. The implementation of the tool lacks commitment from employees (27%); and
iii. There's a poor culture in accepting standard requirements as part of SEC's day-to-day activities (13%).

Although research participants underpinned the above challenges, when asked to indicate their overall satisfaction rate, 58% of participants specified that they were satisfied with the implementation of the EMS at SEC (Figure 14). While no participant indicated that they were very dissatisfied, 7% indicated that they were dissatisfied and 26% chose to be neither satisfied nor dissatisfied; remaining neutral.

Figure 14: Participants' satisfaction with the EMS implementation at SEC



Source: Fieldwork materials (2018)

Motivating their choice of satisfaction rate, of the 58% (33) and 9% (5) of participants who indicated to be satisfied and very satisfied respectively; majority (58%) had a view that the EMS increases their conscientiousness regarding environmental issues (Table 11(a)).Motivations from the 7% (4) who indicated to be dissatisfied with the implementation of the EMS are also listed in Table 11(b). These were centred on participants' views that the EMS at SEC is still not part of the company's operational culture and that there are no evident financial benefits. Participants who remained neutral did not give motivations for their choice.

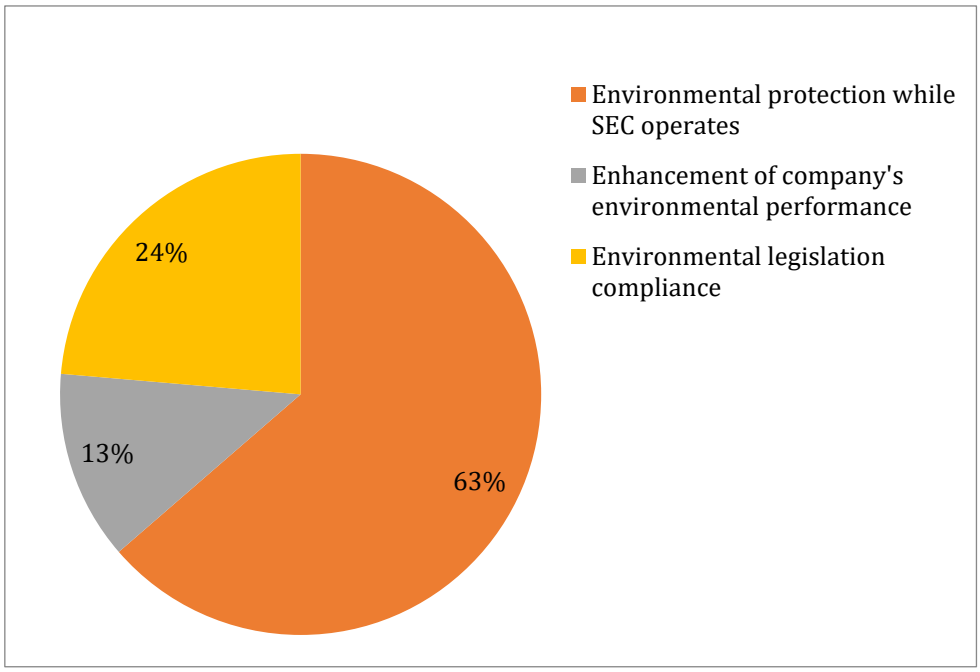
Table 11: Motivation for choice of satisfaction rate

Satisfaction rate					
a) Satisfied and Very Satisfied	**Count**	**Frequency Distribution**	**b) Dissatisfied**	**Count**	**Frequency Distribution**
Increased conscientiousness regarding environmental issues	19	58%	It's still not part of operational culture	3	75%
Part of the strategy	1	3%	I cannot see any financial benefits	1	25%
Improved operational controls e.g. waste management	2	6%			
International certification to EMS standard accredits the company	1	3%			
Good leadership from environmental unit	6	18%			
All environmental aspects (even minor ones) are identified through the EMS	1	3%			
Improved company recognition	1	3%			
Employees stay motivated due to certification	1	3%			
Easy to understand	1	3%			
Total	**33**	**100%**	**Total**	**4**	**100%**

Source: Fieldwork materials (2018)

The common viewpoint indicated by the majority of satisfied participants can be attested to participants understanding on the role and purpose of the EMS at SEC (Figure 15), where 63% of research participants consider the EMS at SEC's as a tool to protect the environment while the company operates.

Figure 15: Research participants' understanding of the role and purpose of the EMS at SEC



Source: Fieldwork material (2018)

4.5 Conclusions

The research concludes Chapter four by summarising the key findings of the research based on information presented by views of research participants. These are as follows:

i. Sustainability at SEC is understood, by majority, as a concept for business continuity and as environmental protection;
ii. Majority of the research participants at SEC hold post graduate degrees and have management roles and responsibilities;
iii. Communication of sustainability issues at SEC is frequently done to employees found to be management positions and attend BRF meetings;
iv. A large percentage of research participants (90%) at SEC are of the view that the company's strategy includes sustainability;
v. Majority of research participants at SEC consider sustainability to be adopted by the EMS and that the EMS can be used as a sustainability tool at SEC, as it already

encompasses sustainability principles and best environmental management practices;

vi. SEC has various methods/concepts to drive SEC towards sustainability. Majority of participants attested to being aware of their existence, however, during interviews findings indicate that the methods are implemented in a disintegrated manner and are known, in detail, by a very few;

vii. Majority of participants at SEC support the implementation of the EMS at SEC, indicating that they are satisfied with the tool as it enhances the corporate's performance and increases their environmental conscientiousness (that is increased awareness of environmental issues hence an inclination for them to change the way they do things);

viii. There are however challenges affecting the implementation of the EMS at SEC, such as:

- Lack of awareness and understanding of the EMS implementation in the company,
- The tool being perceived as having no financial benefits;
- Poor culture in accepting the EMS standard requirements as day-to-day activities;
- The tool being perceived as a high company cost;
- The tool not supporting the purchase of Eco-friendly materials; and
- The tool not supporting the purchase of local products.

CHAPTER FIVE

ANALYSIS AND DISCUSSION

5.1 Introduction

The main aim of this research was to explore the view of implementing the administrative Environmental Management System (EMS) as an idea to attain sustainability at SEC. Chapter five is dedicated to analysing and discussing the research's findings based on fieldwork material and in relation to existing literature in order to present, to the reader, what was presumed from the study. The Chapter is structured into three sections based on the research's secondary objectives as follows:

i. Understanding sustainability and the purpose of the EMS at SEC;
ii. SEC's sustainability principles; and
iii. Links between the EMS, business strategic tools of SEC and sustainability.

Key issues arising from the research's analysis and discussions, will form the implications of the research for SEC and in a wider context, especially for the Southern African Power Pool, as well as form basis for conclusions and recommendations of this research.

5.2 Understanding sustainability and the purpose of the EMS at SEC

The research sought to ascertain the purpose and role of the EMS at SEC in relation to sustainability. In the Brundtland report, sustainability is defined as the integration of environmental and social issues with a business' objective to remain financially viable. When the research questioned participants on their understanding of the concept, majority of participants (47%) indicated their

understanding of the concept as business continuity while 34% as environmental protection (Figure 6). While participants do not detail the concept as clearly as underlined by the Brundtland report; what is evident is that employees at SEC seem to be knowledgeable of what the concept encompasses (that is there is knowledge that sustainability encompasses pillars such as the environment and economy). In examining their responses, the research relates participants knowledge/understanding of what sustainability entails to their level of education, whereby all participants underwent tertiary education; with majority of participants holding post-graduate degrees and in managerial positions. The research therefore suggests that with exposure to higher education, the more knowledgeable one tends to be.

Furthermore, the common understanding of sustainability as business continuity was noted in participants who hold managerial roles. This can be related to the view that the responsibility of managers is to make high level decisions in order to ensure business continuity, while general employees on the other hand are tasked with the responsibly implementing those decisions (Wong, 2013). This differentiation can be seen in the research whereby the 34% of participants who consider the concept to be purely about environmental protection are general employees and hence it is possible that in their understanding of sustainability, they consider the concept of sustainability to be about responsible implementation of decisions made towards ensuring environmental protection at SEC.

Although knowledgeable of what the concept should encompass (that is, there is knowledge that sustainability encompasses pillars such as the environment and economy), participants across the hierarchical level do not, however, conceptualise sustainability in the integrative manner defined by the Brundtland report. We see in the report, one segment (managers) conceptualising sustainability as business continuity while general employees conceptualise it as environmental protection. From this finding, the research argues that SEC employees therefore have a weak understanding of the concept. A weak understanding of sustainability is due to a focus on one pillar of sustainability, thus overshadowing the others. This often results in failure to attain the integrative approach sustainability seeks to attain. To

strengthen the understanding of the concept and increase chances of achieving it, literature encourages businesses to set and adopt strategies, as well as business operations that will ensure they meet their business needs while protecting and enhancing the environment and human resources for the future (Steurer et al., 2005; Azapagic, 2003).

Looking at SEC, findings from the research give an indication that the company's strategy surely includes sustainability. See figure 9, whereby 90% of questionnaire respondents, across the hierarchical structure affirmative this. Interviewed participants, who are all in managerial positions (top management, senior management and middle management-refer to figure 4), were also all in agreement. One interviewed participant in a top management position stated that they were of the view that SEC's strategy is driven by the company's vision and mission statement, which proclaim the company as one that envisions meeting the needs of its customers in a sustainably profitable manner and environmentally sound way; hence it fully embodies the concept. However, while the strategy fully embodies the concept, the understanding of sustainability remains weak. As shown, above, participants across the company structure do not describe the concept in an integrative manner and there is a difference in understanding of the concept between managers and general employees.

Focusing on the EMS, the research shows that majority of participants across the hierarchical structure of the company perceive the EMS's role to be purely on environmental protection and minimising a business' environmental risks (fieldwork material, figure 15), in support of existing literature (Saha and Seal, 2011). Furthermore, a large subset of participants perceives the EMS as a sustainability tool (Table 3 and Table 4). The research attests this on the notion that the tool was introduced at SEC, through the company's 2015-2020 strategy, as a sustainable business practice. While environmental management is key for business sustainability, by introducing the EMS tool as a sustainability initiative the company invested the implementation of sustainability heavily on one aspect and may have influenced general employees' perspective on sustainability to about environmental protection. The perspective that the EMS is a sustainability tool, is however in

contrast to Roome (2008) and Calub (2015) who argue that the EMS cannot be used as a sustainability tool because it does not interconnect the three aspects of the concept.

By heavily investing on one aspect of sustainability, the research presumes that the company may be paying less attention to other areas of the concept which can be creating challenges. Findings from the research support this presumption. 9% of questionnaire participants (all with middle management positions (i.e. supervisors) disagreed that the EMS can be used as a sustainability tool (Table 5), giving the following reasons:

i) The implementation of the tool has no financial benefits for the company;
ii) There is lack of awareness on the tool usage across the company; and
iii) There is poor morale/ culture in accepting the EMS standard requirement as part of employees' day-to-day activities.

What is interesting is that this small subset of the study was supported by majority of participants across the hierarchical structure who, when engaged on challenges faced by the EMS listed;

i) Lack of adequate awareness and understanding;
ii) Lack of commitment from employees; and
iii) Poor culture in accepting the standard requirements (Table 10).

In addition to these findings, Figure 13 shows that while a large percentage of participants indicated that the EMS enhances the company's performance, majority of middle management employees (supervisors) at SEC were of the view that the tool was a high company cost and lacked support from employees. From these findings, what emanates is that by investing in environmental protection through the EMS as a sustainable strategy, SEC has overlooked the human resource responsible for ensuring effective implementation of the EMS and has failed to link the financial pillar of the business with the tool. Human resource culture and morale are very important, because whatever tool a business decides to adopt, it is the culture that will ensure the tool's success or failure (Chavan (2005); Vnouckord et al., (2015).

Contrary to participants' understanding of sustainability, its relation to the EMS and the challenges of the EMS; many employees at SEC across the hierarchical structure are satisfied with the tool, as it has increased their conscientiousness (that is increased awareness of environmental issues hence an inclination for them to change the way they do things) regarding environmental issues (Figure 14).

To strengthen the tool as a sustainability tool, SEC may need to establish a uniform understanding of sustainability across the company, as well as present the purpose and role of the EMS as encompassing all pillars of sustainability. This view is supported by Rebelo et al., (2014) who attests that businesses must clearly define what sustainability means for them and must not only maintain the concept within its strategies but ensure that it is understood by all workers in order to ensure effective implementation. When defining sustainability therefore, all employees of SEC should be able to integrate human needs, the environment and financial aspects of the business, in their responses without investing heavily on one aspect.

5.3 SEC's sustainability principles

Research participants were also asked to indicate whether sustainability principles were adopted by the company. The research related its questions to the adoption of existing common sustainability principles which are meant to provide focus on improved quality of processes, products and systems in order to preserve and improve on resources for the future (Lindsey, 2011). In figure 10, a large percentage of participants across the company hierarchical structure (both questionnaire and interview respondents) indicated that the company adopts the above-mentioned sustainability principles in its operations (42%-good and 13%-excellent). Based on the above research findings, it can be assumed that for its business success, SEC already incorporates business sustainability principles in its operations, which is essential for businesses as underpinned by Lindsey (2011).

In relation to the EMS, existing literature is of the view that for the EMS to impact on a business' sustainability, it must encompass BEMPs; which are defined by the European Commission as techniques, measures or actions that allow organisations to reduce their impact on the environment. The research thus further aimed to determine whether these measures were evident in the tool as currently implemented by SEC using the EMS ISO 14001 standard. Research findings indicate that 60% of participants across the company hierarchical structure from both questionnaire and interview respondents (48%- agree and 12% strongly agree) consider the tool to address BEMPs, while 25% neither agreed nor disagreed and 20% disagreed (Figure 11). Based on these findings therefore (Figure 10 and Figure 11), it is evident that sustainability core values at SEC (BEMPs and sustainability principles): which are meant to provide focus for improved quality of processes in order to preserve and improve on resources for the future; are entwined in the company's EMS.

Considering this, principles of business sustainability for SEC can thus be defined according to sustainability principles and best environmental management practices gathered and presented in this research, as follows:

Principles of business sustainability at SEC	
i. Holistic planning and strategy making	ii. Constraints on waste generation
iii. Preservation of ecological processes	iv. Design and delivery of sustainable products/ business processes
v. Protection of heritage	vi. Purchase of eco-friendly materials
vii. Protection of biodiversity	viii. Energy efficiency
ix. Sustaining development for future years	x. Water saving measures
xi. Meeting society needs	xii. Stakeholder engagement and awareness
xiii. Regenerative Capacity	xiv. Product and service quality for business growth
xv. Reusing and Recycling	xvi. Supporting local communities and products

xvii. Supporting local products	xviii. Supporting local environmental initiatives
xix. Reducing air emissions	

However, if SEC is to define and uniformalise the concept of sustainability across the company as argued by this research, it must also formalise and communicate these to employees. This is, according to Davies (2013) and Amazonas et al., (2018), key to attaining business sustainability.

It must be noted, though, that while the company seems to have adopted the above principles for its success, results of this research also indicate that 45% and 55% of participants disagreed that the BEMPs on purchase of eco-friendly materials and supporting local products were considered by SEC's operations. These two least agreed on practices are part of the company's supply chain, which may be an indication that the company needs to be more considerate of sustainability its supply chain. This research argument is supported in Table 10 where a participant notes that one of the EMS's challenges at SEC is that it is not integrated into purchasing requirements.

5.4 Links between the EMS, business strategic tools of SEC and sustainability

Businesses find themselves implementing a number of tools which all have a common goal towards improved social, environmental and financial performances. These, however, when implemented in isolation prove to be ineffective and counterproductive (Montiel, 2008; Calub, 2015). The research thus, further aimed to determine commonalities between tools used for sustainability and strategic making, in order to appreciate if these could be used together.

When questioned on the existence of tools/methods used in the company to drive towards attaining sustainability, research findings demonstrated in Table 3 show that out of the five interviewed participants, two participants both in top management position (participant 2 and 4) mentioned the use of SWOT/PESTEL analysis as strategic tools adopted by the company towards sustainability. One

participant (participant 3) highlighted the use of multiple management systems: *quality management system, Environmental Management System and the occupational health and safety management system*, to drive sustainability within the company, while participants 1 and 5 seemed to be unsure, respectively mentioning that the company reacts to occurred events to strategize ways on being more sustainable and that consultants, who use a risk management framework, are outsourced by the company.

It must be highlighted that all interviewed participants are in managerial positions (top management, senior management and middle management positions) yet, from the projected responses, it is evident that there is lack of confidence in tools/methods employed by the company to attain sustainability from participants. This is an interesting finding from the research, because as indicated in section 5.2, the company holds frequent business review forums where strategic objectives are reported on. From these meetings, it would be assumed that that all attendees in that forum are made aware of strategic decisions and methods/tools to develop or implement them, yet, only two participants, participant 2 and 3, give detailed responses. These two, however, are respectively key players in Strategy development and in the implementation of SHERQ management strategies, which include the implementation of management systems, like the EMS at SEC. This is thus an indication that while tools/methods to make sustainability/ strategy decisions do exist at SEC, there may be few resources engaged in sustainability/ strategic making at the company and that there may be lack of awareness and communication of these across the company, even in existing forums.

In comparing the existing tools/methods used for sustainability/strategic decision making at the company, literature describes the SWOT analysis as a widely used planning tool that provides a framework to determine and evaluate a business' strengths, weakness as well as opportunities and threats in order to minimise a business' risks; while the PESTEL analysis is used to analyse macro-environmental factors which a business operates in (Mkude and Wimmer, 2015). In recent years, the ISO family has released the ISO 14001:2015 version of the EMS standard. In this new version of the standard, business are required to be more thoughtful about

what issues can affect or be affected by its environmental performance through the consideration of for example; external and internal issues, needs and expectations of interested parties, risks and opportunities and a life cycle perspective Martins and Fonseca (2018). Therefore, while the EMS has been noted in existing literature as not being strategic, but rather reactively fixing issues upon their occurrence (Saha et al., 2009); contrary to this, the research argues that due to evident links between SWOT/PESTEL strategic methods and the EMS, the tool can be made more strategic and used together with the SWOT/PESTEL method.

What is interesting is that participant 3 (who is in a top management position) mentions management systems as sustainability tools, yet existing literature considers these, when implemented in isolation, to have weak relationships with sustainability as they tend not to have strong commitments for all three spheres in a nested manner (Saha et al., 2009; Ferreira and Gerolamo, 2016). In considering that management systems have similar frameworks based on the P-D-C-A Deming Cycle, the research argues that a combined management system would be ideal for SEC. This argument is supported by Jorgensen et al., (2005) who underpins that combining management systems in the business is a simple way to attain sustainability especially since, over the years, the ISO organisation which develops management system standards, has increased the compatibility between its different standard element requirements order to help organisations.

Nonetheless, as highlighted in section 4.2.3, it is not the tool that determines whether a company attains sustainability or not, rather the culture of the people implementing the tool. Thus, while a business can opt to link its management systems; for an IMS to contribute significantly to sustainability, the tool must fully embody the business' product chain and all stakeholders (Allur et al., 2018). This requires commitment and surety that the IMS is internalised in the daily activities of SEC. Unfortunately, as indicated in Chapter 4 (Tables 5, 10 and 11) the company already suffers from poor culture and poor acceptance of the EMS as an everyday tool.

5.5 Conclusion

In exploring the view of implementing the EMS as an idea to attain sustainability at SEC the research, through its analysis and discussions, has made a number of presumptions on the purpose of the EMS at SEC, principles of business sustainability at SEC and the commonalities between tools employed at SEC to drive the company towards sustainability. These form the basis of Chapter six and will be used to conclude the research and make recommendations for management and further research.

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

6.1 Key Findings and Implications

Due to growing competition in the energy market and unpredictable climatic conditions, SEC in its 2015-2020 strategy adopted the use of sustainable business approaches in order to secure its future. One of these approaches was the adoption and implementation of the EMS. Sustainability as defined by the Brundtland Report is a concept whereby businesses need to ensure the interaction and equity of environmental, economic and social aspects. If the EMS is considered by SEC as a way to advance sustainability, it must therefore interconnect all three aspects of the concept. The EMS however is an environmental management tool, purely focusing on increasing a business' environmental performance and minimising its negative impacts on the environment. The underlying question presented by this research as a result was, can the EMS be used to improve economic growth as well as environmental and social quality for a business, as means of attaining sustainability? As an aim, the research focused on exploring the view of implementing the EMS as a tool to attain sustainability at SEC. Particular attention was paid to ways the tool can be strengthened in order to increase its use as a sustainability tool, seeing that the EMS is widely adopted by businesses towards attaining sustainability.

The research revealed that although the concept of sustainability is well engraved in SEC's mission statement, vision and strategy; the concept is not entirely understood by SEC employees. This is evident in how the concept is not entirely defined by all the participants in the integrative manner stipulated by the Brundtland Report; the interaction and equity of environmental, economic and

social aspects and is a weak definition of the concept. This often leads to failure for businesses to attain ultimate sustainability (Willard, 2010; Calub, 2015).

In consideration of the research's findings, it was discovered that the basis of weak understanding of sustainability at SEC, may be due to the view that the concept is not formally defined across the company's operations and that the EMS , which has a main role of ensuring environmental protection, was introduced in the company as a sustainability tool. This has wired SEC employees to consider the EMS as a sustainability tool in contrast to literature and has resulted in SEC's general employees viewing sustainability as environmental protection while a business continues to operate. The narrow investment of sustainability on one aspect has led to the overshadowing of other aspects of the concept. Employees, especially those in middle management and general employees are thus of the view that the EMS is a high financial cost to the company. Poor morale and culture in accepting the EMS were also strongly underpinned as challenges resulting from the EMS implementation and in addition, employees stressed that there is lack of awareness and understanding when it comes to the tool's use at SEC. The company's top management could consider improving on aspects such as re-structuring the role and purpose of the EMS, underpinning what sustainability means for it and continuously communicating with and educating all employees on the tool. Top management as shown by Azapagic (2003) and Alolayan et al., (2013) in Rebelo et al., (2014), is key when discussing sustainability and needs to manage the concept in a strategic way. A highlight though is that, the implementation of the EMS is SEC is favoured by majority of employees across the company as it improves their awareness on environmental issues and willingness to protect the environment.

In exploring the view of using the EMS as an idea to attain sustainability at SEC, attention was paid to how the tool could be strengthened in order to increase its use as a sustainability tool. The research evaluated SEC's EMS based on:

i. The incorporation of sustainability principles in the tool;
ii. The incorporation of BEMPs in the tool;
iii. Shared elements of the tool with sustainability/ strategic making methods as well as with other management systems.

Findings from the research confirmed that sustainability principles were already considered engraved in the EMS at SEC. Furthermore, the research revealed that the EMS at SEC is considered to encompass best environmental management practices (BEMPs), which together with sustainability principles are considered necessary to drive business sustainability. The research also found commonalities between the EMS and existing sustainability/strategic decision-making tools as well as with other management systems employed by SEC. This, thus, implied that the EMS although not favoured by literature as a sustainability tool:

i. Encompasses key principles which are essential for business sustainability; and
ii. Can be used with existing strategic methods and operational management systems to sustainability.

While Salim et al., (2018) indicate that there is poor research on the EMS in Africa and while there is no known study of the EMS in Swaziland that encompasses the concept, this research presents findings and recommendations that can be added to the body of knowledge on sustainability and EMS studies in Africa and that can be used to conduct further studies on businesses alike in Swaziland.

6.2 Policy Recommendations

In light of the above research findings, the research hence makes the following recommendations:

i. Considering that the company has a weak definition of sustainability, the research recommends that SEC's top management formalise the concept's definition at both macro and micro level. That is, while the concept is well engraved in SEC's strategy through the vision and mission statements, it would be beneficial to define what sustainability is for the company at operational level throughout the company. This would ensure that every

employee across the company speaks in one consistent voice in planning for and ensuring that sustainability is attained at SEC.

ii. Findings of the research also found that while employees at SEC are aware of what sustainability entails and strategic tools employed to make sustainable considerations for the company, constant communication is only at managerial level. The research therefore recommends that SEC make effective communication a vital tool for the business throughout its hierarchical structure. Communication as a tool can also help with fostering increased awareness and understanding of sustainability and the EMS within the company and ensure good working relationships which can in turn improve employee commitment, behaviour and morale.

iii. Although the implementation of the EMS is favoured at SEC, middle management and general underpinned that there is no apparent financial benefit from implementing the management system. The research recommends that the company's strategy or business analyst units accounts for the management system by capturing, collecting and measuring how practices of the management system contribute to the company's financial sphere. Findings of these, can be reported and disclosed to employees and interested parties through the Global Reporting Initiative, which is a well-recognised sustainability reporting standard.

iv. Finally, considering that the EMS focuses primarily on environmental issues the research recommends that SEC considers venturing into an integrated management system approach that will link the company's strategic tools and other management systems into one sustainability model similar to the one illustrated by figure 2 of this research. It would also be beneficial for the business to develop a Sustainability Department that will be responsible for directing the company's sustainability objectives, monitoring and reporting on the business, society and economic value as well as ensuring that sustainability is engraved across the business' operations, especially the supply chain as this was found to be missing key sustainability practices in the company.

6.3 Future research

Based on this research, the following areas have been identified as needing further study:

i. This research purely focused on the Swaziland Electricity Company. Future research can explore the same research focus in other power utilities, in particular those in the Southern African Power Pool;
ii. To add on the body of literature on the subject matter in the country (and Africa), it would also be beneficial to explore the sustainability concept and the implementation of the EMS in other industries and businesses, such as the Agriculture industry which is also one of the leading economy enablers in Swaziland.
iii. Based on the notion that there are no apparent financial benefits of implementing the EMS, further studies can be on the financial benefit of implementing an Environmental Management System in power utilities.
iv. Considering the commonalities between management systems and strategic tools yet these tend to be implemented in isolation, future research can also look into the integration of business tools into one sustainability model for a sustainable power utility.

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APPENDIX I: PARTICIPATION INFORMATION SHEET- INTERVIEW

Dear Sir/ Madam,

My name is Nozipho Nomzana Mziyako, a student currently registered for a Master of Science in Environmental Sciences at the University of Witwatersrand, Johannesburg. As part of my degree, I have to undertake a research project. In fulfilment, I am conducting research on ***Environmental Management Systems as a Business Idea to Attain Sustainability.*** *The aim of this research project is to* explore the view of implementing the Environmental Management System (EMS) tool as an idea to attain sustainability at Swaziland Electricity Company (SEC).

I would like to invite you to partake in a single interview for the purposes of the research. With your permission, the interview will be recorded using an audio recording device for a period not exceeding one hour. Should you agree; you will be required to respond to 30 short and focused questions that vary between open-ended, semi-structured and closed ended questions.

Kindly note that you will not be compensated nor will you receive direct benefits for your participation. There are no risks that have been anticipated for your participation. You are free to refuse to participate I may refuse to participate; skip questions that make you feel vulnerable or withdraw from the research at any time. Your name will not be required nor will any information that can easily identify you, such as your job title. In addition, your responses will not be shared with any other person except with the research supervisor, nor will the report directly link its findings to your individual responses.

If you have questions or concerns regarding the research before, during or afterwards, please contact me the undersigned. Kindly note that if you request a summary of the research report, this can be provided to you. Should you have concerns or complaints regarding the ethical procedures of this research , feel free to contact the University Human Research Ethics Committee (Non-Medical), telephone +27(0) 11 717 1408, email hrec-medical.researchoffice@wits.ac.za..

Yours Sincerely,

Ms Nozipho Nomzana Mziyako
Email: nn.mziyako@gmail.com/ 351229@students.wits.ac.za /
Phone Number: +268 784 20371

Supervisor: Professor Danny M Simatele on +27 11 717 6515/ +27 833 836 884/ danny.simatele@wits.ac.za

APPENDIX II: PARTICIPATION INFORMATION SHEET-QUESTIONNAIRE

Dear Sir/ Madam,

My name is Nozipho Nomzana Mziyako, a student currently registered for a Master of Science in Environmental Sciences at the University of Witwatersrand, Johannesburg. As part of my degree, I have to undertake a research project. In fulfilment, I am conducting research on ***Environmental Management Systems as a Business Idea to Attain Sustainability.*** The aim of this research project is to explore the view of implementing the Environmental Management System (EMS) tool as an idea to attain sustainability at Swaziland Electricity Company (SEC).

I would like to invite you to partake in the research by voluntary completing a single questionnaire. Should you agree; you will be required to complete 17 short and focused questions that vary between open-ended, semi-structured and closed ended questions. Completion of the questionnaire should not take more than one hour.
Kindly note that you will not be compensated nor will you receive direct benefits for your participation. There are no risks that have been anticipated for your participation. You are free to refuse to participate I may refuse to participate, skip questions that make you feel vulnerable or withdraw from the research at any time. Your name will not be required nor will any information that can easily identify you, such as your job title. In addition, your questionnaire will not be shared with other participants.
If you have questions or concerns regarding the research before, during or afterwards, please contact me the undersigned. Kindly note that if you request a summary of the research report, this can be provided to you. Should you have concerns or complaints regarding the ethical procedures of this research , feel free to contact the University Human Research Ethics Committee (Non-Medical), telephone +27(0) 11 717 1408, email hrec-medical.researchoffice@wits.ac.za..

Yours Sincerely,

Ms Nozipho Nomzana Mziyako
Email: nn.mziyako@gmail.com/ 351229@students.wits.ac.za /
Phone Number: +268 784 20371

Supervisor: Professor Danny M Simatele on +27 11 717 6515/ +27 833 836 884/ danny.simatele@wits.ac.za

APPENDIX III: CONSENT FORM-INTERVIEW

Title of Project: Environmental Management Systems as a Business Idea to Attain Sustainability: A Study of Swaziland Electricity Company (SEC)

Name of Researcher: Nozipho Nomzana Mziyako

STATEMENT OF CONSENT:

I _____, have read and understood the explanation provided in the information sheet and thus voluntary agree to partake in the research.

Please carefully read through the following and tick an appropriate answer:

I understand and agree that:	Yes	No
• The interview is designed to gather information for academic purposes only		
• The interview may be audio recorded		
• My participation is completely voluntary		
• I may refuse to participate, I may skip questions that make me feel vulnerable or withdraw from the research at any time		
• I will receive no compensation for participating in the research		
• I will remain anonymous in the research report and so will my responses		
• The information given in the interview will be treated with confidentiality and that only the researcher and their supervisor will have access to the responses?		
• The information given in the interview may be used anonymously by other researchers in future		

_____ _____

Name (print) and signature of participant Date

_____

Signature of researcher

A copy will of this consent form will be given to you for your records. The researcher will maintain a copy of the consent for at least five years beyond the end of her studies.

APPENDIX IV: CONSENT FORM-QUESTIONNAIRE

Title of Project: Environmental Management Systems as a Business Idea to Attain Sustainability: A Study of Swaziland Electricity Company (SEC)

Name of Researcher: Nozipho Nomzana Mziyako

STATEMENT OF CONSENT:

I _____, have read and understood the explanation provided in the information sheet and thus voluntary agree to partake in the research.

Please carefully read through the following and tick an appropriate answer:

I understand and agree that:	Yes	No
• The questionnaire is designed to gather information for academic purposes only		
• My participation is completely voluntary		
• I may refuse to participate, I may skip questions that make me feel vulnerable or withdraw from the research at any time		
• I will receive no compensation for participating in the research		
• I will remain anonymous in the research report and so will my responses		
• The information given in the questionnaire will be treated with confidentiality and that only the researcher and their supervisor will have access to the responses?		
• The information given in the questionnaire may be used anonymously by other researchers in future		

_____ _____

Name (print) and signature of participant Date

_____

Signature of researcher

A copy will of this consent form will be given to you for your records. The researcher will maintain a copy of the consent for at least five years beyond the end of her studies.

APPENDIX V: INTERVIEW GUIDELINE

Interview guideline for participant perspective towards research on Environmental Management Systems as a Business Idea to Attain Sustainability: A study of Swaziland Electricity Company (SEC)

Section A: Introduction and participant information

- Thank participant for interview
- Introduction
- Highlight that interview will be for an hour

1. How long have you worked at SEC? (appropriate response will be circled)

<1year	1—5 years	6-10 years	>10 years

2. Level in SEC (appropriate response will be circled)

Top Management	Senior Management	Middle Management/ Supervisor	General

3. Highest educational qualification obtained? (appropriate response will be circled)

Olevel/ IGSE/ SGSE/ Matric	Diploma	Undergraduate	Post graduate

Section B: Knowledge of sustainability at SEC.

4. What is your understanding of sustainability, in the context of SEC?
5. How important do you think sustainability is for a business in general? *-ask for reasoning/ motivation of responses*
6. How is sustainability integrated in the mission, vision and strategy of SEC?
7. What tools are employed by SEC in making business objectives (i.e. strategic decisions)? *–why these, how are they used and who uses them?*
8. How are SEC business objectives explained/ communicated to employees? *–and how often?*

Section C: Attitude and understanding of sustainability and the EMS at SEC.

9. What may have encouraged SEC to adopt and implement the EMS? *ask for an elaboration*
10. How long have you had the EMS?

11. Are employees motivated and involved with the EMS? - *ask for an elaboration. –and more on contributions*
12. Can you mention any business returns from implementing the EMS? –*ask for a motivation.*
13. How SEC does integrated its business objectives in relation to the EMS? -*ask for an elaboration*
14. How does the EMS help company integrate sustainability in the mission, vision and strategy of the company? -*ask for an elaboration*
15. What measures are employed and implemented by SEC towards achieving sustainability?
16. What are some of the current sustainability challenges being faced by the company*?* - *and how can they be addressed in your opinion?*
17. How is the existing EMS helping or not helping towards attaining sustainability? –*ask participant to be as elaborate as possible.*
18. Do you think the company can use ISO 14 001 as a tool towards attaining sustainability? -*ask participant to be as elaborate as possible.*
19. How do you think SEC can use ISO 14 001 as a tool towards attaining sustainability? -*ask participant to be as elaborate as possible.*
20. Does ISO 14 001 help SEC in taking into account all three sustainability pillars? I.e. economy, social aspects and the environment?
21. How is ISO 14 001 helping the company evaluate its sustainability efforts?
22. Mention the below sustainability principles and ask they have been considered in SEC?

Principle
Holistic planning and strategy making
Preservation of ecological processes
Protection of heritage
Protection of biodiversity
Sustaining development for future years
Society needs

Regenerative capacity : keeping renewable resource inputs within regenerative capacity and keeping rates of non-renewable resources below the rate at which renewable substitutes are developed
Reuse and Recycle
Constraints on waste generation

23. How is the performance of the EMS measured at SEC?
24. How is progress of the EMS monitored and measurements evaluated?
25. What has been the key negative financial/ social / environmental low point in the past 12months for the company?
26. Has the EMS helped to correct or control any of the previously mentioned key incidents?- *if 'yes' –ask how*

Section D: Detailed perspective of sustainability and the EMS

27. How is sustainability considered by competing power utilities in the Southern African Region?
28. On a scale of 0 to 4 (0 being very dissatisfied and 4 being very satisfied), how satisfied are you with the EMS tool as currently adopted and implemented by SEC?
29. Do you think the EMS can be used to benefit the company in alignment to its business objectives? *–if yes, ask how*
30. Do you have any further comments about using the EMS as business idea towards sustainability OR thoughts on anything relating to the topic that would be helpful for my research?

APPENDIX VI: QUESTIONNAIRE

Questionnaire for participant perspective towards research on Environmental Management Systems as a Business Idea to Attain Sustainability: A study of Swaziland Electricity Company (SEC)

Section A: Participant information.

Please circle appropriate response where need be

1.	Gender	Female		Male	
2.	Age (in years)				
3.	Highest educational qualification obtained?	Olevel/ IGSE/ SGSE/ Matric	Diploma	Undergraduate	Post graduate
4.	Subject area in your qualification				
5.	Level in SEC	Top Management	Senior Management	Middle Management/ Supervisor	General
6.	How long have you worked at SEC?	<1year	1—5 years	6-10 years	>10 years

Section B: Knowledge of sustainability at SEC.

7. What does sustainability mean to you? (i.e. in both your personal and professional life)

8. In your own opinion, what does sustainability mean in the context of SEC?

9. In your own opinion, does the company's mission, vision and strategy integrate sustainability?

No (0)	I do not know (1)	Yes (2)
0	1	2

10. Are you aware of tools employed by SEC in making its business objectives (i.e. strategic decisions)?

No (0)	Yes (1)
0	1

11. Were SEC's business objectives explained/ communicated to you as an employee?

Never (0)	I do not remember (1)	Only briefly (2)	Once (3)	It is often explained (4)
0	1	2	3	4

Section C: Attitude and understanding of sustainability and the EMS at SEC.

12. Please respond to the following statement by circling the most relevant box (one tick per statement)

12.1 In your own opinion, please indicate how the Environmental Management System (EMS) as currently implemented at SEC, adopts the following sustainability principles?

	Principle	Very Poor (0)	Poor (1)	Satisfactory (2)	Good (3)	Excellent (4)
A	Holistic planning and strategy making	0	1	2	3	4
B	Preservation of ecological processes	0	1	2	3	4
C	Protection of heritage	0	1	2	3	4
D	Protection of biodiversity	0	1	2	3	4
E	Sustaining development for future years	0	1	2	3	4
F	Society needs	0	1	2	3	4
G	*Regenerative capacity	0	1	2	3	4
H	Reuse and Recycle	0	1	2	3	4
I	Constraints on waste generation	0	1	2	3	4

*i.e. keeping renewable resource inputs within regenerative capacity and keeping rates of non-renewable resources below the rate at which renewable substitutes are developed

12.2 The EMS as currently implemented at SEC addresses the following best practises:

	Principle	Strongly Disagree (0)	Disagree (1)	Neither agree or disagree (2)	Agree (3)	Strongly Agree (4)
A	The design and delivery of sustainable products/business processes	0	1	2	3	4
B	Purchase of eco-friendly materials	0	1	2	3	4
C	Energy efficiency	0	1	2	3	4
D	Water saving measures	0	1	2	3	4
E	Stakeholder engagement and awareness raising	0	1	2	3	4

F	Product and service quality for business growth	0	1	2	3	4
G	Supporting local communities and products	0	1	2	3	4
H	Supporting local products	0	1	2	3	4
I	Supporting local environmental initiatives	0	1	2	3	4
J	Reduced air emissions	0	1	2	3	4

12.3 SEC has…

		Strongly Disagree (0)	**Disagree (1)**	**Neither agree or disagree (2)**	**Agree (3)**	**Strongly Agree (4)**
A	A formal strategy that focuses on all 3 pillars of sustainability (i.e. economy, environment and society).	0	1	2	3	4
B	Defined objectives for its sustainability.	0	1	2	3	4
C	Defined indicators for monitoring its sustainability.	0	1	2	3	4
D	Regular reports on the business' sustainability performance to us employees	0	1	2	3	4
E	Regular reports on the business' sustainability performance to stakeholders and interested parties.	0	1	2	3	4
F	Defined EMS objectives.	0	1	2	3	4
G	Defined indicators for monitoring its environmental performance.	0	1	2	3	4
H	Regular reports on the business' environmental performance to us employees.	0	1	2	3	4
I	Regular reports on the business' environmental performance to stakeholders and interested parties.	0	1	2	3	4

12.4 The EMS at SEC is used…

		Strongly Disagree (0)	**Disagree (1)**	**Neither agree or disagree (2)**	**Agree (3)**	**Strongly Agree (4)**
A	As a compliance tool.	0	1	2	3	4
B	To reduce business costs.	0	1	2	3	4
C	To improve environmental performance.	0	1	2	3	4

D	To enhance corporate reputation and image.	0	1	2	3	4
E	Improve the relationship with stakeholders and interested parties.	0	1	2	3	4
F	To increase employee culture and satisfaction.	0	1	2	3	4

12.5 In my opinion, implementing the EMS at SEC…

		Strongly Disagree (0)	**Disagree (1)**	**Neither agree or disagree (2)**	**Agree (3)**	**Strongly Agree (4)**
A	Is a high company cost.	0	1	2	3	4
B	Is not beneficial for the company.	0	1	2	3	4
C	Lacks resources for effectiveness.	0	1	2	3	4
D	Lacks support from employees.	0	1	2	3	4
E	Lacks support from management.	0	1	2	3	4
F	Is a waste of manpower and work hours.	0	1	2	3	4
G	Is not a high enough business priority.	0	1	2	3	4
H	Reduces SEC's negative impacts on the natural environment and society.	0	1	2	3	4
I	Improves employees environmental and social moral	0	1	2	3	4
J	Reduces and recovers waste therefore saving costs	0	1	2	3	4
K	Increases customer satisfaction and awareness	0	1	2	3	4
L	Improves the company's reputation	0	1	2	3	4

Section D: Detailed perspective of sustainability and the EMS

13. What is your understanding of the Environmental Management System's role and purpose in SEC??

14. Do you think the company can use ISO 14 001 as a tool towards attaining sustainability?

No (0)	**Yes (1)**
0	1

Please motivate your choice of answer above.

15. What do you think are the challenges of using the EMS at SEC?

16. Please indicate your satisfaction with the EMS tool as adopted and implemented by SEC.

Very dissatisfied	Dissatisfied	Neutral	Satisfied	Very Satisfied
0	1	2	3	4

Please motivate you choice of answer above.

17. Any other comments (Please kindly share anything relating to the topic that would be helpful for my research)

Thank you for your participation.