

Sustainable Corporate Real Estate Management (SCREM) in Uncertain Times –
Avoiding Load Shedding in Lesotho

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DECLARATION

I declare that the research project hereby handed in for the qualification Master's in Business Administration at the UFS Business School at the University of the Free State is my own independent work and that I have not previously submitted the same work, either as a whole or in part, for a qualification at/in another university/faculty.

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ABSTRACT

The Kingdom of Lesotho is facing a significant energy crisis characterised by critical challenges within its electricity sector. This has resulted in the introduction of load shedding to safeguard the limited available production capacity. Load shedding would exacerbate economic instability and lead to severe consequences for businesses, industries, and households, disrupting productivity, resulting in significant economic losses, and hampering the country's overall development. Therefore, exploring alternative measures to deal with the situation becomes crucial.

The goal of the study was to explore comprehensive and sustainable measures to address the challenges of load shedding in Lesotho. The study employed a qualitative research approach to gather interview data from corporate real estate professionals. Thematic analysis was used to analyse the interview data with the aid of the NVivo qualitative data analysis programme. The current sustainable corporate real estate management (SCREM) measures implemented in Lesotho are the promotion and use of environmentally friendly materials and products, the promotion and use of energy-saving measures, the promotion and practice of proper waste management, and regular inspection and maintenance of equipment. However, the sustainable practices in place are insufficient to avoid load shedding in the real estate sector in Lesotho.

The implications of load shedding in Lesotho include the disruption of commercial, household, and other activities, and these activities have a negative impact on the economy. Also, there are no sustainable measures at the national level against load shedding in Lesotho. However, some sustainable practices are being implemented by companies even though there is no comprehensive national effort. These sustainable practices include smart meters, green building initiatives, and solar power.

Lastly, the proposed sustainable corporate real estate management strategies against load shedding in Lesotho include encouraging energy-saving behaviours, ending the monopoly of Lesotho Electricity Company, expanding solar energy use, increasing hydroelectricity power, increasing wind power, maintaining and upgrading plants, implementing a national power supply strategy, and promoting awareness of sustainability goals.

On account of the study results, proposed sustainable corporate real estate management strategies against load shedding in Lesotho should include ending the monopoly of Lesotho Electricity Company, continually expanding solar and other alternative energy use, increasing hydroelectricity power, continually maintaining and upgrading current plants and infrastructure, and establishing and implementing a national power supply strategy.

Keywords: load shedding, SCREM, energy, sustainable

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LIST OF ABBREVIATIONS AND ACRONYMS

AD	Anaerobic Digestion Technology
CREM	Corporate real estate management
EDM	Electricidade de Mozambique
Eskom	Eskom Holdings SOC Ltd
FM	Facilities Management
GDP	Gross Domestic Product
GOA	Grasshopper Optimisation Algorithm
HVAC	Heating, Ventilation, and Air Conditioning
INC	Incineration Technology
LEC	Lesotho Electricity Company
LHDA	Lesotho Highlands Development Authority
REAM	Real Estate Asset Management
REPM	Real Estate Portfolio Management
SCREM	Sustainable Corporate Real Estate Management
UFLS	Under Frequency Load Shedding

CHAPTER ONE: INTRODUCTION

1.1 Introduction

This chapter details the plan of the study on sustainable corporate real estate management (SCREM) in uncertain times. The study was carried out in Lesotho and focused on exploring comprehensive and sustainable strategies to address the challenges of load shedding in Lesotho. In addition, the study involved contributors who were willing to offer their understanding of the subject through interviews. The study plan begins with the background of the study covering the importance of electric power in sustainable corporate real estate management.

The problem statement is also about the introduction of load shedding, which is the lack of constant electric power supply in corporate real estate in Lesotho. Further, the research objectives and questions are stated, and the research methodology is proposed.

The objectives of this study are as follows;

- To explore SCREM in times of uncertainty in power supply in Lesotho.
- To explore the implications of load shedding in Lesotho.
- To explore the current measures against load shedding in Lesotho.
- To propose some possible SCREM strategies against load shedding in Lesotho.

In the research methodology section, the data-gathering instruments, data analysis methods, reliability, validity, and trustworthiness, along with ethical concerns, are carefully considered. Chapter 1 ends with stressing the limitations and then, finally, the outline of the study.

1.2 Background to the study

Electricity plays a pivotal role in driving economic activities and is indispensable for the seamless functioning of businesses in contemporary society. Electricity has brought about transformative changes, enabling the efficient operation and growth of various industries (Ferguson et al., 2000, p. 934). A reliable and uninterrupted

electricity supply is vital for attracting investments, stimulating industrial activities, and fostering technological advancements (Zhang et al., 2017, p. 354). In today's globalised marketplace, modern businesses heavily rely on electricity to power their operations, encompassing manufacturing processes, data centres, office facilities, supply chains, and logistics. Access to electricity enhances productivity, reduces production costs, and gives businesses a competitive edge in the global market (Ali & Anwar, 2021, p. 2). Furthermore, electricity catalyses innovation by supporting research and development initiatives across diverse sectors (Zhang et al., 2017, p. 355).

In Lesotho, as in many other regions, the significance of electricity in business operations cannot be overstated. The looming threat of load shedding poses severe challenges for businesses operating in the country. Load shedding disrupts normal operations, leading to production delays, financial losses, and compromised customer service that adversely impacts the economy (Nyanzu & Adarkwah, 2016, p. 14). The Kingdom of Lesotho is facing a significant energy crisis characterised by critical challenges within its electricity sector.

Lesotho Electricity Company (LEC) confronts a formidable financial burden, burdened by a substantial debt exceeding M240 million, owed by reluctant consumers who fail to pay for electricity services (Mabeleme, 2022). This financial strain severely impairs the LEC's financial stability and compromises its ability to invest in crucial infrastructure development and maintenance. Additionally, the country's restricted power production capacity of merely 72 megawatts necessitates heavy reliance on costly electricity imports from neighbouring South Africa and Mozambique (Mabeleme, 2022). However, recent price hikes of 18.69% in South Africa and higher prices in Mozambique have further escalated the costs of electricity imports for Lesotho (Sekonyela, 2023).

Of notable significance are the challenges encountered by South Africa, a primary source of Lesotho's electricity imports, which has been grappling with an escalating prevalence of load shedding. The year 2023 has witnessed a pronounced exacerbation of this phenomenon, signifying the most severe episode to date (Hohm Energy, 2021). The inception of load shedding in South Africa traces back to 2008, a

measure orchestrated by the power utility Eskom Hld SOC Ltd (Eskom) (Alkaldy et al., 2019, p. 154).

Eskom, responsible for 95% of South Africa's electricity generation, assumes a monopolistic role within the nation's energy landscape (Nyanzu & Adarkwah, 2016, p. 14). It is worth noting that Lesotho's electricity procurement is intricately intertwined with Eskom. The prevailing predicaments confronting Eskom thereby engender an additional layer of concern for Lesotho, potentially amplifying the vulnerability to load shedding in the besieged nation.

Consequently, the precarious balance between electricity supply and demand in Lesotho presents an ominous prospect: the inevitability of load shedding to safeguard the limited available production capacity (Sekonyela, 2023). Amidst Lesotho's existing economic challenges, including a high crime rate and a decline in foreign investment, the potential implementation of load shedding poses an imminent threat with far-reaching implications (World Bank, 2023). Load shedding would exacerbate economic instability and lead to severe consequences for businesses, industries, and households, disrupting productivity, thus resulting in significant economic losses and hampering the country's overall development (Ateba et al., 2019, p. 1328).

Against this backdrop, it becomes crucial to explore comprehensive and sustainable strategies to address the challenges of load shedding in Lesotho and secure a reliable and uninterrupted power supply. SCREM emerges as a promising avenue for mitigating risks associated with load shedding (Fauzi et al., 2023, p. 989). Corporate real estate, being a significant consumer of electricity, offers immense potential for energy optimisation and efficiency improvements through sustainable practices (Ziemba et al., 2015, p. 88). For Lesotho to advance towards a sustainable future, it is imperative to address the adverse effects of electricity scarcity and load shedding. SCREM emerges as a potential strategy to mitigate these challenges. However, the implementation of SCREM strategies requires a detailed understanding of their potential impacts, costs, and benefits, particularly in the context of mitigating load shedding challenges in Lesotho (Van der Voordt, 2017, p. 261).

Corporate real estate plays a pivotal role in electricity consumption in Lesotho, following increased urbanisation (Sekantsi et al., 2016). This indicates that employees spend more time at work within corporate spaces than at home during the workweek. LEC faces critical challenges in debt collection, limited power production capacity, and escalating electricity import costs from neighbouring countries (Mabeleme, 2022). These factors have contributed to an inadequate electricity supply, thereby raising the possibility of load shedding, as expressed by the managing director of LEC during a media briefing in December 2022 (Mabeleme, 2022). In light of these circumstances, this study aimed to investigate sustainable corporate real estate management strategies to mitigate the risk of load shedding in Lesotho and address the financial, operational, and technical constraints faced by LEC.

Corporate real estate management entails the strategic and operational management of a company's real estate assets and facilities to support core business objectives and enhance organisational efficiency (Van der Voordt, 2017, p. 250). This includes the acquisition, utilisation, optimisation, and disposal of real estate properties, ensuring alignment with the company's overall business strategy, cost minimisation, and the provision of conducive and productive work environments for employees (Bon, 1994, p. 9). SCREM takes a holistic approach by integrating sustainability, energy efficiency, and environmental responsibility principles into the management and operation of real estate assets (Fauzi et al., 2023, p. 989). SCREM seeks to minimise the environmental impact of properties, reduce energy consumption, harness renewable energy sources, promote social well-being, and achieve economic efficiency through sustainable practices (Ziemba et al., 2015, p. 94).

Load shedding, as a controlled and temporary approach to curtail power supply during energy demand surges, necessitates comprehensive strategies to manage its impact effectively (Bothwell & Zivanai, 2021, p. 133). By investigating the potential of sustainable corporate real estate management, this study aimed at providing valuable insights into optimising energy use, enhancing resilience, and reducing vulnerability to electricity disruptions in Lesotho. The findings are expected to guide businesses in adopting sustainable practices, contributing to a more sustainable and stable energy landscape for the nation's economic growth and long-term well-being.

1.3 Problem formulation

Despite the critical role of sustainable property management in ensuring uninterrupted electricity supply and mitigating load shedding risks, there is a significant research gap in the context of Lesotho. Existing literature predominantly focuses on:

- Electricity generation and distribution systems (Kolobe, 2021, p. 5).
- Electricity demand (Thamae et al., 2015, p. 135).
- Renewable energy integration (Thamae & Sebota, 2021, p. 3).

However, limited attention has been given to the specific challenges faced by the Lesotho Electricity Corporation (LEC), such as debt collection, power production constraints, and rising electricity import costs. Additionally, there is a general lack of studies on sustainable corporate real estate management practices in Lesotho.

This research aims to address these gaps by exploring sustainable real estate management strategies that can help the LEC avoid load shedding and enhance operational efficiency.

1.4 Problem statement

There is a shortage of electricity supply in Lesotho which has resulted in the possible introduction of load shedding to safeguard the limited available production capacity (Sekonyela, 2023). Load shedding would exacerbate economic instability and lead to severe consequences for businesses, industries, and households, disrupting productivity, resulting in significant economic losses, and hampering the country's overall development (Ateba et al., 2019, p. 1328). Therefore, it becomes crucial to explore comprehensive and sustainable measures to address the challenges of load shedding in Lesotho and secure a reliable and uninterrupted power supply.

1.5 Research objectives

This study was intended to explore comprehensive and sustainable measures to address the challenges of load shedding in Lesotho. To achieve this imperative objective, the following secondary objectives were stated:

- To explore SCREM in times of uncertainty in power supply in Lesotho.
- To explore the implications of load shedding in Lesotho.

- To explore the current measures against load shedding in Lesotho.
- To propose some possible SCREM strategies against load shedding in Lesotho.

As explained by Saunders et al. (2016, p. 18), research objectives are evidence of the researcher's clear idea of commitment and focus. More so, it is meaningful for a study outline to begin with a primary objective supported by more detailed minor objectives (Saunders et al., 2016, p. 18).

1.6 Research questions

The secondary research objectives were transformed into the ensuing research questions:

- How is SCREM in times of uncertainty in power supply in Lesotho?
- What are the implications of load shedding in Lesotho?
- What are the current measures against load shedding in Lesotho?
- What are the possible SCREM strategies against load shedding in Lesotho?

As explained by Saunders et al. (2016, p. 19), the research objectives should be transformed directly to render the research questions of the study. In addition, an apparently framed set of research questions would facilitate the collection of useful data (Saunders et al., 2016, p. 19).

1.7 Research design

Research design is the schedule for accomplishing the research objectives and answering the research questions vitally and appropriately (Adams et al., 2014, p. 81). To achieve this, a descriptive research design was utilised because it elucidates prevailing concerns or tasks by means of data collection that enables the researcher to describe a situation more completely (Dudovskiy, 2016). Therefore, utilising a descriptive research design, the researcher was able to interview participants in Lesotho. The corporate real estate professionals who participated in the study have been involved in the sector for years and were willing to offer perceptions into the

comprehensive and sustainable measures to address the challenges of load shedding in Lesotho, hence providing a starting point to positively address the research objectives and propositions of the study.

1.5 Research method

As explained by Hancock et al. (2009, p. 6), a qualitative research method would be valuable whenever the study questions are about the public's knowledge of events, opinions, and new ideas that are not yet fully known or assessing whether a new idea is achievable. This ascertained the reason for choosing a qualitative research method because the study was envisioned to add to existing knowledge in this area of study. Further, the validation for selecting qualitative research is reinforced by Wyse (2011) as a valuable method to identify the intrinsic reasons, views, and insights of a specific matter through the public's direct meetings.

1.9 Sampling

Sampling is a proper method for gathering information from representative research participants because it reduces the cost and time of reaching the entire research population (Saunders et al., 2016, p. 204). Moreover, reaching the whole research population might be unrealistic because of mounting costs and other drawbacks.

1.9.1 Sample population

The population for this study comprised all the corporate real estate professionals with years of experience in the real estate sector. These corporate real estate professionals in Lesotho have a population of approximately 80 members. A sample population is a group of persons or items with comparable characteristics (Zikmund, 2010, p. 85). Further, a sample population is an assortment of persons or objects with no less than one common characteristic (Saunders et al., 2016, p. 204).

1.9.2 Sample size

According to Glaser and Strauss (1967, p. 61), saturation should be utilised to attain a valuable sample size in any qualitative study. Saturation occurs when no additional understanding is gained from additional interviews. Research results have suggested that descriptive saturation normally occurs after 12 to 15 interviews of a matching group are questioned on a specific matter (Latham, 2014). To reach descriptive saturation, the researcher focused on corporate real estate professionals in Lesotho, speaking to 12 possible knowledgeable professionals in the corporate real estate sector.

1.9.3 Sampling method

This study used purposive sampling (Lund, 2012, p. 9). The purposive sampling method exemplifies non-probability sampling practices (Lund, 2012). Also known as judgemental sampling, purposive sampling rests on the researcher's views when selecting the research project participants (Lund, 2012, p. 9). The main goal is to focus on a precise characteristic of the populace that the researcher considers imperative to the study. Accordingly, the researcher chose possible knowledgeable professionals in the corporate real estate sector in Lesotho.

1.10 Data collection tools

The study's literature review was compiled from academic papers, books, internet sources, news articles, and publications. In addition, the research data was also collected using a semi-structured interview guide drawn up using the research objectives and questions. Data collection using the semi-structured interview guide

necessitated personal interview meetings with the research participants. Even though other information-gathering methods can be used in qualitative research, semi-structured interviews have the benefit of allowing meetings to be focused while still allowing the researcher the liberty to look at any appropriate notions that may come up (Adeoye-Olatunde & Olenik, 2021, p. 1362).

1.11 Data analysis methods

The study utilised thematic content analysis to analyse the verbal information gathered during the interviews. According to Braun and Clarke (2006, p. 78), thematic content analysis identifies, assesses, and presents themes contained in verbal information entrenched with abundant characteristics. To achieve this, the interview transcripts were captured into the NVivo 12 qualitative data analysis program (Qsrinternational, 2024). Further, themes were created to serve as bins into which the transcripts were coded using the NVivo 12 qualitative data analysis program, thus permitting the researcher to effortlessly identify patterns in the verbal information and establish a good motive for further analysis and conclusions. Bazeley and Richards (2000, p. 5) maintain that qualitative research data can be properly explored in terms of themes using the NVivo qualitative data analysis program.

1.12 Reliability, validity, and trustworthiness

Trustworthiness signifies the dependability of the research or how exactly the researcher has interpreted the participants' opinions (Saunders et al., 2016, p. 149). There are different modes of validity and reliability faced at different stages in the research process. In accordance with Wolfling et al. (2010, p. 217), the researcher upheld validity and reliability in the research by means of thorough observation of procedures for interview guide drawing, procedures for conducting interviews, and procedures for safeguarding information trustworthiness. Heale and Twycross (2015, p. 66) explained that research data is sometimes poorly managed, and this may compromise the reliability of a study. Therefore, the researcher ensured proper management of the verbal information that was gathered to improve the validity and reliability of this study.

1.13 Ethical considerations

Based on a study carried out by the Clinical and Translational Science Institute (2015), three important ethical standards were established when conducting research involving human participants, namely:

- Protect and respect all the research subjects.
- Outline and explain the beneficence of the research to all the subjects.
- Ensure justice for all the involved stakeholders.

Accordingly, the researcher safeguarded the research participants by revealing the nature, dangers, and options of the study and allowing the research participants a chance to leave the study at any moment.

1.14 Limitations of the study

The research participants have different lengths of experience in the corporate real estate sector, and they might not have articulated a frank view on the comprehensive and sustainable measures to address the challenges of load shedding in Lesotho. In addition, because the study was restricted to corporate real estate professionals in Lesotho, the outcomes of the study may not be simply extended to other countries and regions of the world.

1.15 Structure of the study

Table 1.1 is a plan of the study traversing five sections from the introduction to the conclusions and recommendations.

Table 1.1: Study outline

	Title	Description
Chapter 1	Introduction	Outlines the background of the study, problem statement, research problem, research objectives, research questions, research design, research method, sampling, sample population, sample size, sampling method, data collection tools, data analysis method, reliability, validity, and trustworthiness, ethical considerations, limitation of the study, and structure of the study.
Chapter 2	Literature review	Presents the relevant literature review on sustainable corporate real estate management.
Chapter 3	Research methodology	Discusses the research methods used in this study.
Chapter 4	Results and discussion	Presents the data analysis results and discusses the outcomes of the study.
Chapter 5	Conclusion and recommendations	Presents the conclusions, assesses whether the research objectives have been met despite the limitations, and offers recommendations for additional research.

1.16 Conclusion

This chapter presented the study outline and summary of the research process. The problem statement advanced a brief description of the problem the study intended to solve. In addition, Chapter 1 presented the background of the study and outlined the research objectives and questions, the study design, and research methods. Further, the chapter presented the sampling techniques that were used. Lastly, this chapter explained the significance of ethical concerns and how reliability, validity, and trustworthiness were preserved during the study. The next chapter covers the relevant literature review.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The previous chapter provided an introduction and background to the study. This chapter details the applicable literature appraisal and the theoretical foundations encompassing SCREM. The ensuing segments cover SCREM practices for energy efficiency, energy dynamics in Lesotho, load shedding dynamics and implications, load shedding mitigation measures, and conclusions.

2.2 SCREM practices for energy efficiency

This section will discuss SCREM practices for energy efficiency.

2.2.1 Corporate real estate management

Corporate real estate management (CREM) is pivotal for organisations seeking effective control and sustainability of their real estate assets, encompassing investment planning, financial management, and environmental considerations (Bon, 1994, p. 9). CREM involves the strategic planning, acquisition, utilisation, and disposal of real estate assets by organisations not primarily engaged in the real estate business (Ilsjan, 2007, p. 262). It encompasses a wide array of activities, including investment planning, financial management, construction planning, and facilities management (Omar & Heywood, 2014, p. 71). Importantly, CREM is intrinsically linked to accommodating people within these spaces and is closely tied to the entire life cycle of real estate assets, from initial conceptualisation to the eventual demolition or redevelopment (Bon, 1994, p. 9).

CREM emerges as a pivotal discipline in the effective management of buildings and land assets for organisations operating outside the primary real estate sector (Amos & Boakye-Agyeman, 2022, p. 78). The significance of CREM is underscored by the increasing recognition that even entities not primarily in the real estate business must adeptly manage the spaces they occupy (Maetle, 2017, p. 12; Ntene et al., 2020, p. 182).

2.2.2 Sustainable corporate real estate management

SCREM represents a holistic approach to managing of corporate real estate assets with a strong focus on environmental, social, and economic sustainability principles (Fauzi et al., 2021, p. 988). SCREM, as a concept, is not limited to ecological concerns alone (Geiger et al., 2017, p. 75). It encompasses broader meanings and implications (Geiger et al., 2017, p. 75). It signifies sustainability in terms of development, renewability regarding resources, and durability concerning growth (Azapagic, 2003, p. 04). Therefore, it can be understood as “flexible”, “lasting”, “continuous”, “sustentative”, “sustainable”, “self-sustainable”, and “harmonious” (Ding, 2004, p. 97; Ziemba et al., 2015, p. 89). The core idea is to create a flexible and lasting framework that sustains continuous growth and harmonises various aspects of corporate real estate management (Ziemba et al., 2015, p. 85).

Corporate environmental sustainability objectives are closely intertwined with SCREM practices (Fauzi et al., 2021, p. 193; Zahid et al., 2016, p. 690). Several studies have demonstrated a positive relationship between SCREM, particularly in terms of energy management and the achievement of environmental sustainability goals (Vujanovic et al., 2021, p. 5). SCREM represents a comprehensive and integrated approach to managing corporate real estate assets with a strong focus on sustainability principles (Mustaffa & Abdul Kudus, 2022, p. 3). The positive relationship between SCREM and corporate environmental sustainability objectives highlights the potential of SCREM to contribute to broader sustainability goals (O’Dwyer & Unerman, 2020, p. 1121).

As more research and practices emerge in the field of SCREM, the integration of sustainability principles into corporate real estate management will likely continue to evolve, providing organisations with valuable tools to address sustainability challenges while achieving operational efficiency and financial success (Fauzi et al., 2021, p. 1450). The proposed SCREM model is a response to “the integrated business resource management model”, and besides the resources, it integrates concepts that are to ensure the sustainable management of these resources to build long-term sustainability and balance of the company (Velenturf & Purnell, 2021, p. 88).

SCREM has a much broader meaning beyond interpreting the notion only in terms of ecology (Geiger et al., 2017, p. 75). It means sustainable – in relation to development, renewable – in terms of resources, and lasting – in terms of growth (Richter et al., 2021, p. 242; Ziamba et al., 2015, p. 89). It is therefore interpreted as “flexible”, “lasting”, “continuous”, “sustentative”, “sustainable”, “self-sustainable”, and “harmonious” (Ding, 2004, p. 17; Ziamba et al., 2015, p. 89).

To achieve sustainability objectives, SCREM encompasses several key elements. Six were identified as imperative elements of green office management, which can be seen as integral components of SCREM (Fauzi et al., 2021, p. 989):

1. Energy efficiency: Energy management plays a central role in green office building management within the context of SCREM (Fauzi et al., 2023, p. 209; Owoha et al., 2022, p. 1630). Strategies for enhancing energy efficiency include the use of energy-saving appliances, the installation of energy-saving fittings, and the implementation of automated energy-use control systems (Fauzi et al., 2023, p. 209; Owoha et al., 2022, p. 1630). Energy efficiency reduces operational costs and aligns with environmental sustainability objectives (Fauzi et al., 2023, p. 209; Owoha et al., 2022, p. 1630).
2. Water efficiency: Water conservation is another critical aspect of SCREM (Fauzi et al., 2021, p. 989; Owoha et al., 2022, p. 1630). Sustainable water management practices, such as the installation of water-saving fixtures and efficient irrigation systems, can significantly reduce water consumption in corporate real estate (Fauzi et al., 2021, p. 209; Owoha et al., 2022, p. 1630). Water efficiency contributes to cost savings and environmental sustainability (Fauzi et al., 2023, p. 208).
3. Indoor quality: SCREM strongly emphasises on indoor environmental quality (Fauzi et al., 2021, p. 989; Owoha et al., 2022, p. 1630). Strategies for enhancing indoor air quality, thermal comfort, and overall occupant well-being are integral to this element (Fauzi et al., 2021, p. 212; Owoha et al., 2022, p. 1630). The implementation of efficient heating, ventilation, and air conditioning (HVAC) systems, proper ventilation, and the use of non-toxic building materials

are essential considerations in creating a healthy indoor environment (Fauzi et al., 2021, p. 209; Owoha et al., 2022, p. 1630).

4. Sustainable site planning: Sustainable site planning involves careful consideration of the location and design of corporate real estate assets. It aims to minimise the environmental impact of site development, promote biodiversity, and support alternative transportation options. Sustainable site planning aligns with broader sustainability objectives and reduces the ecological footprint of corporate real estate (Fauzi et al., 2021, p. 209; Owoha et al., 2022, p. 1630).
5. Management and innovation: Effective management practices and a culture of innovation are pivotal in SCREM (Fauzi et al., 2021, p. 191; Owoha et al., 2022, p. 1630). Management strategies include energy control rules, zoning strategies for energy management, and the adoption of efficient maintenance practices (Fauzi et al., 2021, p. 191; Owoha et al., 2022, p. 1630). Additionally, transparency in sharing sustainability information with occupants and stakeholders motivates and engages them in sustainable practices (Fauzi et al., 2021, p. 191; Owoha et al., 2022, p. 1630). The pursuit of innovation in renewable energy sources, such as solar power systems, is a growing trend in SCREM to reduce reliance on non-renewable energy sources (Fauzi et al., 2021, p. 191; Owoha et al., 2022, p. 1630).
6. Resources sustainability: While environmental and social aspects are central to SCREM, it is important to highlight the resources dimension. Sustainable practices in corporate real estate management often lead to cost savings, increased asset value, and enhanced financial performance (Chang & Devine, 2019, p. 1595; Ilhan & Banu Yobas, 2019, p. 5; Owoha et al., 2022, p. 1630).

SCREM combines various concepts from real estate management, reflecting a systemic approach similar to facility management (FM) (Fauzi et al., 2021, p. 989; Ziemba et al., 2015, p. 90). FM is defined as the integration of processes for property and infrastructure management to ensure the functionality of the built environment by integrating people, places, processes, and technologies (Fauzi et al., 2021, p. 989; Ziemba et al., 2015, p. 90).

Within SCREM, standardised and integrated processes are intended to support and enhance the efficiency of an enterprise's core business (Fauzi et al., 2021, p. 989; Ziemba et al., 2015, p. 90). SCREM comprises various dimensions within the umbrella of real estate management. These dimensions include:

1. Operational FM: Focusing on individual facilities, this dimension deals with the day-to-day management of real estate assets, ensuring their functionality, safety, and efficiency (Fauzi et al., 2021, p. 989; Mansfield, 2009, p. 91).
2. Real estate asset management (REAM): Taking a more strategic approach, REAM considers the perspective of the entire company's real estate portfolio. It involves optimising asset performance, enhancing their value, and aligning them with broader corporate goals (Fauzi et al., 2021, p. 989; Mansfield, 2009, p. 91).
3. Real estate portfolio management (REPM): Going a step further, REPM addresses the management of an organisation's entire real estate portfolio. It involves strategic decision-making regarding property acquisitions, disposals, and overall portfolio optimisation (Fauzi et al., 2021, p. 989; Mansfield, 2009, p. 91).

2.2.3 Management by value in SCREM

A critical dimension of SCREM relates to management by value (Fauzi et al., 2021, p. 989; Ziemba et al., 2015, p. 90). This involves creating and maintaining value through improved business process management to enhance the productivity of corporate real estate (Fauzi et al., 2021, p. 208; Ziemba et al., 2015, pp. 86-90). This notion of value management is multifaceted and includes aspects such as:

- Functional quality: Ensuring that real estate assets meet the functional needs of the organisation, providing a suitable work environment for employees (Richter et al., 2021, p. 243).
- Technical quality: Maintaining the physical condition of properties to ensure their long-term functionality and safety (Azapagic, 2003, p. 304; Richter et al., 2021, p. 243).

- Economic performance: Enhancing the financial performance of real estate assets by optimising operational costs, rental income, and property value (Benn & Stoy, 2022, p. 9).
- Environmental performance: Incorporating sustainability practices to minimise the environmental footprint of corporate real estate (Benn & Stoy, 2022, p. 9).

The expanded SCREM model goes beyond conventional resource management models by emphasising sustainability, renewability, and durability. It integrates concepts from facility management, asset management, and portfolio management to ensure the efficient use of corporate real estate resources (Fauzi et al., 2021, p. 989; Ziemba et al., 2015, p. 89). Moreover, it introduces the critical dimension of management by value, aiming to enhance the functional, technical, cultural, economic, and environmental performance of real estate assets (Amos & Boakye-Agyeman, 2022, p. 92; Richter et al., 2021, p. 243).

The SCREM model provides a comprehensive framework for organisations to achieve long-term sustainability, balance, and value creation in their real estate portfolios (Amos & Boakye-Agyeman, 2022, p. 92; Mansfield, 2009, p. 91). As organisations increasingly recognise the importance of sustainable practices and efficient resource management, SCREM offers a strategic approach to meet these evolving demands in the corporate real estate landscape (Fauzi et al., 2021, p. 921; Ziemba et al., 2015, p. 90).

2.2.4 Case studies on SCREM

Amos and Boakye-Agyeman (2022, p. 77-97) investigated the impact of SCREM on costs in Ghana. The study revealed that sustainable buildings resulted in lower costs compared to non-sustainable ones. This suggests that SCREM practices, such as optimising indoor environmental quality, can save costs. These practices indirectly contribute to load shedding prevention by reducing energy consumption (Amos & Boakye-Agyeman, 2022, p. 77-97).

In another study, Masalskyte et al. (2014, p. 126-138) explored SCREM practices among leading Finnish companies recognised for their sustainability efforts. The study found that these companies integrated sustainability into their corporate culture and operations. They emphasised the importance of expertise in sustainability management and efficient communication with stakeholders. While not directly related to load shedding, this case study highlights the significance of a holistic approach to sustainability in CREM, which can indirectly contribute to energy efficiency and load shedding prevention.

Wu et al. (2020, pp. 3-8) investigated the energy performance gap in building designs in China, with a focus on the effects of external conditions and temporal resolution. The study revealed that comparing predicted and measured annual energy use is challenging due to uncertainties in design and a lack of actual measurement data. It emphasised the need for a coordinated approach to bridge this energy performance gap. This indirectly highlights the importance of SCREM practices in optimising energy use and preventing energy shortages, including load shedding.

Cajias et al. (2012, p. 135-155) examined the relationship between sustainability actions and financial performance in European real estate companies. The study found that companies with sustainability agendas experienced reduced idiosyncratic risk and enhanced asset turnover. It noted a strong relationship between environmental sustainability activities and financial performance. This implies that sustainable CREM practices can lead to financial benefits, contributing to load shedding prevention by promoting energy-efficient operations.

2.3 Uncertainty

Uncertainty is a multifaceted concept that permeates various aspects of decision-making. It reflects a pervasive ambiguity in the minds of consumers, managers, and policymakers regarding possible future scenarios and their implications (Bush & Lopez Noria, 2021, p. 705). This uncertainty extends across a broad spectrum, encompassing macroeconomic phenomena, micro-level factors, and even non-economic events such as geopolitical conflicts and climate change (Bloom, 2014, p. 153). In the context of sustainable corporate real estate management, addressing

uncertainty becomes paramount, as it directly influences the formulation and execution of strategies and policies. Figure 2.1 shows classifications of uncertainty dimensions and approaches to managing uncertainty.

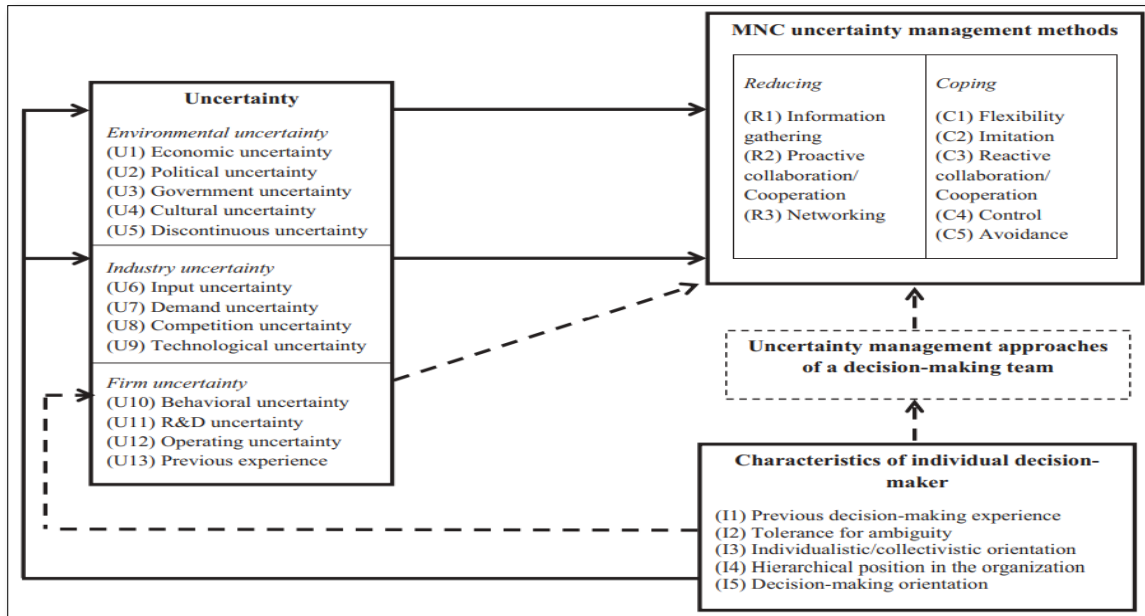


Figure 2.1: Classifications of uncertainty dimensions and approaches to managing uncertainty

Source: Sniazhko (2019, p. 6)

As shown in Figure 2.1, uncertainty can be classified as environmental, industry, and firm (Sniazhko, 2019, p. 6). In addition, Figure 2.1 shows that organisations adopt two main approaches to uncertainty management, namely, reducing uncertainty and coping with uncertainty (Sniazhko, 2019, p. 6). To reduce uncertainty, firms ought to gather information, and be proactive in collaboration and cooperation (Sniazhko, 2019, p. 6). Similarly, to cope with uncertainty, firms have to be flexible imitate other firms and be reactive in terms of cooperation and collaboration. In addition, firms must have control and practise avoidance to cope with uncertainty (Sniazhko, 2019, p. 6).

2.3.1 The role of science in managing uncertainty

The future is inherently uncertain and, by nature, unpredictable. However, despite the inherent unpredictability of the future, individuals, organisations, and policymakers have a vested interest in exploring plausible future developments (Ahlqvist & Rhisart,

2015, p. 95). This exploration serves as the foundation for developing promising and sustainable strategies that can adapt to various potential scenarios. Science plays a crucial role in this process, aiding decision-makers and stakeholders by providing insights into potential future trajectories for the planet and humanity (Dickins & Schalz, 2020, p. 1; Packard & Clark, 2019, p. 1116). Nevertheless, contemporary scientific investigations encounter unprecedented challenges related to the magnitude and complexity of global change issues (Abdar et al., 2021, p. 261). These challenges fundamentally differ from conventional scientific problems in several ways:

1. Universal and long-term impact: Global change issues transcend geographic boundaries and have far-reaching, long-term consequences. They affect societies, economies, and ecosystems on a planetary scale (Abdar et al., 2021, p. 261).
2. Inadequate data: Available data for understanding global change phenomena is often insufficient and incomplete, making it challenging to make accurate predictions or draw definitive conclusions (Hillen et al., 2017, p. 68).
3. Novelty and complexity: Global change phenomena are novel, complex, and highly variable, which makes them inherently difficult to understand and predict (Hillen et al., 2017, p. 68).

Therefore, the contemporary scientific endeavour is shifting towards acknowledging and managing ubiquitous uncertainty (Hillen et al., 2017, p. 73). Rather than seeking definitive resolutions to uncertainties, scientists increasingly focus on the “management” of uncertainty (Packard & Clark, 2019, p. 1113; Tam, 2020, p. 174). This entails recognising and addressing a broad spectrum of perspectives and potential outcomes, acknowledging that images of the future are subjective and perspective-dependent (Hillen et al., 2017, p. 73).

2.3.2 Assumptions as tools for preparedness planning

In the realm of preparedness planning, assumptions play a pivotal role. Assumptions are foundational elements that provide a starting point for decision-makers (Tam, 2020, p. 174). They offer a direction for action, allowing for the swift initiation of specific

practices and strategies until the need for course adjustments becomes apparent (Packard & Clark, 2019, p. 1099; Tam, 2020, p. 174). Assumptions guide responders by indicating what real-time data to collect and what signals to watch for to either validate the initial assumptions or signal the necessity for a change in approach (Crawford & Plant-O'Toole, 2023, p. 2; Tam, 2020, p. 174).

2.3.3 Risk management and preparedness

Another critical principle in addressing uncertainty is adopting a risk management approach in preparedness and response planning. This approach involves conducting thorough risk and capability assessments (Brillinger et al., 2020, p. 123; Tam, 2020, p. 175). These assessments inform the development of preparedness and response measures while identifying gaps or areas that require enhancement (Tam, 2020, p. 175).

Risk and capability assessments involve evaluating the probability and impact of potential risk events (Brillinger et al., 2020, p. 123; Tam, 2020, p. 175). For instance, planners may consider scenarios involving various risk factors and uncertainty factors that influence the occurrence of undesirable events (Brillinger et al., 2020, p. 123; Tam, 2020, p. 175). These assessments are instrumental in shaping preparedness strategies and ensuring that organisations are equipped to respond effectively to unforeseen developments.

2.3.4 The distinction between risk and uncertainty

It is essential to distinguish between risk and uncertainty. Risk pertains to situations with known probabilities, where the chance of events happening is quantifiable (Brillinger et al., 2020, p. 125). Uncertainty, on the other hand, arises when unknown probabilities, and predicting the likelihood of events becomes a challenging endeavour (Brillinger et al., 2020, p. 125). The economist Frank Knight provided a seminal definition of uncertainty, distinguishing it from risk. Risk, in Knight's terminology, involves known probability distributions over a set of events, whereas uncertainty represents the inability to forecast the likelihood of events occurring (Bloom, 2014, p. 154; Knight, 1921, p. 233). For example, the exact number of coins ever produced

globally is uncertain due to the vast number of countries involved and the lack of comprehensive data (Bloom, 2014, p. 154).

In the case of Lesotho, where the prospect of load shedding looms but the exact timing and severity are uncertain, decision-making becomes characterised by the lack of complete information. Knowledge of uncertainty can guide the analysis of decision-making processes, risk perceptions, and adaptive strategies (Magnani & Zucchella, 2019, p. 136). Knowledge of uncertainty can be applied to investigate how businesses and policymakers in Lesotho anticipate and prepare for load shedding.

Understanding stakeholders' subjective perceptions of potential outcomes and consequences in the face of uncertainty is essential, and these perceptions significantly influence the strategies and priorities of organisations (Hillen et al., 2017, p. 68; Magnani & Zucchella, 2019, p. 136). In addition, knowledge of uncertainty can also shed light on innovative and pre-emptive strategies adopted by businesses and policymakers to mitigate the impact of anticipated load shedding (Hillen et al., 2017, p. 68; Magnani & Zucchella, 2019, p. 136). Policymakers' responses to anticipated load shedding, in the context of crafting policies and initiatives that promote sustainable corporate real estate management, can be assessed by considering the impact of uncertainty. This perspective helps elucidate the challenges and opportunities associated with policy formulation in the absence of precise information about the timing and magnitude of load shedding events (Bloom, 2014, p. 154; Magnani & Zucchella, 2019, p. 136).

2.4 Energy dynamics in Lesotho

In Lesotho, the demand for electricity has consistently exceeded the available supply, creating significant challenges within the socio-economic landscape, thereby impeding progress. Tsikoane (2008, p. 108) aptly noted that the "Muela hydropower plant has severely limited its potential relative to the need to electrify the countryside for purposes of expediting socio-economic transformation to make it possible for the Basotho nation as a whole to attain a higher standard of well-being."

The Muela hydropower plant, originally designed to produce 81MW of electricity in 1998, currently generates only 72-76MW, failing to keep pace with Lesotho's increasing demand. This insufficiency has led to a national baseload deficit of 24% and a peak load deficit of 44%, necessitating the importation of a significant portion of the electricity consumed in the country (Senatla et al., 2018, p. 622). The critical issue is that Lesotho has reached a peak demand of 161MW (Mpholo et al., 2012, p. 42), a figure far surpassing the current capacity of the Muela hydropower plant.

To address this energy crisis, Lesotho relies on electricity imports, primarily through bilateral agreements with Lesotho Highlands Development Authority (LHDA), Eskom, and Electricidade de Mozambique (EDM). However, this reliance on imports has proven costly, particularly during high-demand seasons when electricity imports from Eskom and EDM cost LEC significantly more (Lefela, 2020, p. 50).

In a global context, nations are increasingly transitioning to renewable energy sources to meet energy demands while reducing reliance on fossil fuels (Mabeleme, 2022). Unfortunately, Lesotho's energy sector has not fully embraced this transition, leading to inadequate electricity supply and concerns about potential load shedding (Mabeleme, 2022). Moreover, Lesotho lacks a comprehensive plan to harness indigenous resources for self-generation, thereby perpetuating its dependence on energy imports (Senatla et al., 2018, pp. 622-623).

The consequences of this situation are substantial, as it is projected that Lesotho's current imports and local electricity supply will be insufficient to meet demand from 2035 to 2043 (Kente, 2020, p. 44). The economic cost of this energy deficit is estimated to be M354 million, which poses a considerable constraint to the nation's economy (Senatla et al., 2018, pp. 622-623). The absence of an effective policy for transformative energy sources, limited incentive strategies for adopting alternative green energy solutions, along with the current supply shortage and increasing demand, collectively hinder socio-economic growth (Sechoala et al., 2023, p. 339).

Recognising these challenges, Sechoala et al. (2023, p. 339) investigated alternative methods for electricity generation in Lesotho, focusing on biogas and heat energy derived from municipal solid waste using anaerobic digestion technology (AD) and

incineration technology (INC). Their study revealed that over a 25-year period (2021-2045), these methods could yield significant electricity generation and positive economic returns (Sechoala et al., 2023, pp. 337-352).

It is crucial for Lesotho to explore new avenues of energy generation to meet its high demand effectively. Embracing green energy alternatives such as AD and INC can lead to a sustainable environment and economic prosperity by generating clean electricity from municipal solid waste (Sechoala et al., 2023, p. 352). Despite some strides, Lesotho faces challenges in optimising renewable energy due to its heavy reliance on grid-generated electricity, influenced by political, policy, economic, and infrastructural factors (Ramoetsi & Mtembu, 2022, p. 25). Political pressure, corruption, weak policy frameworks, financial constraints, lack of technical expertise, and inadequate infrastructure have collectively hindered Lesotho's transition to renewable energy sources (Ramoetsi & Mtembu, 2022, p. 25).

2.5 Load shedding dynamics and implications

Energy is considered an anchor for economic growth, as most productive economic activities require an adequate and reliable energy supply (Alkaldy et al., 2019, p. 150). The availability of energy supports the functioning and development of businesses (Ateba et al., 2019, p. 1325). Load shedding directly affects all business operations and productivity (Botha, 2019, p. 11). In order to understand the dynamics and implications of load shedding, this review presents a definition of load shedding.

Load shedding occurs when the demand for electricity exceeds the supply available, causing power utility firms to deliberately interrupt power to certain load areas (Ateba et al., 2019, p. 1326). This practice is adopted to prevent strain on the electrical systems caused by excess demand over supply (Botha, 2019, p. 2). In essence, load shedding can be defined as a planned strategy of temporarily cutting off power in specific zones where it is anticipated that the power supply will not meet the demand, thereby maintaining system stability (Umar & Kunda-Wamuwi, 2019, p. 355). Load shedding occurs due to various factors that include the following:

- Insufficient generation capacity: When there is a shortage of power generation compared to the demand, load shedding is implemented to balance the supply and demand (Alkaldy et al., 2019, p. 150).
- Inadequate transmission and distribution infrastructure: Deficiencies in infrastructure for transmitting and distributing electricity to the areas where it is needed can contribute to load shedding (Alkaldy et al., 2019, p. 150).
- Lack of maintenance on energy-supplying infrastructure is another factor that can lead to load shedding (Alkaldy et al., 2019, p. 150).

2.5.1 The impact of load shedding

In the context of power supply, load shedding emerges as a significant occurrence with extensive implications (Ateba et al., 2019, p. 1326). It leads to a notable shift where prosperous commercial ventures reduce activity, and lively urban spaces experience a nocturnal quietness. Characterised by a deliberate reduction in power distribution, this phenomenon extends beyond financial aspects, affecting various socio-economic dynamics.

Its impact on industrial operations is evident, as disrupted power availability hampers productivity and imposes limitations on meeting production deadlines. Scholarly investigations by Ateba et al. (2019, p. 1327) and Umar and Kunda-Wamuwi (2019, p. 21) underscore the clear loss of working hours and evident disturbances in production processes resulting from load shedding. Large-scale corporations and small businesses reliant on steady electricity supply are vulnerable to operational disruptions during load shedding events, resulting in an observable decline in overall productivity (Umar & Kunda-Wamuwi, 2019, p. 21).

Financial implications bear the brunt of these disruptions, as a direct link emerges between load shedding and reduced revenue. Empirical findings by Nyanzu and Adarkwah (2016, p. 17) highlight a higher probability of lower revenue during power outages compared to periods of uninterrupted power supply. This trend particularly affects businesses heavily dependent on electricity and lacking the financial means to switch to alternative energy sources, as noted by Nyanzu and Adarkwah (2016, p. 17).

Consequently, a noticeable strain on financial stability emerges, impacting investment capabilities and potentially pushing certain businesses towards financial difficulties.

The diverse impact of load shedding extends to the workforce, with potential repercussions on employment. The reduction in business activity during load shedding can lead to job losses and reduced income, affecting society at large. Alkaldy et al. (2019, p. 150) illustrate this aspect, pointing out the link between diminished business prospects and the subsequent decrease in income for employees. This interconnection accentuates the challenges faced by both business owners and workers, creating a complex economic situation.

From a broader perspective, the effects of load shedding also affect the relationship between businesses and customers. The sporadic provision of electricity creates an uncertain customer experience, reducing satisfaction and weakening market competitiveness. Baldie (2021, p. 15) emphasises the adverse effects of inconsistent power supply on consumer satisfaction and market positioning. This irregular availability impedes businesses' ability to meet customer demands, thus negatively affecting their market standing (Baldie, 2021, p. 15).

In summary, the impact of load shedding extends beyond power supply, affecting business operations, financial stability, human resources, and market competitiveness. The overall impact includes reduced operational efficiency, weakened financial health, disturbed workforce equilibrium, and strained customer relations. These intertwined factors underscore broader societal consequences, highlighting the importance of resilient energy infrastructure and strategies to mitigate the disruptions caused by load shedding.

2.5.2 Load shedding in South Africa

Since 2008, the South African electricity supply system has been strained by an escalating demand for electricity that surpasses the available infrastructure (Mbomvu & Mlambo, 2021, p. 5). This mounting demand exerts significant pressure on electricity suppliers, notably Eskom in South Africa, to ensure a consistent and adequate power supply (Lenoke & Thulo, 2022, p. 5). The capacity to provide electricity is directly tied

to the number of operational power plants, which ultimately affects the ability to meet demand. However, the challenge of load shedding is a direct result of insufficient electricity supply (Lenoke & Thulo, 2022, p. 5).

Load shedding in South Africa has led to substantial economic repercussions, with estimates suggesting that it cost the economy approximately R35 billion between 2007 and 2019 (Walsh et al., 2021, p. 16). The decline in industrial sustainability and economic growth is closely linked to electricity supply uncertainties, particularly affecting the industrial sector which significantly contributes to the country's gross domestic product (GDP) (Ateba et al., 2019, p. 1).

As South Africa grapples with the detrimental impacts of load shedding on its own economy, there exists a tangible threat that Eskom might curtail its electricity exports or reduce supply to neighbouring countries, including Lesotho (Mlambo & Pourpanah, 2019, p. 5). This situation can arise as Eskom strives to address its internal energy crisis and ensure sufficient power supply for its industries and population. Consequently, the load shedding crisis in South Africa could potentially spill over to countries it supplies, including Lesotho, exacerbating the energy challenges already faced by these nations. This amplifies the urgency for Lesotho to explore independent avenues for sustainable energy generation and consumption while emphasising the need for effective management strategies to mitigate potential disruptions in electricity supply.

The predicament of load shedding in South Africa has reverberating effects, including a substantial increase in electricity prices over time (Mlambo & Pourpanah, 2019, p. 5). This surge in prices not only affects South Africa but also has far-reaching implications for neighbouring countries that buy electricity from South Africa, such as Lesotho. The electricity supply to Lesotho is intricately linked to South Africa, and any disruptions in South Africa's energy sector may lead to fluctuations in Lesotho's energy security (Lenoke & Thulo, 2022, p. 5). This dependency becomes particularly concerning when considering LEC debt collection challenges. As the LEC grapples with debt collection issues, the ability to pay South Africa for enough electricity supply becomes compromised (Lenoke & Thulo, 2022, p. 5). This further exacerbates the

challenges, potentially reducing or disrupting electricity supply for Lesotho (Lenoke & Thulo, 2022, p. 5).

The interconnectedness of these challenges underscores the vulnerability of Lesotho's energy security. The ripple effect of surging electricity prices, coupled with LEC's debt collection struggles, magnifies the potential for load shedding in Lesotho (Lenoke & Thulo, 2022, p. 5). In this context, the cross-border energy dynamics emphasise the urgency of implementing effective energy management strategies and policies.

2.5.3 Load shedding mitigation measures

Amidst the formidable challenges presented by load shedding, businesses of all sizes can implement a range of strategies to mitigate its impact and enhance their sustainability (Mlambo & Pourpanah, 2019, p. 5). Primarily, the adoption of energy-efficient practices emerges as a potent approach to cushion against the adverse effects of load shedding (Mlambo & Pourpanah, 2019, p. 5). By incorporating energy-efficient technologies and practices, businesses can curtail their reliance on the conventional power grid, thereby reducing both energy consumption and vulnerability to the disruptions caused by load shedding (Kazmi, 2019, p. 416).

An avenue to insulate businesses from the deleterious consequences of load shedding is the exploration of alternative energy sources (Kazmi, 2019, p. 416). Among these, renewable energy, particularly solar power, presents a promising solution (Kazmi, 2019, p. 416). By harnessing the potential of solar energy, businesses can establish a more consistent and sustainable energy supply, thus reducing their susceptibility to the erratic power availability associated with load shedding (Kazmi, 2019, p. 416).

The integration of energy storage solutions, such as battery systems, offers another avenue to enhance businesses' resilience against load shedding. By adopting these systems, businesses can accumulate surplus energy during periods of uninterrupted supply. Subsequently, this stored energy can be judiciously utilised during power outages, thereby cushioning the operational impact of load shedding (Kazmi, 2019, p. 415).

The promotion of collaborative initiatives stands as a pivotal strategy for mitigating the challenges posed by load shedding to businesses. Through fostering cooperation among diverse stakeholders – encompassing businesses themselves, governmental bodies, utility companies, and other relevant entities – shared resources and collective strategies can be harnessed. This unified effort facilitates the development of robust strategies that effectively address the multifaceted consequences of load shedding (Kazmi, 2019, p. 414).

Within the context of Under Frequency Load Shedding (UFLS) applications, the Grasshopper Optimisation Algorithm (GOA) emerges as a valuable tool (Talaat et al., 2019, p. 14). This metaheuristic optimisation algorithm serves to enhance load management. Its primary objectives are to maximise the lowest swing frequency while minimising the number of loads to be shed at each stage (Talaat et al., 2019, p. 14). The GOA offers a mechanism to respond rapidly and efficiently to UFLS situations, thereby bolstering power system stability during load shedding events (Talaat et al., 2019, p. 14).

In the domain of load forecasting, a novel hybrid neuro-fuzzy method presents an innovative approach (Alkaldy et al., 2019, p. 163). This method has the potential to mitigate the impact of load shedding effects on load forecasting accuracy. Its implementation yields improved load prediction precision when compared to conventional neural network models (Alkaldy et al., 2019, p. 163). The method's insightful analysis of load behaviour in both the presence and absence of load shedding underscores its capacity to offer valuable insights into the dynamics of power consumption (Alkaldy et al., 2019, p. 163).

The following are measures to strengthen business resilience during load shedding:

- **Governmental support:** Governmental intervention is vital in equipping businesses to weather the challenges posed by load shedding. Effective policies, coupled with targeted financial incentives and well-structured support programmes, can collectively offer businesses the necessary tools to navigate load shedding challenges. These governmental efforts facilitate access to

essential funding, critical resources, and technical expertise, empowering businesses to manage better the disruptions brought about by load shedding (Kazmi, 2019, p. 114).

- Enhancing industrial electricity sustainability: An integral aspect of bolstering business resilience against load shedding is the pursuit of sustainable industrial electricity supply. This endeavour encompasses a comprehensive strategy, including prioritising relevant mitigation measures and establishing robust governance frameworks. By adopting such measures, businesses can bolster their adaptive capabilities, enhancing their ability to navigate the uncertainties brought forth by load shedding events (Kazmi, 2019, p. 416).

2.6 Theoretical Framework

The theoretical framework for this research is based on the Sustainable Corporate Real Estate Management (SCREM) theory, which integrates key concepts and practices related to sustainability in corporate real estate. Drawing on the work of Fauzi et al. (2021, 2023) and other scholars, the framework provides a comprehensive lens for analyzing sustainable corporate real estate practices. It consists of the following interconnected components:

2.6.1 Corporate Real Estate Performance Management

- Focuses on the efficient and effective management of corporate real estate assets to align with organizational goals.
- Key elements include financial performance optimization, space utilization efficiency, and operational efficiency (Ferguson et al., 2000, p. 4).

2.6.2 Triple Bottom Line Principles

- A sustainability framework integrating environmental, social, and economic considerations.
- Key elements:
 - Environmental Stewardship: Minimizing environmental impact.
 - Social Responsibility: Promoting social well-being.

- Economic Viability: Ensuring long-term profitability (Ziemba et al., 2015, p. 89).

2.6.3 Corporate Real Estate Management Practices

- Includes practices such as:
 - Facility Management.
 - Real Estate Asset Management.
 - Real Estate Portfolio Management.
 - Process Management.
 - Responsible Property Investment.
- These practices ensure sustainable real estate operations and decision-making (Fauzi et al., 2023, p. 208).

2.6.4 Green Office Management

- Focuses on environmentally friendly practices in office spaces.
- Key elements:
 - Energy and water efficiency.
 - Indoor environmental quality.
 - Sustainable site planning.
 - Innovation in sustainability practices (Wu et al., 2020, p. 13).

2.2.6 Holistic Approach

- Emphasizes the integration of all components to create a comprehensive sustainability strategy.
- Ensures cohesive and effective sustainability efforts by addressing multiple dimensions of corporate real estate management (Fauzi et al., 2023, p. 208).

2.7 Conclusion

This literature review has examined SCREM practices for energy efficiency, energy dynamics in Lesotho, load shedding dynamics and implications, and load shedding mitigation measures. The next chapter presents the research methodology outlining the strategies and approaches used to explore this subject.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

The preceding chapter reviewed literature relevant to this study. This chapter presents the research methodology outlining the strategies and approaches to explore this subject. This chapter explains the researcher's reasoning for using particular approaches and practices to comprehend the study's depth and problems. The subsequent segments cover the research approach, research design, research method, research philosophy, sampling, recruitment strategy, data collection tools, data analysis methods, reliability, validity and trustworthiness, ethical considerations, and conclusion.

3.2 Research approach

This research began with a clear study aim and purpose that afforded the reason for making new insights that resulted from the data analysis. The inductive research approach was applied to designate imperative notions and themes from the raw data (Stojanov, 2016, p. 8). An inductive approach aims to add meaning to complex pieces of information, as represented in Figure 3.1 (Stojanov, 2016, p. 8). As clarified by Thomas (2006, p. 239), the inductive approach allows research results to come from important themes in the raw data. Fereday and Muir-Cochrane (2006, p. 84) revealed that thematic analysis is a technique that can be employed to identify themes or most prominent opinions in unstructured qualitative data while making use of the inductive research approach.

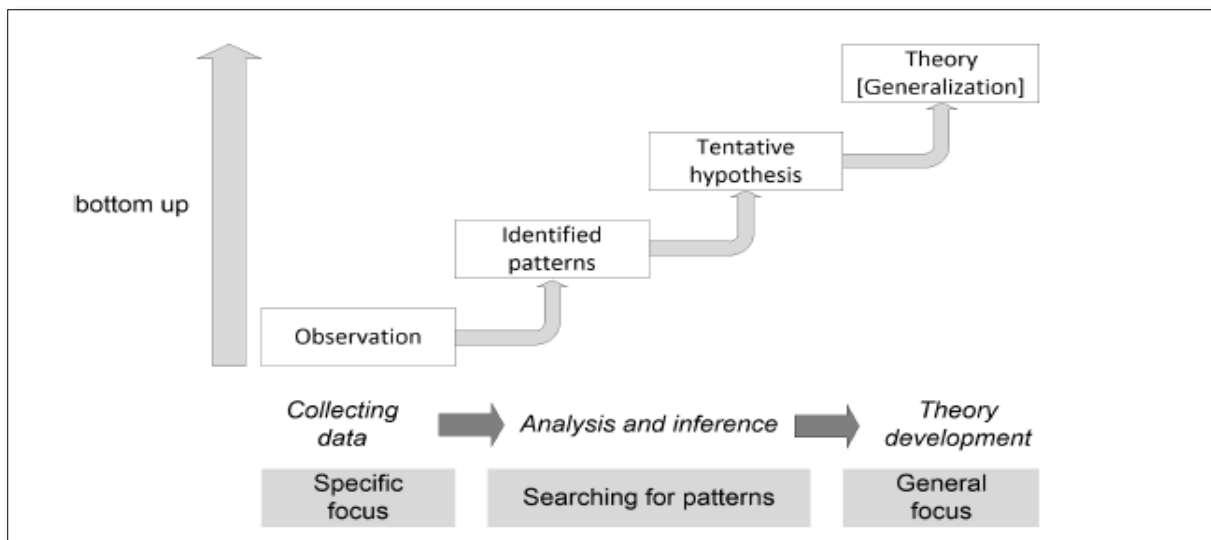


Figure 3.1: An illustration of inductive analysis

Source: Stojanov (2016, p. 8)

In accordance with Thomas (2006, p. 239) and Fereday and Muir-Cochrane (2006, p. 84), the researcher proposed to utilise the inductive research approach as a data management technique that involves several procedures, such as the creation of themes and groups. Besides, the induction research approach upholds the descriptive research design that is covered next.

3.3 Research design

Adams et al. (2014, p. 81) elucidated that research design is the strategy for realising research aims, answering research questions and also ensuring that the information collected is appropriate for solving a problem. Research design is the plan that allows a researcher to undertake the study appropriately, suitably, and be fruitful (Adams et al., 2014, p. 81). Research designs that can be exploited for research purposes comprise exploratory, explanatory, and descriptive research designs (Saunders et al., 2016, p. 136). The descriptive research design allows a researcher to collect information without altering or changing the environment (Saunders et al., 2016, p. 140). Consequently, descriptive research design can facilitate insights into comprehensive and sustainable measures to address the challenges of load shedding in Lesotho. The descriptive research design allowed the researcher to gather useful

information, and to fruitfully deal with and clarify the results (Saunders et al., 2016, p. 140).

3.4 Research method

Research methods are the different actions that are used by a researcher to research operations (Crossman, 2017). The study utilised the qualitative research method to explore comprehensive and sustainable measures to address the challenges of load shedding in Lesotho. More broadly, the qualitative research method can be explained as one that provides results by looking at data with no statistical analysis (MacDonald, 2012, p. 34).

Corbin and Strauss (1990, p. 6) detailed that there are many reasons for exploiting the qualitative research method, for example, addressing the issues of why and how in a policymaking process and not only what, where, and when. To achieve the aims of this study, the researcher envisioned using a qualitative research method to explore comprehensive and sustainable measures to address the challenges of load shedding in Lesotho. The researcher envisioned exploring these challenges in the corporate real estate sphere by engaging professionals in the sector who are in possession of useful information.

The questions that were asked to the research participants were semi-structured or open-ended questions intended to bring out new information. Qualitative research usually requires considerable quantities of oral information, making comprehension by humans difficult, and the descriptive research design enables the researcher to condense such material into a manageable form (Corbin & Strauss, 1990, p. 5). Table 3.1 compares the quantitative and qualitative research methods based on the assumptions, purposes, approach, and researcher role.

Table 3.1: Comparison of quantitative and qualitative research methods

	Quantitative Method	Qualitative Method
Assumptions	Reality is single, tangible, and fragmentable. Social facts have an objective reality Knower and known are independent, a dualism Primacy of method. Variables can be identified and relationships measured Inquiry is objective, value-free	Realities are multiple, constructed, and holistic. Reality is socially constructed Knower and known are interactive, inseparable Primacy of subject matter Variables are complex, interwoven, and difficult to measure Inquiry is subjective, value-bound
Purposes	Generalisability (time and context free generalisations through nomothetic or generalised statements) Prediction Causal explanations	Contextualisation (only time and context bound working hypotheses through idiographic statements) Interpretation Understanding actors' perspectives
Approach	Begins with hypotheses and theories Manipulation and control Uses formal, structured instruments Experimentation and intervention Deductive Component analysis Seeks consensus, the norm Reduces data to numerical indices Abstract language in write-up	Ends with hypotheses or grounded theory Emergence and portrayal Researcher as the instrument Naturalistic or non-intervention Inductive Searches for patterns Seeks pluralism, complexity Makes minor use of numerical indices Descriptive write-up
Researcher Role	Detachment and impartiality Objective portrayal Etic (outsider's point of view)	Personal involvement and partiality Empathic understanding Emic (insider's point of view)

Source: Yilmaz (2013, p. 316)

3.4.1 Research philosophy

Research philosophy relates to the advancement of knowledge and the characteristics of that knowledge (Saunders et al., 2016, p. 107). Consequently, research philosophy is a notion of how research information ought to be collected, processed, and utilised (Crossman, 2017). Figure 3.2 is the research model exemplifying the separate jointly related stages of the research process, from choosing a research philosophy at the margin to stipulating the information-gathering techniques entrenched into the model (Saunders et al., 2016, p. 108). In total, five separate jointly reliant stages of this model were assumed for this research. This study was based on interpretivism which emphasises understanding the subjective meanings and interpretations that individuals assign to their experiences, typically relying on methods like in-depth interviews.

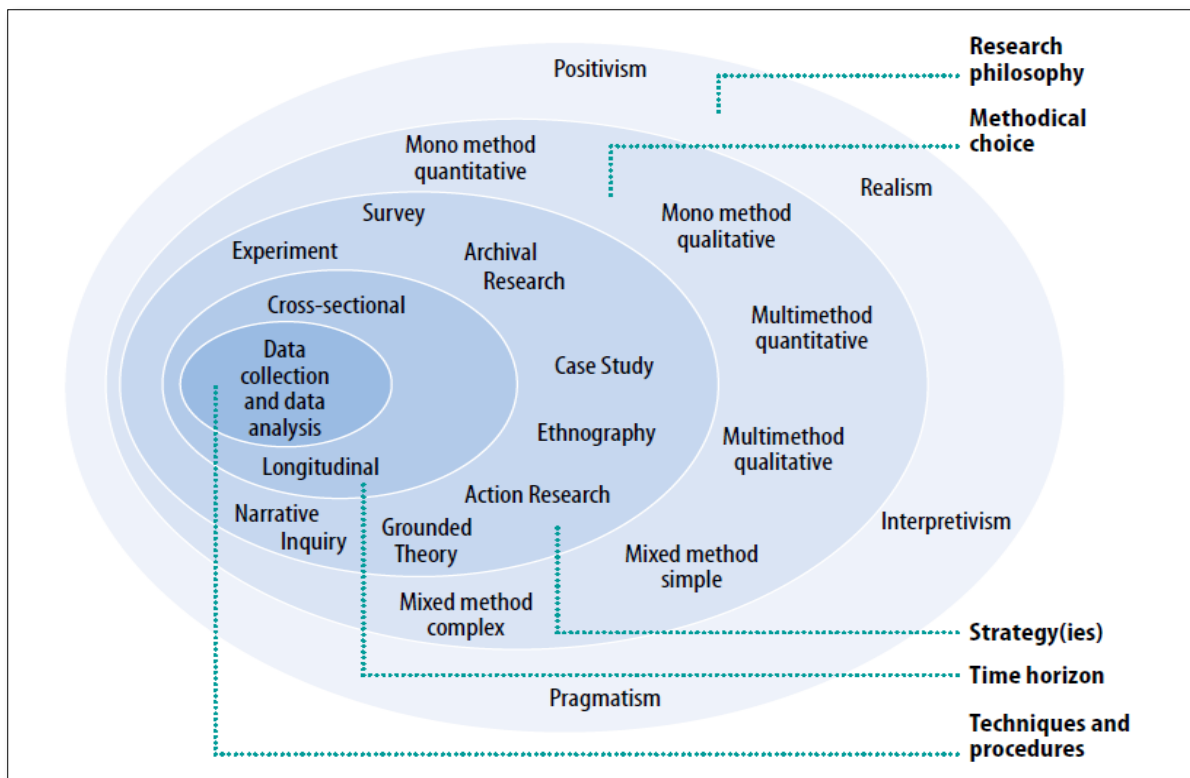


Figure 3.2: The research model

Source: Saunders and Tosey (2013, p. 59)

Figure 3.2 illustrates four research viewpoints: positivism, realism, interpretivism, and pragmatism (Saunders & Tosey, 2013, p. 59).

3.5 Sampling

A sample of research participants represents the total research population (MacDonald, 2012, p. 36). The study utilised sampling because of the impracticality of including the entire research population (Crossman, 2017).

3.5.1 Sample population

A sample population is a pool of entities that possess a shared set of characteristics (Weiers, 2011, p. 117). A population is a well-defined collection of recognisable elements, such as people and animals, for information gathering and research (Creswell, 2014, p. 108). The sample represents the sample population (Saunders et al., 2016, p. 204), and a sample population is an assortment of entities with. A sample population is a group of individuals or things comparable features (Zikmund, 2010, p.

153). The sample population of this study encompassed all the professionals of the corporate real estate sector in Lesotho who have years of experience in the industry. This corporate real estate sector in Lesotho has a professional staff population of 80.

3.5.2 Sample size

Unlike quantitative research that requires the quantification of the expanse of ideas, qualitative research aims to discern a diversity of opinions and scope of sentiments to obtain useful indications (Crossman, 2017). Accordingly, the number of participants in the study was contingent on how many were essential to truly answer the research questions (Patel, 2015). Based on this assumption, the study utilised the notion of saturation to ascertain the required number of research participants.

As elucidated by Glaser and Strauss (1967, p. 61), saturation should be utilised to attain a worthwhile sample size in any qualitative study. Saturation ensues when no supplementary understanding is gained from more interviews. Studies have suggested that descriptive saturation ensues following 12 to 15 interviews of a matching group cross-examined on a specific issue (Latham, 2014). To accomplish descriptive saturation, the researcher focused on corporate real estate professionals in Lesotho, interviewing 12 undisputable professionals with years of involvement in the industry.

3.5.3 Saturation

There are two types of saturation in qualitative research, namely, descriptive saturation and theoretical saturation (Patel, 2015). In descriptive saturation, the researcher collects data until no additional relationships appear, while in theoretical saturation, the classes are fully accounted for, and the relations among them are broadly studied and validated (Patel, 2015). The study used descriptive saturation in which the researcher interviewed 12 research participants, and no additional insights and/or thoughts surfaced.

3.5.4 Sampling method

The study used a non-probability sampling method. Corresponding to Lund (2012, p. 160), non-probability sampling comprises quota sampling, purposive sampling,

convenience sampling, snowball sampling, and self-selection sampling. The study used purposive judgemental sampling. The principal aim of purposive judgemental sampling was to concentrate on a specific feature of the population that was important to best deal with the research questions (Palinkas et al., 2015, p. 535).

Homogenous sampling is a purposive sampling technique that allows the researcher to achieve a uniform sample by choosing a group of persons with related characteristics (Lund, 2012, p. 160). In this study, the research participants were all professionals in Lesotho's corporate real estate sector. Consequently, the researcher could certainly manage the variables of the study and achieve homogeneity. Table 3.2 presents the demographics of the research participants.

Professionals in the real estate industry in Lesotho refer to persons who are actively engaged in the management of corporate real estate, in a decision-making capacity, with degrees in construction management – real estate management or other related courses – and with a minimum of five years practising. There is no professional body for this profession or related professions in Lesotho.

Twenty companies were selected based on the size of their corporate real estate holdings. This step aimed to identify entities with significant real estate portfolios capable of exerting notable influence on energy consumption and grid dynamics. The criteria ensured relevance and impact for the research objectives. The confirmation of occupancy of the corporate buildings was done by driving around the city and, in some cases, visiting buildings to determine the occupants of either big corporate buildings or companies that occupy spaces in multiple locations.

Participants for this study were then selected from the 20 after careful consideration was given to ensure the inclusion of individuals with expertise and experience relevant to the study. To choose the 12 participants, the names of the persons responsible for managing the property or space were confirmed on company profiles or Google. The credentials of the professionals, as well as their years of experience, were verified using LinkedIn to ensure that they met the criteria of professionals used for this study.

The inclusion criteria were established to encompass individuals who could provide valuable insights into corporate real estate management and its implications for the electricity grid. Specifically, participants were required to hold positions directly involved in property management or administration, with decision-making capacity within their respective organisations. This criterion ensured that participants possessed the requisite knowledge and authority to contribute meaningfully to the research objectives.

Care was also taken to mitigate potential biases or conflicts of interest that could compromise the integrity of the study, such as the participation of LHLDC and the local government in the study (Smith, 2003, p. 58). Individuals lacking direct involvement in real estate management or limited experience in the field were also excluded from consideration (Lund, 2012, p. 162).

3.6 Recruitment strategy

Creswell emphasises the significance of transparent communication and informed consent in engaging participants in academic research endeavours, particularly in corporate environments (Creswell, 2014, p. 215).

Drawing upon principles of networking and personalised communication, one can leverage professional relationships to foster trust and cooperation among potential participants (Goldman et al., 2019, p. 2). Moreover, studies highlight the importance of upholding ethical standards and respecting participant autonomy throughout the recruitment process, ensuring voluntary participation and confidentiality (Walton, 2015).

The recruitment strategy was designed to engage potential participants in a transparent and ethical manner. Initially, email addresses were sourced through corporate websites and industry connections, where possible, and leveraged to ensure relevant persons were contacted for permission. These emails served as the primary mode of communication through which permission letters were sent to prospective participating companies. The permission letters outlined the purpose and scope of the research and extended an invitation to participate in the study.

3.7 Data collection tools

Interview data was gathered through interviews. The rationale for interviews was to probe into a participant's views and thoughts on a specific issue (Crossman, 2017). Interviews provide a clearer understanding of encounters compared to quantitative data collection using structured questionnaires (Crossman, 2017). Interviews enable the investigator to explore answers, resulting in more elaborate and useful responses than a structured questionnaire, where the respondent can easily take a neutral stance (MacDonald, 2012, p. 37). The collection of information through the interviews was done in a cautious and proper manner, and the interviews were conducted directly by the researcher. To undertake this, the following steps were observed:

- The researcher recognised recognisable professionals in the corporate real estate sector in Lesotho who have years of involvement in the real estate industry.
- Then, the researcher emailed these potential research participants asking them to participate in the study. A clearly worded statement of confidentiality was added to each email, describing the purpose of the study and guaranteeing the privacy of the research participants.
- Upon receipt of an acceptance email from any potential research participant, an interview was slated. The conversations were generally held at the participant's dwelling, and all deliberations were completed in one meeting.
- The researcher oversaw 12 interviews that were recorded electronically.

3.8 Data analysis methods

Qualitative data analysis involves recognising themes, forms, and links (MacDonald, 2012, p. 40). The study used thematic data analysis to discover and record themes in the information that was collected (Fereday & Muir-Cochrane, 2006, p. 90). This entailed accurately transcribing the recordings into interview transcripts and using a qualitative data analysis software package such as NVivo (Qsrinternational, 2024). As Braun and Clarke (2006, p. 91) enlightened, the researcher ought to interpret this data and present a detailed account of the study. The ensuing actions were followed:

- 1) The researcher handed over the files to a professional transcribing company to transcribe the recordings into exact text files.
- 2) Then, the researcher read through all the text files and identified important themes relating to the subject. Then, the researcher captured all the interview text documents into NVivo 12 (Qsrinternational, 2024).
- 3) Next, the researcher used thematic data analysis to identify repeated themes throughout the interviews.
- 4) Then, the researcher used NVivo 12 (Qsrinternational, 2024) to code the text information into familiar themes. The nodes are bins where related data was put together in the NVivo program to facilitate the examination of developing ideas and theories (Qsrinternational, 2024).
- 5) This procedure resulted in new themes that afforded more understanding of the analysis.

3.9 Reliability, validity, and trustworthiness

Reliability and validity are very important aspects of research (Saunders et al., 2016, p. 149). Validity is the extent to which the evidence justifies the researcher's explanations (Heale & Twycross, 2015, p. 66). This is maintained by Brink (1993, p. 36), who emphasised that validity is accomplished if the results are justifiable, making the study trustworthy. On the contrary, reliability is used for assessing and reassessing research, indicating the expertise of the method to provide consistent outcomes if it were repeated (Brink, 1993, p. 36).

As enlightened by Golafshani (2003, p. 598), a researcher using a quantitative method should be concerned about demonstrating the validity and reliability of outcomes, as the researcher has to persuade the public that the outcomes are truthful by finding different ways of proving the truth. However, in qualitative research, the notion of exposing truth through reliability and validity is replaced with the notion of trustworthiness, which advocates the researcher's competence to uphold the study and establish trust in the results.

The purpose of a qualitative study is to attain an enhanced understanding of a manifestation that would otherwise be uncertain. This corresponds unambiguously to

the quality of the study, where the goal of reliability is to 'explain', while quality refers to creating an 'understanding' (Stenbacka, 2001, p. 553). To achieve validity in this qualitative research result, the researcher examined the research problem from diverse standpoints to bring about consistency in the study.

3.10 Ethical considerations

As enlightened by Walton (2015), research ethics unequivocally relies on the ethical worries shown when persons are involved in the study. There are three objectives to research ethics explicitly: to protect individual participants, to promote the interests of persons and society at large, and to evaluate the ethical trustworthiness of the study, protection of confidentiality, and the practice of obtaining authorisation from participants (Walton, 2015).

In all circumstances, the researcher should consider the ethical concerns and the emotional worries of their study on all participants. Therefore, it is imperative that researchers place themselves in the "shoes" of the participants and test for possible hazards to the participant's emotional health, ideals, and decorum (Walton, 2015). To meet these ethical standards, the researcher did not conceal information and/or misinform participants in any way. The researcher informed all the participants of the aims of the study and allowed them the chance to pull out of the study at any time.

As clarified by Smith (2003, p. 56), the preservation of personal rights to confidentiality is a non-negotiable aspect of every research project. This is particularly critical today, given the easy and fast communication methods available. A breach might occur due to poor data handling and storage or insecure communication channels. To protect the privacy of participants, all data collected was treated with strict confidentiality. Personal identifying information was anonymised, ensuring that participants' names and specific details remained undisclosed. Data was stored securely and accessible only to the researcher, and findings were presented in a form that avoids individual identification (Bryman, 2016, p. 275). The researcher also advised the participants on how their data would be used and provided a clear explanation of the research purpose, procedures, potential risks, and benefits before receiving their consent.

The researcher must also practice time consciousness in their strategy to mitigate the risk of potential time lost from work. The researcher scheduled all interviews for 12:15 and 16:00, as lunch for most organisations in Lesotho is at 12:45 and knock-off time is at 16:30. This way, time taken from work was limited to 30 minutes and disruptions to the work days or schedules of the participants were minimised.

Potential harm to participants was minimised by designing survey questions to avoid sensitive or intrusive topics (Easterby-Smith et al., 2012, p. 93). The researcher also ensured that participants were not exposed to physical or psychological harm during the data collection process, and any unexpected discomfort was promptly addressed and mitigated.

The data collected was exclusively used for research purposes and remained confidential. No information was shared with third parties for commercial or non-research purposes, ensuring the protection of participants' privacy (Bryman, 2016, p. 302). Research findings were presented in an aggregated and anonymous format to further protect participants' confidentiality (Easterby-Smith et al., 2012, p. 93).

The research adhered to ethical guidelines as set and approved by the General/Human Research Ethics Committee at the University of the Free State. Participants' contributions were duly acknowledged and appreciated in the research findings and report. Any input or feedback provided by participants was recognised appropriately, emphasising the collaborative nature of the research (Easterby-Smith et al., 2012, p. 90).

The researcher is a practising real estate professional in Lesotho; as a result, a conflict of interest arises from bias and data interpretation that can be influenced by the researcher's active participation, insights, and interest in this industry. To mitigate this risk, the researcher disclosed any interests or gains they might get from this research, avoided research in the corporation within which they work and conducted research only in companies in which they have no direct interest. The researcher also had no close relations with the professionals interviewed.

3.11 Conclusion

This chapter presented the research methodology used to explore comprehensive and sustainable measures to address the challenges of load shedding in Lesotho. The chapter that follows will present the data analysis results of this study.

CHAPTER FOUR: DATA ANALYSIS AND INTERPRETATION

4.1 Introduction

The previous chapter discussed the research methodology employed in this study. This chapter reports the data analysis results and the interpretation of the results of this study. In this unit, the themes resulting from the data analysis were compared to the literature review themes and excerpts from the research participants in view of addressing the research questions. The study aimed to explore SCREM in times of uncertainty in power supply in Lesotho. The study research questions were as follows:

- How is SCREM in times of uncertainty in power supply in Lesotho?
- What are the implications of load shedding in Lesotho?
- What are the current measures against load shedding in Lesotho?
- What are the possible SCREM strategies against load shedding in Lesotho?

The sections that follow contain the findings and interpretation of the results relating to the research questions.

4.2 Analysis of biographic data

The study had 12 research participants. Table 4.1 summarises the demographic information of the research participants. As presented in Table 4.1, all 12 research participants are professionals working in the real estate sector in Lesotho. Also, three research participants have worked for nine years, while four have worked for seven years. In addition, one of the research participants has worked for six years, while another worked for six years and six months. Further, two research participants have worked for five years, whereas one has worked for 10 years. Regarding their job titles, two of the research participants are operations managers, with one with one being a senior operations manager. In addition, two research participants are centre managers, while two are property managers. Also, one of the research participants is a leasing officer, whereas another one is a property administrator. Furthermore, one of the research participants is a projects and facilities manager, while another one is a chief financial officer. Lastly, two of the research participants have job titles of head

of people and corporate services, and human resources and administration manager respectively.

Table 4.1: Demographic information of the research participants

Research participant	Professional	Job title	Years working
Participant from Company A	Yes	Operations Manager	9 Years
Participant from Company B	Yes	Senior Operations Manager	9 Years
Participant from Company C	Yes	Head of People and Corporate Services	7 Years
Participant from Company D	Yes	Human Resources and Administration Manager	6 Years
Participant from Company E	Yes	Chief Financial Officer	7 Years
Participant from Company F	Yes	Manager: Projects and Facilities, Real Estate Services	5 Years
Participant from Company G	Yes	Property Administrator	5 Years
Participant from Company H	Yes	Property Manager	10 Years
Participant from Company I	Yes	Property Manager	6.5 Years
Participant from Company J	Yes	Centre Manager	7 Years
Participant from Company K	Yes	Leasing Officer	9 Years
Participant from Company L	Yes	Centre Manager	7 Years

4.3 Analysis and interpretation of findings

In this section, the coding of the interview data is explained. This is followed by the presentation of the data analysis results with respect to the research questions and the interpretation of the results.

4.3.1 Coding of the interview data

The study used a sample of 12 research participants, all professionals working in the real estate sector in Lesotho. First, the 12 interview transcripts were loaded into NVivo (2024). Second, the transcripts were opened one at a time. Third, each transcript was thoroughly read, and the very helpful testimony was coded into nodes that hold information of similar meaning inside the NVivo program (2024). Fourth, the coding process was done for every transcript, and new nodes were created as more helpful testimony became evident. Fifth, the nodes used for holding related information during the coding process became the themes of the thematic data analysis process. Figure 4.1 shows the coding framework containing the nodes that became the themes of the thematic data analysis using the NVivo program (2024). Figure 4.1 contains five nodes (themes) and 19 child nodes (subthemes) that arose from the thematic data analysis process. In the coding process, the nodes held related information from all the different interview transcripts, and this helped the study uncover related patterns and answer the research questions. In Figure 4.1, the sources are the number of research participants who spoke on a matching theme, and the references are the total number of statements made under each theme. The 12 research participants were labelled as “Participant from Company A” to “Participant from Company L” to protect their identities.

Nodes				
Name	Sources	References	Created On	
Current Measures on Load Shedding		11	20	01/10/24 06:35
SCREM Strategies on Load Shedding		12	46	01/10/24 06:36
Increase Hydroelectricity Power		6	12	09/10/24 10:33
Expand Solar Energy Use		10	24	09/10/24 10:35
End the Monopoly of LEC		5	12	09/10/24 10:38
Encourage Energy-Saving Behaviours		7	32	09/10/24 10:58
Promote Awareness of Sustainability Goals		9	25	09/10/24 11:00
National Power Supply Strategy		5	5	09/10/24 11:29
Increase Wind Power		6	20	09/10/24 11:52
Maintaining and Upgrading Plants		3	12	09/10/24 12:13
Implications of Load Shedding		10	20	01/10/24 06:33
SCREM in Lesotho		12	71	01/10/24 06:32
SCREM Implemented		5	8	09/10/24 09:33
Awareness of SCREM Principles		10	17	09/10/24 09:38
Adoption of SCREM Principles		9	10	09/10/24 09:40
Contribution to Load Shedding Avoidance		12	34	09/10/24 09:50
Policy Interventions		9	13	09/10/24 09:52
Factors Influencing Decision Making		12	60	09/10/24 09:44
Location of Properties		2	3	09/10/24 10:10
Minimising Utility Waste		5	8	09/10/24 10:12
Environmental and Social Impact		8	22	09/10/24 11:06
Financial Viability		9	34	09/10/24 11:44
Sustainable Investments		7	28	09/10/24 12:08
Property Market Trends		3	14	09/10/24 12:45

Figure 4.1: The coding framework

Source: NVivo (2024)

4.3.2 Interview questions

Table 4.2 shows the significance of the interview questions, the literature review topics covered, and also the themes and subthemes that resulted from the thematic data analysis process. In Table 4.2, the interview questions are grouped according to the research questions. Then, the literature review topics covered and the themes resulting from the thematic data analysis process are placed side by side with explanations.

Table 4.2: Interview questions, literature review topics, themes, and explanations

Interview question	Literature review topic	Theme	Explanation
Research Question 1: How is SCREM in times of uncertainty in power supply in Lesotho?			
<p>(1) Can you describe the sustainable corporate real estate management practices currently implemented in your organisation? Please explain.</p>	<p>(a) SCREM practices for energy efficiency (b) Management by value in SCREM (c) Case studies on SCREM</p>	<p>(i) SCREM in Lesotho (ii) SCREM Implemented</p>	<p>Question 1 resulted in two themes: <i>SCREM in Lesotho</i> and <i>SCREM Implemented</i>. This question partly answered the first research question of the study on how SCREM is in Lesotho in times of uncertainty in power supply. In addition, these themes were covered in the literature review, including topics on SCREM practices for energy efficiency, management by value in SCREM, and case studies on SCREM.</p>
<p>(2) How aware and understanding are you and your organisation of sustainable corporate real estate management principles? Please discuss.</p>	<p>(a) SCREM practices for energy efficiency (b) Management by value in SCREM (c) Case studies on SCREM</p>	<p>(i) SCREM in Lesotho (ii) Awareness of SCREM Principles (iii) Adoption of SCREM Principles</p>	<p>Question 2 resulted in three themes: <i>SCREM in Lesotho</i>, <i>Awareness of SCREM Principles</i>, and <i>Adoption of SCREM Principles</i>. This question partly answered the first research question of the study on how SCREM is in Lesotho in times of uncertainty in power supply. In addition, these themes were covered in the literature review, including topics on SCREM practices for energy efficiency, management by value in SCREM, and case studies on SCREM.</p>

Interview question	Literature review topic	Theme	Explanation
<p>(3) How does this awareness influence your organisation's adoption of sustainable practices? Please discuss.</p>	<p>(a) SCREM practices for energy efficiency (b) Management by value in SCREM (c) Case studies on SCREM</p>	<p>(i) SCREM in Lesotho (ii) Awareness of SCREM Principles (iii) Adoption of SCREM Principles</p>	<p>Question 3 resulted in three themes: <i>SCREM in Lesotho</i>, <i>Awareness of SCREM Principles</i>, and <i>Adoption of SCREM Principles</i>. This question partly answered the first research question of the study on how SCREM is in Lesotho in times of uncertainty in power supply. In addition, these themes were covered in the literature review, including topics on SCREM practices for energy efficiency, management by value in SCREM, and case studies on SCREM.</p>
<p>(4) When considering investments in sustainable corporate real estate management practices, what key factors influence your organisation's decision-making process? Please explain.</p>	<p>(a) SCREM practices for energy efficiency (b) Management by value in SCREM (c) Case studies on SCREM (d) Uncertainty (e) The role of science in managing uncertainty (f) Assumptions as tools for preparedness planning (g) Risk management and preparedness (h) The distinction between risk and uncertainty</p>	<p>(i) Factors Influencing Decision-Making (ii) Environmental and Social Impact (iii) Financial Viability (iv) Location of Properties (v) Minimising Utility Waste (vi) Property Market Trends (vii) Sustainable Investments</p>	<p>Question 4 resulted in seven themes: <i>Factors Influencing Decision-Making</i>, <i>Environmental and Social Impact</i>, <i>Financial Viability</i>, <i>Location of Properties</i>, <i>Minimising Utility Waste</i>, <i>Property Market Trends</i>, and <i>Sustainable Investments</i>. This question partly answered the first research question of the study on how SCREM is in Lesotho in times of uncertainty in power supply. In addition, these themes were covered in the literature review, including topics on SCREM practices for energy efficiency, management by value in SCREM, case studies on SCREM, uncertainty, the role of science in managing uncertainty, assumptions as tools for preparedness planning, risk management and preparedness, and the distinction between risk and uncertainty.</p>

Interview question	Literature review topic	Theme	Explanation
<p>(5) How do these sustainable practices contribute to load shedding avoidance and energy resilience in your organisation? Please explain.</p>	<p>(a) SCREM practices for energy efficiency (b) Management by value in SCREM (c) Case studies on SCREM (d) Energy dynamics in Lesotho (e) Load shedding mitigation measures</p>	<p>(i) SCREM in Lesotho (ii) SCREM Strategies on Load Shedding (iii) Contribution to Load Shedding Avoidance</p>	<p>Question 5 resulted in three themes: <i>SCREM in Lesotho</i>, <i>SCREM Strategies on Load Shedding</i>, and <i>Contribution to Load Shedding Avoidance</i>. This question partly answered the first research question of the study on how SCREM is in Lesotho in times of uncertainty in power supply. In addition, these themes were covered in the literature review, including topics on SCREM practices for energy efficiency, management by value in SCREM, case studies on SCREM, energy dynamics in Lesotho, and load shedding mitigation measures.</p>
<p>(6) Based on your experience, what policy interventions and incentives could support organisations in Lesotho in adopting sustainable corporate real estate management practices and enhancing energy resilience in the face of load shedding? Please explain.</p>	<p>(a) SCREM practices for energy efficiency (b) Management by value in SCREM (c) Case studies on SCREM (d) Energy dynamics in Lesotho (e) Load shedding mitigation measures</p>	<p>(i) SCREM in Lesotho (ii) Policy Interventions</p>	<p>Question 6 resulted in two themes: <i>SCREM in Lesotho</i> and <i>Policy Interventions</i>. This question partly answered the first research question of the study on how SCREM is in Lesotho in times of uncertainty in power supply. In addition, these themes were covered in the literature review, including topics on SCREM practices for energy efficiency, management by value in SCREM, case studies on SCREM, energy dynamics in Lesotho, and load shedding mitigation measures.</p>

Interview question	Literature review topic	Theme	Explanation
<p>(7) Real estate management practices and their impact on load shedding. Please provide any additional comments or insights regarding sustainable corporate real estate management practices and their impact on load shedding.</p>	<p>(a) SCREM practices for energy efficiency</p> <p>(b) Management by value in SCREM</p> <p>(c) Case studies on SCREM</p> <p>(d) Energy dynamics in Lesotho</p> <p>(e) Load shedding mitigation measures</p>	<p>(i) SCREM Strategies on Load Shedding</p>	<p>Question 7 added to the theme <i>SCREM Strategies on Load Shedding</i>. This question partly answered the first research question of the study on how SCREM is in Lesotho in times of uncertainty in power supply. In addition, this theme was covered in the literature review, which covered topics such as SCREM practices for energy efficiency, management by value in SCREM, case studies on SCREM, energy dynamics in Lesotho, and load shedding mitigation measures.</p>
Research Question 2: What are the implications of load shedding in Lesotho?			
<p>(8) In your opinion, what do you think are the implications of load shedding in Lesotho? Please discuss</p>	<p>(a) Energy dynamics in Lesotho</p> <p>(b) Load shedding dynamics and implications</p> <p>(c) The impact of load shedding</p> <p>(d) Load shedding in South Africa</p>	<p>(a) Implications of Load Shedding</p>	<p>Question 8 resulted in one theme: <i>Implications of Load Shedding</i>. This question answered the second research question of the study on what the implications of load shedding in Lesotho are. In addition, this theme was covered in the literature review, which covered topics of energy dynamics in Lesotho, load shedding dynamics and implications, the impact of load shedding, and load shedding in South Africa.</p>
Research Question 3: What are the current measures against load shedding in Lesotho?			

Interview question	Literature review topic	Theme	Explanation
<p>(9) What are the current measures against load shedding in Lesotho? Please explain.</p>	<p>(a) SCREM practices for energy efficiency</p> <p>(b) Management by value in SCREM</p> <p>(c) Case studies on SCREM</p> <p>(d) Energy dynamics in Lesotho</p> <p>(e) Load shedding mitigation measures</p>	<p>(i) Current Measures on Load Shedding</p>	<p>Question 9 resulted in one theme: <i>Current Measures on Load Shedding</i>. This question answered the third research question of the study on what the current measures are against load shedding in Lesotho. In addition, this theme was covered in the literature review, which covered topics such as SCREM practices for energy efficiency, management by value in SCREM, case studies on SCREM, energy dynamics in Lesotho, and load shedding mitigation measures.</p>
<p>Research Question 4: What are the possible SCREM strategies against load shedding in Lesotho?</p>			
<p>(10) Based on your experience, can you please propose some sustainable corporate real estate management measures against load shedding in Lesotho? Please discuss.</p>	<p>(a) SCREM practices for energy efficiency</p> <p>(b) Management by value in SCREM</p> <p>(c) Case studies on SCREM</p> <p>(d) Energy dynamics in Lesotho</p> <p>(e) Load shedding mitigation measures</p>	<p>(i) SCREM Strategies on Load Shedding</p> <p>(ii) Encourage Energy-Saving Behaviours</p> <p>(iii) End the Monopoly of LEC</p> <p>(iv) Expand Solar Energy Use</p> <p>(v) Increase Hydroelectricity Power</p> <p>(vi) Increase Wind Power</p> <p>(vii) Maintaining and Upgrading Plants</p> <p>(viii) National Power Supply Strategy</p> <p>(ix) Promote Awareness of Sustainability Goals</p>	<p>Question 10 resulted in nine themes: <i>SCREM Strategies on Load Shedding, Encourage Energy-Saving Behaviours, End the Monopoly of LEC, Expand Solar Energy Use, Increase Hydroelectricity Power, Increase Wind Power, Maintaining and Upgrading Plants, National Power Supply Strategy, and Promote Awareness of Sustainability Goals</i>. This question answered the fourth research question of the study on what the possible SCREM strategies are against load shedding in Lesotho. In addition, these themes were covered in the literature review, including topics on SCREM practices for energy efficiency, management by value in SCREM, case studies on SCREM, energy dynamics in Lesotho, and load shedding mitigation measures.</p>

In the subsequent segments, the themes in Figure 4.1 and Table 4.2 are presented pertaining to the research questions of the study and supported by excerpts. Also, the study findings are interpreted at the end of each segment.

4.4 Research Question 1: How is SCREM in times of uncertainty in power supply in Lesotho?

The data analysis resulted in two themes that address the first research question, namely, SCREM in Lesotho and Factors Influencing Decision-Making. In addition, these themes contain five and nine subthemes respectively.

4.4.1 SCREM in Lesotho

The research participants talked about SCREM in Lesotho, and this resulted in the following five subthemes that include SCREM Implemented, Awareness of SCREM Principles, Adoption of SCREM Principles, Contribution to Load Shedding Avoidance, and Policy Interventions. The subsections that follow present the subthemes of SCREM in Lesotho and the research participants' statements about these subthemes.

4.4.1.1 SCREM implemented

The current SCREM measures implemented in the real estate sector in Lesotho were discussed by the research participants. According to the research participants from 12 different companies, the current SCREM measures implemented in the real estate sector in Lesotho include the following:

- Promotion and use of environmentally friendly materials and products
- Promotion and use of energy-saving measures
- Promotion and practice of proper waste management
- Regular inspection and maintenance of equipment to ensure financial and social sustainability

Statements about these measures were coded under the subtheme known as SCREM implemented that is shown in Figure 4.1 and Table 4.2. The following excerpts from

the research participants are used to support these current SCREM measures implemented in the real estate sector in Lesotho:

“Sourcing environmentally friendly materials and products for building maintenance, cleaning supplies, and office supplies to reduce the environmental impact of corporate operations.” (Participant from Company A)

“We ensure that materials, equipment, and services sourced... align with sustainability goals, such as energy-efficient technologies and eco-friendly materials.” (Participant from Company F)

“We are currently phasing out traditional electric water heaters at our commercial properties effectively terminating hot water supply completely in ablutions and installing small (10L) under sink heaters in kitchenettes. We are also replacing fluorescent light fittings with LED fittings and in some instances converting existing fluorescent fittings to LED-compatible ones.” (Participant from Company H)

“... project assessment on environmental, social and stakeholder impacts and creation of strategies to mitigate impacts. ... practices such as water and waste management, inventory management, energy-efficient lighting, backup power in the form of a generator.” (Participant from Company J)

“We do regular inspections to ensure environmental, financial and social sustainability. The systems that we have in place are access control, water tanks, generators, UPS and solar energy for sustainability and business continuity.” (Participant from Company B)

The above excerpts were the most representative of the research participants from 12 different companies. However, only one of the research participants made a divergent remark on the current SCREM measures implemented in the real estate sector in Lesotho:

“Property has been one of our main businesses but has not been taken care of well. Even our corporate space has not been managed properly. This is mainly because our property has been used primarily as a cash cow not an asset, which is why it’s been managed within the finance department for a long time. We don’t have any environmental or social sustainability aspects in place, but we do try to maintain some form of financial sustainability.” (Participant from Company E)

Table 4.3 summarises the research participants’ view about the implementation of SCREM in Lesotho.

Table 4.3: SCREM implemented

SCREM implemented	Examples of how SCREM is implemented	Participants’ view	Divergent views
1) Promotion and use of environmentally friendly materials and products	UPS and solar energy Water tanks Boreholes	Almost all the research participants from Companies A to L talked about promotion, use of environmentally sustainable materials and practices, and also regular maintenance of equipment.	Even though the research participant from Company E mentioned that their company has no environmental or social sustainability aspects in place, it was mentioned that some form of financial sustainability is maintained at Company E.
2) Promotion and use of energy-saving measures	UPS and solar energy Access control Generators		
3) Promotion and practice of proper waste management	Health and safety consciousness		
4) Regular inspection and maintenance of equipment to ensure financial and social sustainability	Regular inspections		

As shown in Table 4.3, examples of promotion and use of environmentally friendly materials and products include the use of Uninterruptible Power Supply (UPS) and solar energy, water tanks, and boreholes. In addition, examples of promotion and use

of energy-saving measures include the use of UPS and solar energy, access control, and generators.

The current SCREM measures implemented in Lesotho are the promotion and use of environmentally friendly materials and products, the promotion and use of energy-saving measures, the promotion and practice of proper waste management, and regular inspection and maintenance of equipment.

4.4.1.2 Awareness of SCREM principles

Awareness of SCREM principles in the real estate sector in Lesotho was discussed by the research participants. The research participants from 12 different companies mentioned the following about the awareness of SCREM principles in the real estate sector in Lesotho:

- Senior management and leadership express commitment to SCREM principles
- Organisational commitment to SCREM principles
- Moderate awareness of SCREM principles

Statements on awareness of SCREM principles were coded under the subtheme known as Awareness of SCREM principles, which is shown in Figure 4.1 and Table 4.2. The following excerpts from the research participants are used to support this finding on awareness of SCREM principles in the real estate sector in Lesotho:

“The organisation is fully aware of such principles, and they are discussed in every staff meeting. We try to only use such principles. Adoption of these principles have become a form of Modus Operandi where we base our work and work ethic around them.” (Participant from Company K)

“Our organisation’s growing awareness of SCREM principles has significantly shaped the adoption of sustainable practices.” (Participant from Company F)

“The organisation is very aware of the SCREM principles because our strategic goals align with those of the SCREM principles. The practices are included in our

vision, strategic goals/focus areas for the betterment of the organisation.”
(Participant from Company G)

“Very aware. The bank actually has principles and practices that we just have to follow.” (Participant from Company B)

“There is a moderate awareness of the importance of sustainable corporate real estate management principles.” (Participant from Company L)

The above excerpts were the most representative of the research participants from 12 different companies. Therefore, there is awareness of SCREM principles in the real estate sector in Lesotho, even if they are not being implemented as expressed by this research participant:

“We are aware of some of the principles, even though we do not actively employ them, as we manage most of our properties traditionally. However, given our experience in working with real estate over time, we are familiar with these principles. It’s just that within this organisation, sustainability in corporate real estate management has not been a priority. As I’ve already explained, we haven’t done much in implementing sustainable corporate real estate management practices or principles.” (Participant from Company D)

Table 4.4 summarises the research participants’ view on awareness of SCREM principles in Lesotho.

Table 4.4: Awareness of SCREM principles

Awareness of SCREM principles	Examples of expression of awareness	Participants' view	Divergent views
1) Senior management and leadership express commitment to SCREM principles	Open expression of commitment to staff. Alignment of strategic goals.	Almost all the research participants from Companies A to L talked about senior management awareness of SCREM principles, organisational commitment to SCREM principles, and moderate awareness of SCREM principles by staff.	Although the research participants from Companies D and E mentioned that there is no implementation of sustainability in their companies, it was mentioned that there is some awareness of SCREM principles.
2) Organisational commitment to SCREM principles	Principles and practices are in place at banks and other companies. Alignment of strategic goals.		
3) Moderate awareness of SCREM principles	Traditional management of properties but with some awareness of SCREM principles. Waste recycling.		

As presented in Table 4.4, examples of senior management and leadership expression of commitment to SCREM principles comprise open expression of commitment to staff and alignment of company strategic goals with SCREM principles. Moreover, examples of organisational commitment to SCREM principles include having SCREM-related principles and practices in place at banks and other companies, as well as the alignment of company strategic goals with SCREM principles. Further, examples of moderate awareness of SCREM principles include traditional management of properties but with some awareness of SCREM principles and waste recycling.

There is therefore awareness of SCREM principles in the real estate sector in Lesotho, even if they are not being implemented as expressed by this research participant.

4.4.1.3 Adoption of SCREM principles

Adoption of SCREM principles in the real estate sector in Lesotho was discussed by the research participants. The research participants from 12 different companies mentioned the following about the adoption of SCREM principles in the real estate sector in Lesotho:

- Some organisations have adopted SCREM principles
- Other organisations are lagging in the adoption of SCREM principles

Statements on the adoption of SCREM principles were coded under the subtheme “adoption of SCREM principles”, which is shown in Figure 4.1 and Table 4.2. The following excerpts from the research participants are used to support this finding on the adoption of SCREM principles in the real estate sector in Lesotho:

“Overall, awareness of sustainable principles influences our organisation to adopt sustainable practices in corporate real estate management by aligning with strategic objectives, prioritising investments, mitigating risks, realising cost savings, enhancing reputation, ensuring regulatory compliance, and meeting stakeholder expectations.” (Participant from Company A)

“We also have assigned personnel to regularly check that all systems, including taps and lights, are functioning properly. Additionally, security personnel perform rounds before the last person leaves to ensure that no taps are left running or any other issues that could lead to electricity or water wastage.” (Participant from Company B)

“This knowledge has influenced us to work towards sustainability, and there are clear aspirations and efforts to improve sustainability in our properties. It is just a matter of time.” (Participant from Company C)

“However, in terms of owner-occupied spaces, we have not actively done anything to be sustainable, except for some efforts here and there, like making sure people

share offices and no one person occupies too much space.” (Participant from Company D)

“Energy conservation at government offices is questionable, lights are often kept on around the clock and reported cases of heaters and air conditioning units being left on overnight are common.” (Participant from Company H)

The above excerpts were the most representative of the research participants from 12 different companies.

Table 4.5 summarises the research participants’ view on the adoption of SCREM principles in Lesotho.

Table 4.5: Adoption of SCREM principles

Adoption of SCREM principles	Examples of adoption methods	Participants' view	Divergent views
<p>1) Some organisations have adopted SCREM principles</p>	<p>Awareness of SCREM has led to adoption.</p> <p>Aligning with strategic objectives, prioritising investments, mitigating risks, realising cost savings, enhancing reputation, ensuring regulatory compliance, and meeting stakeholder expectations.</p> <p>ATMs are equipped with solar backup.</p> <p>Space optimisation by promoting togetherness and interactions through open-space office designs.</p> <p>Clean, conducive work environment that is centrally located.</p> <p>Proper functioning of toilet flushes and taps in bathrooms and kitchens to prevent water wastage.</p> <p>Installed motion sensors that automatically turn off lights within two minutes when no one is present.</p> <p>Use of air conditioners instead of heaters to minimise energy use.</p> <p>The last person to leave the office is responsible for closing the door, which triggers alarms to prevent lights or equipment from being left on overnight, avoiding unnecessary electricity waste.</p> <p>Assigned personnel to regularly check that all systems, including taps and lights, are functioning properly.</p> <p>Security personnel perform rounds before the last person leaves to ensure that no taps are left running or any other issues that could lead to electricity or water wastage.</p> <p>Regular maintenance of the systems.</p> <p>Working from home to reduce energy bills.</p> <p>Encourage communication to raise concerns.</p>	<p>Almost all the research participants from Company A to L confirmed their company's adoption of SCREM principles.</p>	<p>Though the research participant from Company D mentioned that their company has not actively done anything to be sustainable, it was mentioned that they ensure that people share offices and no one person occupies too much space. Also, the research participant from Company C mentioned that the implementation of sustainability measures is only a matter of time, following their company's awareness of such measures.</p>
<p>2) Other organisations are lagging in the adoption of SCREM principles</p>	<p>At government offices, lights are often kept on around the clock and reported cases of heaters and air conditioning units being left on overnight are common.</p>		

As presented in Table 4.5, examples of adoption of SCREM principles methods include adoption of SCREM principles because of awareness, alignment of SCREM principles with strategic objectives, prioritising investments, mitigating risks, realising cost savings, enhancing reputation, ensuring regulatory compliance, and meeting stakeholder expectations. In addition, ATMs are equipped with solar backup space optimised by promoting togetherness and interactions through open-space office designs. Further, there is the provision of a clean, conducive work environment that is centrally located, and proper functioning of toilet flushes, taps in bathrooms, and kitchens to prevent water wastage. Installation of motion sensors that automatically turn off lights within two minutes when no one is present and the use of air conditioners instead of heaters to minimise energy use. Also, the last person to leave the office is responsible for closing the door, which triggers alarms to prevent lights or equipment from being left on overnight, avoiding unnecessary electricity waste. Further, there is the assignment of personnel to regularly check that all systems, including taps and lights, and there are security personnel to perform rounds before the last person leaves to ensure that no taps are left running or any other issues that could lead to electricity or water wastage. There is also regular maintenance of the systems, and they encourage working from home to reduce energy bills. They also encourage communication to raise any concerns.

Examples that show that other organisations are lagging behind in the adoption of SCREM principles include lights being kept on around the clock and reported cases of heaters and air conditioning units being left on overnight at government offices. Therefore, some organisations in Lesotho have adopted SCREM principles, while others are lagging behind with regard to the adoption of SCREM principles.

4.4.1.4 Contribution to load shedding avoidance

Contribution of SCREM practices to load shedding avoidance in the real estate sector in Lesotho was discussed by the research participants. The research participants from 12 different companies mentioned the following about the contribution of SCREM practices to load shedding avoidance:

- Sustainable practices in place are not sufficient to avoid load shedding
- SCREM practices can significantly help if properly implemented

Statements about the contribution of SCREM practices to load shedding avoidance were coded under the subtheme “contribution to load shedding avoidance”, which is shown in Figure 4.1 and Table 4.2. The following excerpts from the research participants are used to support the contribution of SCREM practices to load shedding avoidance in the real estate sector in Lesotho:

“None of the sustainable practices we have in place so far target load shedding and improve energy resilience. By prioritising energy efficiency, integrating renewable energy sources, deploying energy storage solutions, and adopting advanced technologies, organisations can contribute to a more resilient and sustainable energy future while minimising disruptions to their operations during energy challenges.” (Participant from Company A)

“In response to the challenges posed by uncertain power supply in Lesotho, our organisation has implemented several SCREM practices aimed at ensuring operational continuity and energy efficiency.” (Participant from Company F)

“Sustainable corporate real estate management can significantly help in reducing this reliance if properly implemented.” (Participant from Company D)

“What organisations can attempt to do is avoid or rather reduce the impact of load shedding and increase their energy resilience through sustainable practices.” (Participant from Company J)

The above excerpts were the most representative of the research participants from 12 different companies. Table 4.6 summarises the research participants’ view on the contribution of SCREM practices to load shedding avoidance in Lesotho.

Table 4.6: Contribution of SCREM practices to load shedding avoidance

Contribution of SCREM practices	Examples of contribution of SCREM practices to load shedding avoidance	Participants' view	Divergent views
1) Sustainable practices in place are not sufficient to avoid load shedding	Plans to adopt advanced technologies and integrate renewable energy sources. Working from home is not a common practice. Inefficient heating equipment is still in use.	Almost all the research participants from Company A to L talked about contribution of SCREM practices to load shedding avoidance. They mostly said that SCREM practices can significantly help if properly implemented.	Even though the research participant from Company A mentioned that there are no measures in place that actually target load shedding, it was mentioned that SCREM practices can significantly help if properly implemented.
2) SCREM practices can significantly help if properly implemented	Hybrid work can help reduce energy bills. Use of UPS units and generators. Use of energy-efficient air conditioners. Use of smart meters. Use of natural lighting. Use of equipment only when necessary. Promotion of sustainability research. Education of businesses and the public.		

As presented in Table 4.6, examples that show insufficient sustainable practices in place to avoid load shedding include plans to adopt advanced technologies and integrate renewable energy sources. Also, working from home is not a common practice in Lesotho. In addition, inefficient heating equipment is still in use. Examples that show that SCREM practices can significantly help if properly implemented include the promotion of hybrid work to reduce energy bills, the use of UPS units and generators, the use of energy-efficient air conditioners, the use of smart meters, the use of natural lighting, the use of equipment only when necessary, the promotion of sustainability research, and education of businesses and the public.

The sustainable practices in place are therefore not sufficient to avoid load shedding in the real estate sector in Lesotho. However, SCREM practices can significantly help in avoiding load shedding if properly implemented.

4.4.1.5 Policy interventions

Policy interventions to support organisations in Lesotho to adopt SCREM practices were discussed by the research participants. The research participants from 12 different companies mentioned the following about policy interventions to support organisations in Lesotho to adopt SCREM practices:

- Promote awareness of SCREM practices in the country
- Introduce legislation on SCREM practices in the country

Statements about these proposed policy interventions were coded under the subtheme “policy interventions”, which is shown in Figure 4.1 and Table 4.2. The following excerpts from the research participants are used to support these proposed policy interventions to support organisations in Lesotho to adopt SCREM practices:

“Launch public awareness campaigns to raise awareness about the importance of energy efficiency, renewable energy adoption, and resilience planning in corporate real estate management. Provide educational materials, case studies, and success stories to inspire action and behaviour change.” (Participant from Company A)

“I would not say that this level of understanding or awareness has significantly influenced our adoption of sustainable corporate real estate management practices because, while we do consider them, our main focus has been, and continues to be, on financial survival.” (Participant from Company E)

“Documentation of practices, guidelines, policies, and policy frameworks within organisations is important. These documents must align with business operations to ensure that the implementation of sustainable practices supports rather than disrupts business activities. At a national level, there should be legislation that all corporations must adhere to, ensuring standardised requirements for sustainable measures within real estate.” (Participant from Company B)

“What we’re not doing properly as a city is that we are granting permits too easily. It should be mandatory for corporate buildings to have off-grid energy, specifically

green energy, and some level of water recycling. For instance, the government could require regulatory bodies to ensure that before permits are granted, at least 30% of the energy used is green, like solar energy, and 30% of the water is recycled. This would help ensure energy resilience.” (Participant from Company C)

The above excerpts were the most representative of the research participants from 12 different companies. Table 4.7 summarises the research participants’ view about policy interventions to support organisations in Lesotho to adopt SCREM practices in Lesotho.

Table 4.7: Policy interventions to support organisations in Lesotho to adopt SCREM practices

Policy interventions	Examples to illustrate policy interventions	Participants’ view	Divergent views
1) Promote awareness of SCREM practices in the country	Public awareness campaigns. Policy frameworks within organisations.	Almost all the research participants from Company A to L talked about promoting awareness of SCREM practices in the country and introducing legislation on SCREM practices.	There were no divergent views on policy interventions.
2) Introduce legislation on SCREM practices in the country	Legislation at the national level. Regulation on office lighting to allow for enough natural lighting before the approval of building permits. Inspection of corporate real estate to ensure compliance with set sustainability standards.		

As presented in Table 4.7, examples of promoting SCREM practices in the country include public awareness campaigns and policy frameworks within organisations. In addition, examples of introducing legislation on SCREM practices in the country include legislation at the national level and regulation on office lighting to allow for enough natural lighting before the approval of building permits. Also, there should be an inspection of corporate real estate to ensure compliance with set sustainability standards.

Policy interventions should therefore include promoting awareness of SCREM practices in the country and introducing legislation on SCREM practices.

4.4.2 Factors influencing decision-making

The research participants also talked about factors influencing decision-making when considering investments in SCREM practices in Lesotho. The factors influencing decision-making when considering investments in SCREM practices in Lesotho contain the six subthemes, which include Environmental and Social Impact, Financial Viability, Location of Properties, Minimising Utility Waste, Property Market Trends, and Sustainable Investments. The following subsections present the subthemes of factors influencing decision-making when considering investments in SCREM practices in Lesotho and the research participants' statements about these subthemes.

4.4.2.1 Environmental and social impact

The environmental and social impact was discussed by the research participants as a factor influencing decisions when considering investments in SCREM practices in Lesotho. Statements about this factor were coded under the subtheme "environmental and social impact", which is shown in Figure 4.1 and Table 4.2. The following excerpts from the research participants are used to support this factor:

"We have an ESG framework, which stands for Environmental, Social, and Governance, that essentially guides our decision-making when it comes to sustainability." (Participant from Company C)

"Project level... project assessment on environmental, social and stakeholder impacts and creation of strategies to mitigate impacts." (Participant from Company J)

The above excerpts were the most representative of the research participants from 12 different companies. Table 4.8 summarises the research participants' view on environmental and social impact when considering investment in SCREM practices in Lesotho.

Table 4.8: Environmental and social impact when considering investment in SCREM practices

Factor to consider before investing in SCREM practices	Examples of practices to consider before investing	Participants' view	Divergent views
Environmental and social impact	Use of framework to guide decision-making. Use of sustainability plan to guide decision-making. Project assessment on environmental impact. Creation of strategies to mitigate impacts. Stakeholder engagement.	Almost all the research participants from Company A to L talked about considering environmental and social impact before investing in SCREM practices.	However, the research participants from Company E mentioned that their company has no environmental or social sustainability aspects in place, even though it was mentioned that some form of financial sustainability is maintained at Company E.

As shown in Table 4.8, examples of considering environmental and social impact before investing in SCREM practices include the use of a framework and sustainability plan to guide decision-making. In addition, project assessment on environmental impact, the creation of strategies to mitigate impacts, and stakeholder engagement are also examples.

Environmental and social impact is therefore a factor influencing the decision to invest in SCREM practices in Lesotho.

4.4.2.3 Financial viability

Financial viability was discussed by the research participants as a factor influencing decision-making when considering investments in SCREM practices in Lesotho. Statements about this factor were coded under the subtheme “financial viability”, which is shown in Figure 4.1 and Table 4.2. The following excerpts from the research participants are used to support this factor:

“Right now, the focus is always just on the financial aspect of it. We neglect other aspects of sustainability and are always just looking at financial sustainability.”

(Participant from Company E)

“We assess the financial implications of sustainable investments, weighing upfront costs against long-term savings.” (Participant from Company F)

The above excerpts were the most representative of the research participants from 12 different companies. Table 4.9 summarises the research participants’ view on financial viability when considering investment in SCREM practices in Lesotho.

Table 4.9: Financial viability when considering investment in SCREM practices in Lesotho

Factor to consider before investing in SCREM practices	Examples of practices to consider before investing	Participants’ view	Divergent views
Financial viability	Energy savings and business continuity. Shared spaces to save on rent. Collaborate with local stakeholders. Assessment of the financial implications. Long-term return on investment. Long-term savings.	Almost all the research participants from Company A to L talked about considering financial viability before investing in SCREM practices.	There were no divergent views on financial viability.

As highlighted in Table 4.9, examples of considering financial viability before investing in SCREM practices include assessing energy savings and business continuity, and shared spaces to save on rent. Also, collaborating with local stakeholders and assessing the financial implications are examples of considering financial viability before investing in SCREM practices. In addition, assessing the long-term return on investment and savings are also examples.

Financial viability is therefore a factor influencing the decision when considering investments in SCREM practices in Lesotho.

4.4.2.3 Location of properties

The location of properties was discussed by the research participants as a factor influencing decision-making when considering investments in SCREM practices in Lesotho. Statements about this factor were coded under the subtheme “location of properties”, which is shown in Figure 4.1 and Table 4.2. The following excerpts from the research participants are used to support this factor:

“We have a strategy that plays a crucial role in the decisions we make regarding investment in sustainable corporate real estate management. For instance, this strategy dictates the location of our properties, emphasising that they should be centrally located for easy access by all staff, including those without cars.”
(Participant from Company B)

“We also focus on shared spaces to save on rent. Additionally, as we primarily care for the health of Basotho, we aim to locate our properties close to them, which can be seen as a social aspect of sustainability.” (Participant from Company D)

The above excerpts were the most evocative of the research participants from 12 different companies. Table 4.10 summarises the research participants’ view on location of properties when considering investment in SCREM practices in Lesotho.

Table 4.10: Location of properties when considering investment in SCREM practices in Lesotho

Factor to consider before investing in SCREM practices	Examples of practices to consider before investing	Participants' view	Divergent views
Location of properties	Strategy dictates the location of properties. Central location.	Almost all the research participants from Company A to L talked about considering the location of properties before investing in SCREM practices.	There were no divergent views on the location of properties.

As indicated in Table 4.10, examples of considering the location of properties before investing in SCREM practices include the use of strategies that dictate the location of properties and the idea that properties should be centrally located.

The location of properties is therefore an important factor when considering investments in SCREM practices in Lesotho.

4.4.2.4 Minimising utility waste

Minimising utility waste was discussed by the research participants as a factor influencing decision-making when considering investments in SCREM practices in Lesotho. Statements about this factor were coded under the subtheme “minimising utility waste”, which is shown in Figure 4.1 and Table 4.2. The following excerpts from the research participants are used to support this factor:

“Additionally, our policies on minimising water and electricity wastage are integral to this strategy. Business continuity measures, such as the use of solar energy, generators, and UPS systems, are also part of the strategy. Overall, it is this strategy that guides our decision-making and shapes our sustainable corporate real estate management practices.” (Participant from Company B)

“Our organisation’s growing awareness of SCREM principles has significantly shaped the adoption of sustainable practices. Overall, these understanding drives

informed decision-making, ensuring sustainability is embedded in our operations.”

(Participant from Company F)

The above excerpts were the most descriptive of the research participants from 12 different companies. Table 4.11 summarises the research participants’ view on minimising utility waste when considering investment in SCREM practices in Lesotho.

Table 4.11: Minimising utility waste when considering investment in SCREM practices in Lesotho

Factor to consider before investing in SCREM practices	Examples of practices to consider before investing	Participants’ view	Divergent views
Minimising utility waste	Implementing policies on minimising water and electricity wastage that are integral to strategy. Use of solar energy, generators, and UPS systems are also part of the strategy.	Almost all the research participants from Company A to L talked about considering minimising utility waste before investing in SCREM practices.	There were no divergent views on minimising utility waste.

As revealed in Table 4.11, examples of considering minimising utility waste before investing in SCREM practices include implementing policies on minimising water and electricity wastage that are integral to the strategy. In addition, the use of solar energy, generators, and UPS systems that are also part of the strategy is also an example.

Minimising utility waste is therefore an important factor influencing the decision to consider investments in SCREM practices in Lesotho.

4.4.2.5 Property market trends

Property market trends were discussed by the research participants as a factor influencing decision-making when considering investments in SCREM practices in Lesotho. Statements about this factor were coded under the subtheme “property market trends”, which is shown in Figure 4.1 and Table 4.2. The following excerpts from the research participants are used to support this factor:

“Third is analysing property market trends, which can provide insight into what property tenants seek in a building (e.g. green rated building).” (Participant from Company L)

“We look at the financial implications, energy efficiency and environmental implications of the investment.” (Participant from Company G)

The above excerpts were the most typical of the research participants from 12 different companies. Table 4.12 summarises the research participants’ view on property market trends when considering investment in SCREM practices in Lesotho.

Table 4.12: Property market trends when considering investment in SCREM practices in Lesotho

Factor to consider before investing in SCREM practices	Example of practices to consider before investing	Participants’ view	Divergent views
Property market trends	Analysing property market trends and understanding the property market.	Almost all the research participants from Company A to L talked about considering property market trends before investing in SCREM practices.	There were no divergent views on property market trends.

As shown in Table 4.12, examples of considering property market trends before investing in SCREM practices include analysing property market trends and understanding the property market.

Property market trends are therefore an important factor influencing the decision to consider investments in SCREM practices in Lesotho.

4.4.2.6 Sustainable investments

Sustainable investments were discussed by the research participants as a factor influencing decision-making when considering investments in SCREM practices in Lesotho. Statements about this factor were coded under the subtheme “sustainable

investments”, which is shown in Figure 4.1 and Table 4.2. The following excerpts from the research participants are used to support this factor:

“As the building had just recently completed construction the decision to use the most energy-efficient lighting available to us locally was taken with future plans of motion sensors to ensure the reduction waste when offices are unoccupied.”
(Participant from Company I)

“Affordability, sustainability, durability.” (Participant from Company K)

The above excerpts were the most expressive of the research participants from 12 different companies. Table 4.13 summarises the research participants’ view on sustainable investments when considering investment in SCREM practices in Lesotho.

Table 4.13: Sustainable investments when considering investment in SCREM practices in Lesotho

Factor to consider before investing in SCREM practices	Examples of practices to consider before investing	Participants’ view	Divergent views
Sustainable investments	Use of alternative energy initiatives. Ensure that materials, equipment, and services sourced align with sustainability goals. Regular maintenance to minimise energy consumption while maintaining optimal performance. Use of systems that reduce overall energy consumption.	Almost all the research participants from Company A to L talked about considering sustainable investments before investing in SCREM practices.	There were no divergent views on sustainable investments.

As indicated in Table 4.13, examples of considering sustainable investments before investing in SCREM practices include the use of alternative energy initiatives. They also include ensuring that materials, equipment, and services sourced align with sustainability goals. Regular maintenance to minimise energy consumption while maintaining optimal performance are also examples. Further, the use of systems that

reduce overall energy consumption is also considered before investment in SCREM practices.

Consequently, sustainable investments are a factor influencing one's decision when considering investments in SCREM practices in Lesotho.

4.5 Research Question 2: What are the implications of load shedding in Lesotho?

In addition, the data analysis resulted in one theme that addressed the second research question on the implications of load shedding in Lesotho. The theme Implications of Load Shedding contains the research participants' opinions on the implications of load shedding, which include the following:

- Disruption of commercial activities has a negative impact on the economy.
- Disruption of household activities has a negative impact on the economy.
- Disruption of other activities also results in a negative impact on the economy.

Statements about these implications of load shedding were coded under the theme "implications of load shedding", which is shown in Figure 4.1 and Table 4.2. The following subsections present the implications of load shedding in Lesotho and the research participants' statements about these implications.

4.5.1 Disruption of commercial activities that has a negative impact on the economy

According to the research participants, disruption of commercial activities with a negative impact on the economy is an implication of load shedding in Lesotho. Statements about this implication were coded under the theme known "implications of load shedding", which is shown in Figure 4.1 and Table 4.2. The following quotes from the research participants are used to support this implication:

"Load shedding can disrupt commercial activities, manufacturing processes, and business operations, leading to productivity losses and revenue reduction.

Industries reliant on consistent power supply, such as mining, agriculture, and tourism, may experience significant setbacks, hindering economic growth and employment opportunities.” (Participant from Company A)

“The implications would be disastrous: the quality of services would be compromised, and the reputations of the country, businesses, stakeholders, and the government would all suffer. This would make people less willing to do business with us, especially for a developing country like Lesotho...” (Participant from Company B)

The above quotes were the most representative of the research participants from 12 different companies. Table 4.14 summarises the research participants’ view on disruption of commercial activities that has a negative impact on the economy.

Table 4.14: Disruption of commercial activities

Implication of load shedding	Examples	Participants’ view	Divergent views
Disruption of commercial activities that has a negative impact on the economy	Disrupt commercial activities and manufacturing processes. Poor-quality services. Increased darkness can increase crime rates. More accidents because of no traffic lights.	Almost all the research participants from Company A to L talked about the disruption of commercial activities that has a negative impact on the economy.	There were no divergent views on the disruption of commercial activities that have a negative impact on the economy.

Table 4.14 highlights examples of load shedding-related disruption of commercial activities that have a negative impact on the economy, which include disruption of business activities and manufacturing processes, and poor-quality services. Also, increased darkness can increase crime rates and accidents.

Disruption of commercial activities that has a negative impact on the economy is therefore an implication of load shedding in Lesotho.

4.5.2 Disruption of household activities with a negative impact on the economy

As explained by the research participants, disruption of domestic activities with a negative impact on the economy is an implication of load shedding in Lesotho. Statements about this implication were coded under the theme “implications of load shedding”, which is shown in Figure 4.1 and Table 4.2. The following quotes from the research participants are used to support this implication:

“It even affects people’s finances because some may not be able to cook and have to buy food, which, in this economy, can really affect people’s livelihoods.”
(Participant from Company D)

“Load shedding can have an impact on the economy because frequent power outages can disrupt business operations, leading to reduced productivity and financial losses. Households may have to invest in backup power which is a cost and can affect daily life activities such as cooking and daily chores.” (Participant from Company F)

The above quotes were the most representative of the research participants from 12 different companies. Table 4.15 summarises the research participants’ views on the disruption of household activities with a negative impact on the economy.

Table 4.15: Disruption of household activities

Implication of load shedding	Examples	Participants’ view	Divergent views
Disruption of household activities with a negative impact on the economy	Job losses result in increased unemployment. Poor quality of services. Increased darkness can increase crime rates. More accidents because of no traffic lights.	Almost all the research participants from Company A to L talked about the disruption of household activities that has a negative impact on the economy.	There were no divergent views on the disruption of household activities that has a negative impact on the economy.

As shown in Table 4.15, examples of load shedding-related disruption of household activities that have a negative impact on the economy include job losses that result in

increased unemployment and poor-quality services. Also, increased darkness can increase crime rates and accidents.

Disruption of household activities with a negative impact on the economy is therefore an implication of load shedding in Lesotho.

4.5.3 Disruption of other activities also resulting in a negative impact on the economy

As clarified by the research participants, disruption of other activities with a negative impact on the economy is an implication of load shedding in Lesotho. Other activities mentioned by the research participants include the reputation of the country, and confidence in the business environment and other stakeholders. Statements about this implication were coded under the theme “implications of load shedding”, which is shown in Figure 4.1 and Table 4.2. The following quotes from the research participants are used to support this implication:

“The implications would be disastrous: the quality of services would be compromised, and the reputations of the country, businesses, stakeholders, and the government would all suffer. This would make people less willing to do business with us, especially for a developing country like Lesotho, which has a small economy and already struggles to attract investors.” (Participant from Company B)

“Consistent power interruptions can erode confidence in the business environment, potentially deterring investment and hindering economic growth.” (Participant from Company F)

The above quotes were the most representative of the research participants from 12 different companies. Table 4.16 summarises the research participants’ view about disruption of other activities also resulting in a negative impact on the economy.

Table 4.16: Disruption of other activities also resulting in a negative impact on the economy

Implication of load shedding	Examples	Participants' view	Divergent views
Disruption of other activities also resulting in a negative impact on the economy	Reputational damage resulting from the disruption of commercial activities and manufacturing processes. Reputational damage resulting from poor quality of services. Reputational damage resulting from increased crime rates. Reputational damage resulting from increased accidents.	Almost all the research participants from Company A to L talked about disruption of other activities that has a negative impact on the economy.	There were no divergent views on disruption of other activities that has a negative impact on the economy.

As revealed in Table 4.16, examples of load shedding-related disruption of other activities include reputational damage resulting from the disruption of commercial activities and manufacturing processes. Also, there is reputational damage resulting from poor quality of services, reputational damage resulting from increased crime rates, and reputational damage resulting from increased accidents.

Consequently, an implication of load shedding in Lesotho include disruption of other activities such as reputation of the country, and confidence in business environment and other stakeholders that have a negative impact on the economy.

4.6 Research Question 3: What are the current measures against load shedding in Lesotho?

The data analysis resulted in one theme that addressed the third research question on current measures against load shedding in Lesotho. The theme Current Measures on Load Shedding contains the research participants' opinions on the current measures against load shedding, which include the following:

- No sustainable measures at national level.
- Some sustainable practices are being implemented by companies.

Statements about these current measures against load shedding were coded under the theme “current measures on load shedding”, which is shown in Figure 4.1 and Table 4.2. The following subsections present the current measures against load shedding in Lesotho and the research participants’ statements about these current measures.

4.6.1 No sustainable measures at national level

Some of the research participants were not sure of any sustainable measures against load shedding at national level in Lesotho. Statements about this view of the research participants were coded under the theme known “current measures on load shedding”, which is shown in Figure 4.1 and Table 4.2. The following quotes from the research participants are used to support this view:

“There isn’t much evidence that the country is intentionally implementing sustainable measures to combat load shedding... Overall, I have not observed any significant efforts or measures being taken by the country to address load shedding.” (Participant from Company B)

“I am not aware of any comprehensive efforts... They do very little and to a large extent they act like the problem doesn’t even exist.” (Participant from Company C)

The above quotes were the most representative of the research participants from 12 different companies. Table 4.17 summarises the research participants’ view on no sustainable measures at national level in Lesotho.

Table 4.17: No sustainable measures at national level

Current measures	Example of practices	Participants’ view	Divergent views
No sustainable measures at national level in Lesotho	Not much evidence of sustainable measures. No general guiding principles or actions. Promotion of energy-saving measures by LEC is not effective.	Almost all the research participants from Company A to L talked about the absence of sustainable measures at national level in Lesotho.	There were no divergent views on the absence of sustainable measures at national level in Lesotho.

As highlighted in Table 4.17, examples of practices showing the absence of sustainable measures at national level in Lesotho include the lack of ample evidence of sustainable measures and no general guiding principles or actions. In addition, the ineffective promotion of energy-saving measures by LEC indicates that there are no sustainable measures at national level in Lesotho.

There are therefore no sustainable measures at national level against load shedding in Lesotho.

4.6.2 Some sustainable practices are being implemented by companies

Some of the research participants, however, explained that sustainable practices are being implemented by companies in Lesotho. Statements about this implication were coded under the theme “current measures on load shedding”, which is shown in Figure 4.1 and Table 4.2. The following quotes from the research participants are used to support these practices:

“Our sustainable practices significantly enhance energy resilience and help mitigate the effects of load shedding. Smart meters will provide detailed insights into consumption patterns, enabling us to make more informed decisions on energy management, reduce waste, and enhance our resilience to load shedding.”
(Participant from Company F)

“As the world is moving towards more environmentally conscious business practices, we believe that real estate shouldn’t be an exception.” (Participant from Company I)

The above quotes were the most representative of the research participants from 12 different companies. Table 4.18 summarises the research participants’ view on some sustainable practices by companies in Lesotho.

Table 4.18: Some sustainable practices by companies

Current measures	Examples of practices	Participants' view	Divergent views
Some sustainable practices by companies in Lesotho	Green building initiative. Use of smart meters. Use of solar power.	Almost all the research participants from Company A to L talked about the existence of some sustainable practices by companies in Lesotho.	There were no divergent views on the existence of some sustainable practices by companies in Lesotho.

As indicated in Table 4.18, examples of practices showing the existence of some sustainable practices by companies in Lesotho include the green building initiative, the use of smart meters, and the use of solar power.

Even though there is no comprehensive national effort, some sustainable practices are being implemented by companies. Some of these sustainable practices include smart meters, green building initiative, and solar power.

4.7 Research Question 4: What are the possible SCREM strategies against load shedding in Lesotho?

Lastly, the data analysis resulted in one theme that addressed the fourth research question on the possible SCREM strategies against load shedding in Lesotho. This theme contains eight subthemes that include Encourage Energy-Saving Behaviours, End the Monopoly of LEC, Expand Solar Energy Use, Increase Hydroelectricity Power, Increase Wind Power, Maintaining and Upgrading Plants, National Power Supply Strategy, and Promote Awareness of Sustainability Goals. The following quotes from the research participants are used to support these subthemes:

“I think some of the important things are switching off appliances, so reminders are necessary. Companies should face penalties if they fail to switch off equipment that doesn't need to be on.” (Participant from Company E)

“Ending the monopoly of the Lesotho Electricity Company (LEC), which is currently the only entity allowed to supply energy in the country, could also drive improvements.” (Participant from Company B)

“I would suggest the use of solar panels for lights in buildings.” (Participant from Company K)

“LHDA should increase the capacity of their hydroelectric power; there are four, going on five, dams in the country, and these are gigantic. There is no reason why there’s only one hydroelectric power station.” (Participant from Company D)

“...and due to our elevation and numerous mountains, we can harness wind power as well.” (Participant from Company C)

“Outdated or poorly maintained power plants may cause loadshedding, upgrading the power plant could be another measure used to manage loadshedding.” (Participant from Company F)

“We need to reflect on our national power supply strategy to map out the steps required to achieve our goal of energy independence.” (Participant from Company C)

“Prioritising the purchase of products and services that are environmentally friendly.” (Participant from Company I)

The above quotes were the most representative of the research participants from 12 different companies. Table 4.19 summarises the research participants’ view on the possible SCREM strategies against load shedding in Lesotho.

Table 4.19: Possible SCREM strategies against load shedding

Possible SCREM strategies	Examples of practices	Participants' view	Divergent views
1) Encouraging energy-saving behaviours	<p>Switching off appliances to save energy.</p> <p>Implement tax credits for energy consumption.</p> <p>Install daylight switches for security lighting and motion sensors for interior lighting.</p>	<p>Almost all the research participants from Company A to L talked about possible SCREM strategies against load shedding.</p>	<p>There were no divergent views on possible SCREM strategies against load shedding in Lesotho.</p>
2) Ending the monopoly of LEC	<p>Deregulate power generation and supply.</p> <p>Feed-in tariffs and purchase agreements.</p> <p>Policies that allow for companies that can produce excess energy generated by renewable energy sources and sell it back to LEC.</p>		
3) Expanding solar energy use	<p>Increase solar power by taking advantage of the country's high altitude.</p> <p>Enforce solar power use for government offices and parastatals.</p>		
4) Increasing hydroelectricity power	<p>Generate more hydroelectric power by harnessing the several large dams of the country.</p>		
5) Increasing wind power	<p>Harness wind power by taking advantage of the country's high altitude.</p>		
6) Maintaining and upgrading plants	<p>Continually maintain and upgrade power plants.</p>		
7) Having a national power supply strategy	<p>Reflecting on the national power supply strategy to map out the steps required to achieve the country's goal of energy independence.</p>		
8) Promoting awareness of sustainability goals	<p>More education on renewable energy.</p> <p>Implement national campaigns to raise awareness about energy conservation and the benefits of sustainable practices.</p> <p>Financial support for development and implementation of green technologies.</p>		

As shown in Table 4.19, examples of practices of possible SCREM strategies to encourage energy-saving behaviours include switching off appliances to save energy, implementing tax credits for energy consumption, and installing daylight switches for security lighting and motion sensors for interior lighting. Further, examples of practices that could be used to implement possible SCREM strategies to end the monopoly of LEC include deregulating power generation and supply.

In addition, SCREM strategies to expand solar energy use include increasing solar power by taking advantage of the country's high altitude and enforcing solar power use for government offices and parastatals. Also, SCREM strategies to increase hydroelectricity power include generating more hydroelectric power by harnessing the several large dams of the country. Next, SCREM strategies to increase wind power include harnessing wind power by taking advantage of the country's high altitude. Also, SCREM strategies to maintain and upgrade plants include continually maintaining and upgrading power plants.

SCREM strategies of having a national power supply strategy include reflecting on the national power supply strategy to map out the steps required to achieve the country's goal of energy independence. Lastly, SCREM strategies to promote awareness of sustainability goals include providing more education on renewable energy, implementing national campaigns to raise awareness about energy conservation and the benefits of sustainable practices, and providing financial support for the development and implementation of green technologies.

Encouraging energy-saving behaviours, ending the monopoly of LEC, expanding solar energy use, increasing hydroelectricity power, increasing wind power, maintaining and upgrading plants, having a national power supply strategy, and promoting awareness of sustainability goals are therefore the proposed SCREM strategies against load shedding in Lesotho.

4.8 Conclusion

This chapter presented and also interpreted the results of the data analysis. In the next chapter, the study conclusions and recommendations are presented with respect to the research objectives.

CHAPTER FIVE: CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The penultimate chapter reported the data analysis results and the interpretation of the results of this study. This final chapter will report the conclusions and recommendations of this research. This study was envisioned to explore comprehensive and sustainable measures to address the challenges of load shedding in Lesotho. The following were the research objectives:

- To explore SCREM in times of uncertainty in power supply in Lesotho.
- To explore the implications of load shedding in Lesotho.
- To explore the current measures against load shedding in Lesotho.
- To propose SCREM strategies against load shedding in Lesotho.

The parts that follow summarise the findings from the study, conclusions, and recommendations.

5.2 Results of the literature review

This section presents the results of the literature review on SCREM. The results of the literature review are presented with respect to the research objectives.

5.2.1 Research objective 1: To explore SCREM in times of uncertainty in power supply in Lesotho

According to the literature review results, SCREM signifies an all-inclusive method for the management of corporate real estate assets with a great emphasis on environmental, social, and economic sustainability principles (Fauzi et al., 2021, p. 988). Corporate environmental sustainability goals are closely interconnected with SCREM practices (Fauzi et al., 2021, p. 193; Zahid et al., 2016, p. 690).

Various studies have revealed a positive association between SCREM, particularly in terms of energy management, and the accomplishment of environmental sustainability targets (Vujanovic et al., 2021, p. 5). Therefore, SCREM signifies an all-inclusive and

combined approach to managing corporate real estate holdings with a great emphasis on sustainability values (Mustaffa & Abdul Kudus, 2022, p. 3). The positive association between SCREM and corporate environmental sustainability goals emphasises the potential of SCREM to contribute to wider sustainability targets (O'Dwyer & Unerman, 2020, p. 1121).

SCREM has a far wider significance that goes further than explaining the concept only in terms of green politics (Geiger et al., 2017, p. 75). SCREM signifies sustainable in relation to development, renewable in terms of resources, and lasting in terms of growth (Richter et al., 2021, p. 242; Ziemba et al., 2015, p. 89). SCREM is, therefore, construed as “flexible”, “lasting”, “continuous”, “sustentative”, “sustainable”, “self-sustainable”, and “harmonious” (Ding, 2004, p. 17; Ziemba et al., 2015, p. 89). To accomplish sustainability goals, SCREM embodies a number of key components, and six were recognised as the essential factors of green office management, namely, energy efficiency, water efficiency, indoor quality, sustainable site planning, management and innovation, and resources sustainability (Fauzi et al., 2021, p. 989).

SCREM encompasses several dimensions within the canopy of real estate management, and these dimensions include operational FM, REAM, and REPM (Fauzi et al., 2021, p. 989; Mansfield, 2009, p. 91). Further, an important dimension of SCREM relates to management by value (Fauzi et al., 2021, p. 989; Ziemba et al., 2015, p. 90). This comprises generating and preserving value through enhanced business process management to augment the productivity of corporate real estate (Fauzi et al., 2021, p. 208; Ziemba et al., 2015, pp. 86-90). This concept of value management is intricate and involves features such as functional quality in terms of technical quality (Richter et al., 2021, p. 243), economic performance, and environmental performance (Benn & Stoy, 2022, p. 9).

Consequently, the SCREM concept offers a complete framework for organisations to accomplish lasting sustainability, balance, and value creation in their property holdings (Amos & Boakye-Agyeman, 2022, p. 92; Mansfield, 2009, p. 91). As organisations progressively acknowledge the significance of sustainable practices and efficient resource management, SCREM offers a strategic method to meet these growing

demands in the corporate real estate setting (Fauzi et al., 2021, p. 921; Ziemba et al., 2015, p. 90).

5.2.2 Research objective 2: To explore the implications of load shedding in Lesotho

Based on the literature review results, load shedding occurs when there is an intentional reduction in power supply in order to avert a complete collapse of the national grid (Ateba et al., 2019, p. 1326). However, this measure often has a negative impact on industrial activities because reduced and unstable power supply impedes productivity (Ateba et al., 2019, p. 1326). In addition, the financial implications as a result of reduced and unstable power supply are very heavy for any economy (Nyanzu & Adarkwah, 2016, p. 17).

According to Nyanzu and Adarkwah (2016, p. 17), there are higher chances of generating lower revenue during periods with reduced and unstable power supply than during periods of full and stable power supply. This trend mostly distresses businesses that are heavily reliant on electricity and not having the financial means to switch to alternative energy sources (Nyanzu & Adarkwah, 2016, p. 17). Therefore, a crucial implication of load shedding is that an obvious strain on financial stability occurs, affecting investment capabilities and possibly pushing some businesses towards financial troubles.

The implications of load shedding also extend to the workforce, with possible effects on employment (Alkaldy et al., 2019, p. 150). The decline of the business cycle during load shedding can result in job losses and diminished income, thus affecting society at large (Alkaldy et al., 2019, p. 150). Alkaldy et al. (2019, p. 150) pointed out the relationship between a declining business cycle and the successive decrease in the income of employees. This result highlights the challenges faced by both business owners and workers during periods of reduced and unstable power supply that often creates a negative economic downturn.

From a wider point of view, the effects of load shedding also affect the relationship between businesses and customers (Baldie, 2021, p. 15). Reduced and unstable

power supply creates an unstable customer experience, reducing satisfaction and weakening market competitiveness (Baldie, 2021, p. 15). Baldie (2021, p. 15) underscores the harmful effects of reduced and unstable power supply on consumer satisfaction and market positioning, resulting in businesses being unable to meet customer demands and thus resulting in poor revenue outcomes.

5.2.3 Research objective 3: To explore the current measures against load shedding in Lesotho

According to the results of the literature review, the current demand for power in Lesotho has now exceeded the supply (Mpholo et al., 2012, p. 42). As explained by Lefela (2020, p. 50), Lesotho now relies on electricity imports, primarily through bilateral agreements with LHDA, Eskom, and EDM, after reaching a peak demand of 161MW, a figure far surpassing the current capacity of the Muela hydropower plant. However, this reliance on imports has proven to be costly, particularly during high-demand seasons when electricity imports from Eskom and EDM cost LEC significantly more (Lefela, 2020, p. 50).

Unfortunately, Lesotho's energy sector has not fully embraced the transition to renewable energy sources, and this has led to inadequate electricity supply and has raised concerns about potential load shedding (Mabeleme, 2022). Moreover, Lesotho lacks a comprehensive plan to harness indigenous resources for self-generation, thereby perpetuating its dependence on energy imports (Senatla et al., 2018, pp. 622-623). The after-effects of this situation are substantial, as it is projected that Lesotho's current imports and local electricity supply will be inadequate to meet demand from 2035 to 2043 (Kente, 2020, p. 44). The economic cost of this energy shortfall is estimated to be M354 million, which poses a significant limitation on the country's economy (Senatla et al., 2018, pp. 622-623). The absence of an effective policy for transformative energy sources, limited incentive strategies for adopting alternative green energy solutions, and the current supply shortage and increasing demand collectively hinder socio-economic growth (Sechoala et al., 2023, p. 339).

5.2.4 Research objective 4: To propose SCREM strategies against load shedding in Lesotho

According to the results of the literature review, SCREM strategies against load shedding may include integrating energy-efficient technologies and practices into business operations in order to decrease their reliance on the conventional power grid, thereby reducing both energy consumption and vulnerability to the disruptions caused by load shedding (Kazmi, 2019, p. 416).

By harnessing the potential of solar energy and also wind energy, businesses can establish a more consistent and sustainable energy supply, thus reducing their susceptibility to the reduced and unstable power supply associated with load shedding (Kazmi, 2019, p. 416). The country can promote the development and use of other alternative methods for electricity generation, such as biogas and heat energy derived from municipal solid waste using AD and INC (Sechoala et al., 2023, p. 339).

The integration of energy storage solutions, such as battery systems, also offers another avenue to enhance businesses' resilience against load shedding (Kazmi, 2019, p. 415). By adopting these systems, businesses can accumulate surplus energy during periods of uninterrupted supply. Subsequently, this stored energy can be judiciously utilised during power outages, thereby cushioning the operational impact of load shedding (Kazmi, 2019, p. 415).

Where load shedding is unavoidable, the implementation of helpful algorithms to better manage the load shedding will help mitigate the impact of the crises on the economy (Talaat et al., 2019, p. 14). Insightful analysis of load behaviour in both the presence and absence of load shedding will also help to mitigate the impact of the crises on the economy (Alkaldy et al., 2019, p. 163).

Governmental intervention plays a vital role in equipping businesses to weather the challenges posed by load shedding (Kazmi, 2019, p. 114). Effective policies, coupled with targeted financial incentives and well-structured support programmes, can collectively offer businesses the necessary tools to navigate load shedding challenges (Kazmi, 2019, p. 114). These governmental efforts facilitate access to essential

funding, critical resources, and technical expertise, empowering businesses to better manage the disruptions brought about by load shedding (Kazmi, 2019, p. 114).

The pursuit of sustainable industrial electricity supply will also ensure a comprehensive strategy, including the prioritisation of relevant mitigation measures and the establishment of robust governance frameworks (Kazmi, 2019, p. 114). By adopting such measures, businesses can bolster their adaptive capabilities, enhancing their ability to navigate the uncertainties brought about by load shedding events (Kazmi, 2019, p. 416).

5.3 Results of the data analysis

This section will discuss the results of the data analysis.

5.3.1 Research objective 1: To explore SCREM in times of uncertainty in power supply in Lesotho

According to the data analysis results, the current SCREM measures implemented in Lesotho are promotion and use of environmentally friendly materials and products, promotion and use of energy-saving measures, promotion and practice of proper waste management, and regular inspection and maintenance of equipment. In addition, there is awareness of SCREM principles in the real estate sector in Lesotho, even if they are not being implemented. Also, some organisations in Lesotho have adopted SCREM principles, while others are lagging in the adoption of SCREM principles. In addition, the sustainable practices in place are not sufficient to avoid load shedding in the real estate sector in Lesotho.

SCREM practices can, however, significantly help in avoiding load shedding if properly implemented. Also, policy interventions should include promoting awareness of SCREM practices in the country and introducing legislation on SCREM practices. Moreover, the factors influencing decision-making when considering investments in SCREM practices in Lesotho include environmental and social impact, financial viability, location of properties, minimising utility waste, property market trends, and sustainable investments.

5.3.2 Research objective 2: To explore the implications of load shedding in Lesotho

Based on the data analysis results, the implications of load shedding in Lesotho include the disruption of commercial activities, which has a negative impact on the economy. Also, disruption of household activities with a negative impact on the economy is an implication of load shedding in Lesotho. Another implication of load shedding in Lesotho includes the disruption of other activities, such as the reputation of the country, and confidence in business environment and other stakeholders, that have a negative impact on the economy.

5.3.3 Research objective 3: To explore the current measures against load shedding in Lesotho

According to the data analysis results, there are no sustainable measures at national level against load shedding in Lesotho. However, some sustainable practices are being implemented by companies even though there is no comprehensive national effort. Some of these sustainable practices include smart meters, green building initiative, and solar power.

5.3.4 Research objective 4: To propose SCREM strategies against load shedding in Lesotho

According to the results of the data analysis, proposed SCREM strategies against load shedding in Lesotho include encouraging energy-saving behaviours, ending the monopoly of LEC, expanding solar energy use, increasing hydroelectricity power, increasing wind power, maintaining and upgrading plants, implementing a national power supply strategy, and promoting awareness of sustainability goals.

5.4 Conclusions

This section will discuss the conclusions of the study.

5.4.1 Conclusion on literature review results

The SCREM concept provides a complete framework for organisations to accomplish lasting sustainability, balance, and value creation in their property holdings (Amos & Boakye-Agyeman, 2022, p. 92; Mansfield, 2009, p. 91). As organisations progressively acknowledge the significance of sustainable practices and efficient resource management, SCREM offers a strategic method to meet these growing demands in the corporate real estate setting (Fauzi et al., 2021, p. 921; Ziemba et al., 2015, p. 90).

Load shedding occurs when there is an intentional reduction in power supply in order to avert a complete collapse of the national grid (Ateba et al., 2019, p. 1326). However, this measure often has a negative impact on socio-economic activities because reduced and unstable power supply impedes productivity (Ateba et al., 2019, p. 1326; Nyanzu & Adarkwah, 2016, p. 17).

Lesotho's energy sector has not fully embraced the transition to renewable energy sources, and this has led to inadequate electricity supply and has raised concerns about potential load shedding (Mabeleme, 2022). Moreover, Lesotho lacks a comprehensive plan to harness indigenous resources for self-generation, thereby perpetuating its dependence on energy imports (Senatla et al., 2018, pp. 622-623). However, the country can promote the development and use of other alternative methods for electricity generation (Sechoala et al., 2023, p. 339).

Governmental intervention plays a prominent role in equipping businesses to weather the challenges posed by load shedding (Kazmi, 2019, p. 114). Effective policies, coupled with targeted financial incentives and well-structured support programmes, can collectively offer businesses the necessary tools to navigate load shedding challenges (Kazmi, 2019, p. 114). These governmental efforts facilitate access to essential funding, critical resources, and technical expertise, empowering businesses to better manage the disruptions brought about by load shedding (Kazmi, 2019, p. 114).

5.4.2 Conclusion on data analysis results

The current SCREM measures implemented in Lesotho are promotion and use of environmentally friendly materials and products, promotion and use of energy-saving measures, promotion and practice of proper waste management, and regular inspection and maintenance of equipment. However, the sustainable practices in place are not sufficient to avoid load shedding in the real estate sector in Lesotho.

The implications of load shedding in Lesotho include the disruption of commercial, household, and other activities; these activities have a negative impact on the economy. Also, there are no sustainable measures at national level against load shedding in Lesotho. However, some sustainable practices are being implemented by companies even though there is no comprehensive national effort. Some of these sustainable practices include smart meters, green building initiative, and solar power.

Lastly, proposed SCREM strategies against load shedding in Lesotho include encouraging energy-saving behaviours, ending the monopoly of LEC, expanding solar energy use, increasing hydroelectricity power, increasing wind power, maintaining and upgrading plants, implementing a national power supply strategy, and promoting awareness of sustainability goals.

5.5 Recommendations

Based on the study results, the following are proposed SCREM strategies against load shedding in Lesotho:

- End the monopoly of LEC
- Continually expand solar and other alternative energy use
- Increase hydroelectricity power
- Continually maintain and upgrade current plants and infrastructure
- Establish and implement a national power supply strategy
- Policy intervention at different levels to promote sustainability in building management
- Continually promote the awareness of sustainability goals

5.6 Limitations of the study

The study was envisioned to explore comprehensive and sustainable measures to address the challenges of load shedding in Lesotho, and the information was gathered within Lesotho. A drawback of the study is that the results may not be easily generalised to other countries because of socio-politico-economic differences.

5.7 Conclusion

This study has explored the comprehensive and sustainable measures to address the challenges of load shedding in Lesotho. However, the study can be expanded to cover other countries in Southern Africa. In addition, the study can be conceived to use the empirical research method, where an online instrument will be used to gather numeric data across different countries in Southern Africa. In addition, the study could employ the mixed research method using both interviews and surveys. Investigating the effectiveness of the SCREM strategies in reducing the amount of grid energy being used can also be conducted.

REFERENCES

- Abdar, M., Pourpanah, F., Hussain, S., Rezazadegan, D., Liu, L., Ghavamzadeh, M., Fieguth, P., Cao, X., Khosravi, A., Acharya, U. R., Makarenkov, V., & Nahavandi, S. (2021). A review of uncertainty quantification in deep learning: Techniques, applications, and challenges. *Information Fusion*, 76, 243–297. <https://doi.org/10.1016/j.inffus.2021.05.008>
- Adams, J., Khan, H. T., & Raeside, R. (2014). *Research methods for graduate business and social science students* (2nd ed.). Sage Publications.
- Adeoye-Olatunde, O. A., & Olenik, N. L. (2021). Research and scholarly methods: Semi-structured interviews. *JACCP: Journal of the American College of Clinical Pharmacy*, 4(10), 1358–1367. <https://doi.org/10.1002/jac5.1471>
- Ahlqvist, T., & Rhisiart, M. (2015). Emerging pathways for critical futures research: Changing contexts and impacts of social theory. *Futures*, 71, 91–104. <https://doi.org/10.1016/j.futures.2015.07.012>
- Alkaldy, E. A. H., Albaqir, M. A., & Hejazi, M. S. A. (2019). A new load forecasting model considering planned load-shedding effect. *International Journal of Energy*, 13(1), 149–165. <https://doi.org/10.1016/j.ijengy.2019.01.007>
- Ali, B. J., & Anwar, G. (2021). Porter's generic competitive strategies and its influence on the competitive advantage. *International Journal of Advanced Engineering, Management and Science*, 7(6), 42–51. <https://doi.org/10.22161/ijaems.76.6>
- Amos, D., & Boakye-Agyeman, N. A. (2022). Content validation of value-adding indicators for corporate real estate management: Insights from a developing country. *Journal of Corporate Real Estate*, 25(1), 77–97. <https://doi.org/10.1108/JCRE-09-2021-0038>
- Ateba, B. B., Prinsloo, J. J., & Gawlik, R. (2019). The significance of electricity supply sustainability to industrial growth in South Africa. *Energy Reports*, 5, 1324–1338. <https://doi.org/10.1016/j.egyr.2019.09.014>
- Azapagic, A. (2003). Systems approach to corporate sustainability: A general management framework. *Process Safety and Environmental Protection*, 81(5), 303–316. <https://doi.org/10.1205/095758203770224342>
- Baldie, C. (2021). The impact of load-shedding within the Nelson Mandela Bay restaurant industry [Unpublished doctoral dissertation]. Nelson Mandela University.
- Bazeley, P., & Richards, L. (2000). *The NVivo qualitative project book*. Sage

Publications.

- Benn, M., & Stoy, C. (2022). BIM for CREM: Exploring the benefit of building information modelling for facility management in corporate real estate management. *Buildings*, 12(4), Article 400. <https://doi.org/10.3390/buildings12040400>
- Bloom, N. (2014). Fluctuations in uncertainty. *Journal of Economic Perspectives*, 28(2), 153–176. <https://doi.org/10.1257/jep.28.2.153>
- Bon, R. (1994). Ten principles of corporate real estate management. *Facilities*, 12(5), 9–10. <https://doi.org/10.1108/02632779410057664>
- Botha, T. (2019). The impact of load-shedding within the Nelson Mandela Bay restaurant industry. *The IIE Institutional Repository*. <http://iiespace.iie.ac.za/handle/11622/323>
- Bothwell, M., & Zivanai, S. (2021). Perceived psycho-social effects of electricity load-shedding: Insight from Ward 1, Mucheke A, Masvingo. *Humanities Southern Africa*, 1(2), 131–140. <https://doi.org/10.1000/hsa2021.0131>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>
- Brillinger, A. S., Els, C., Schafer, B., & Bender, B. (2020). Business model risk and uncertainty factors: Toward building and maintaining profitable and sustainable business models. *Business Horizons*, 63(1), 121–130. <https://doi.org/10.1016/j.bushor.2019.09.010>
- Brink, H. (1993). Validity and reliability in qualitative research. *Curationis*, 16(2), 35–38. <https://doi.org/10.4102/curationis.v16i2.1390>
- Bryman, A. (2016). *Social research methods*. Oxford University Press.
- Bush, G., & Lopez Noria, G. (2021). Uncertainty and exchange rate volatility: Evidence from Mexico. *International Review of Economics & Finance*, 75, 704–722. <https://doi.org/10.1016/j.iref.2021.04.016>
- Cajias, M., Geiger, P., & Bienert, S. (2012). Green agenda and green performance: Empirical evidence for real estate companies. *Journal of European Real Estate Research*, 5(2), 135–155. <https://doi.org/10.1108/17539261211254115>
- Chang, Q., & Devine, A. (2019). Environmentally-certified space and retail revenues: A study of U.S. *Journal of Cleaner Production*, 211, 1586–1599. <https://doi.org/10.1016/j.jclepro.2018.11.275>

- Clinical & Translational Science Institute. (2015). Research ethics. <https://www.ctsi.ufl.edu/2015/03/>
- Corbin, J., & Strauss, A. (1990). Grounded theory research: Procedures, canons, and evaluative criteria. *Qualitative Sociology*, 13(1), 3–21. <https://doi.org/10.1007/BF00988593>
- Crawford, M. M., & Plant-O'Toole, E. (2023). A review of strategic planning for dynamic supply chains: Preparing for uncertainty using scenarios. *Futures & Foresight Science*, 5(3–4). <https://doi.org/10.1002/ffs.120>
- Creswell, J. W. (2014). *Research design: Quantitative, qualitative, and mixed methods approaches* (5th ed.). Sage Publications.
- Crossman, A. (2017). An overview of qualitative research methods. *ThoughtCo*. <https://www.thoughtco.com/qualitative-research-methods-3026555>
- Dickins, T. E., & Schalz, S. (2020). Food shopping under risk and uncertainty. *Learning and Motivation*, 72, Article 101681. <https://doi.org/10.1016/j.lmot.2020.101681>
- Ding, G. K. C. (2004). The development of a multi-criteria approach for the measurement of sustainable performance for built projects and facilities [Doctoral dissertation, University of Technology Sydney]. *UTS ePRESS*. <https://opus.lib.uts.edu.au/bitstream/10453/20191/7/02Whole.pdf>
- Dudovskiy, J. (2016). Theoretical sampling. *Research-Methodology*. <http://research-methodology.net/sampling-in-primary-data-collection/theoretical-sampling/>
- Easterby-Smith, M., Thorpe, R., & Jackson, P. R. (2012). *Management research* (4th ed.). Sage Publications.
- Fauzi, N. S., Zainuddin, A., Chuweni, N. N., & Johari, N. (2021). The bridge of corporate real estate sustainable management. *International Journal of Research in Business & Social Sciences*, 11(1), 986–993. <https://doi.org/10.20525/ijrbs.v11i1.1313>
- Fauzi, N. S., Ali, S. N. M., Arshad, H., & Fachrudin, K. A. (2023). Key elements of corporate real estate sustainable management for office buildings. *Environmental Behaviour Proceedings Journal*, 8(23), 251–260. <https://doi.org/10.21834/ebpj.v8i23.4510>
- Fereday, J., & Muir-Cochrane, E. (2006). Demonstrating rigor using thematic analysis: A hybrid approach of inductive and deductive coding and theme development. *International Journal of Qualitative Methods*, 5(1), 80–92. <https://doi.org/10.1177/160940690600500107>

- Ferguson, R., Wilkinson, W., & Hill, R. (2000). Electricity use and economic development. *Energy Policy*, 28(13), 923–934. [https://doi.org/10.1016/S0301-4215\(00\)00081-5](https://doi.org/10.1016/S0301-4215(00)00081-5)
- Geiger, P., Botha, T., & Bohm, S. (2017). The impact of corporate real estate strategies on real estate organizations. *Journal of Corporate Real Estate*, 19(3), 138–154. <https://doi.org/10.1108/JCRE-05-2016-0022>
- Glaser, B., & Strauss, A. (1967). *The discovery of grounded theory: Strategies for qualitative research*. Sociology Press.
- Golafshani, N. (2003). Understanding reliability and validity in qualitative research. *The Qualitative Report*, 8(4), 597–607. <https://doi.org/10.46743/2160-3715/2003.1870>
- Goldman, V., Dushkin, A., Wexler, D. J., Chang, Y., Porneala, B., Bissett, L., McCarthy, J., Rodriguez, A., Chase, B., LaRocca, R., & Wheeler, A. (2019). Effective recruitment for practice-based research: Lessons from the REAL HEALTH-diabetes study. *Contemporary Clinical Trials Communications*, 15, Article 100374. <https://doi.org/10.1016/j.conctc.2019.100374>
- Hancock, B., Ockleford, E., & Windridge, K. (2009). *An introduction to qualitative research*. NIHR Research Design Service Yorkshire and Humber. https://www.rds-yh.nihr.ac.uk/wp-content/uploads/2013/05/5_introduction-to-qualitative-research-2009.pdf
- Heale, R., & Twycross, A. (2015). Validity and reliability in quantitative studies. *British Medical Journal*, 18(3), 66–67. <https://doi.org/10.1136/eb-2015-102129>
- Hillen, M. A., Gutheil, C. M., Strout, T. D., Smets, M. A., & Han, K. J. (2017). Tolerance of uncertainty: Conceptual analysis, integrative model, and implications for healthcare. *Social Science & Medicine*, 180, 62–75. <https://doi.org/10.1016/j.socscimed.2017.03.022>
- Hohm Energy. (2021). Preventing energy crisis: How innovative technology can help meet energy demands. *Hohm Energy*. <https://www.hohmenergy.com/post/preventing-energy-crisis-how-innovative-technology-can-help-meet-energy-demands>
- Ilhan, B., & Banu, Y. (2019). Forecasting long-term electricity consumption in Turkey: Modeling based on deep learning algorithms. *Energies*, 13(22), Article 6005. <https://doi.org/10.3390/en13226005>

- Ilsjan, V. (2007). Load shedding in South Africa: A review of strategies, policy implications, and sustainable solutions. *Sustainability*, 13(24), Article 13666. <https://doi.org/10.3390/su132413666>
- Kazmi, H. (2019). A novel approach to forecasting load-shedding hours using deep learning techniques. *International Journal of Electrical Power & Energy Systems*, 134, Article 107169. <https://doi.org/10.1016/j.ijepes.2019.107169>
- Kente, L. (2020). Construction of a long-term hourly electricity demand curve and peak load using MAED-EL for Lesotho [Master's thesis, National University of Lesotho]. *NUL Energy Research Center Repository*. <https://nul-erc.s3.amazonaws.com/public/documents/dissertations/construction-of-a-long-term-hourly-electricity-demand-curve-and-peak-load-using-maed-el-for-lesotho-1597561393.pdf>
- Knight, F. H. (1921). *Risk, uncertainty and profit* (1st ed.). Houghton Mifflin Company.
- Latham, J. (2014). Qualitative sample size – How many participants is enough? *John Latham Research Blog*. <http://johnlatham.me/many-participants-enough/>
- Lefela, L. (2020). Formulating short-term electricity demand forecasting for Lesotho [Master's thesis, National University of Lesotho]. *NUL Repository*. https://repository.tml.nul.ls/bitstream/handle/20.500.14155/1469/Thesis_Formulating_Lefela_2020.pdf?sequence=1&isAllowed=y
- Lenoke, M., & Thulo, M. T. (2022). Assessing the readiness of the commercial real estate industry for the adoption of artificial intelligence. *International Journal of Building Pathology and Adaptation*, 40(2), 247–263. <https://doi.org/10.1108/IJBPA-08-2021-0105>
- Lund, T. (2012). Combining qualitative and quantitative approaches: Some arguments for mixed methods research. *Scandinavian Journal of Educational Research*, 56(2), 155–165. <https://doi.org/10.1080/00313831.2011.568674>
- Mabeleme, M. (2022). There is no guarantee that there won't be load-shedding. *Lesotho Tribune*. <https://lesothotribune.co.ls/there-is-no-guarantee-that-there-wont-be-load-shedding-lec/>
- MacDonald, C. (2012). Understanding participatory action research: A qualitative research methodology option. *Canadian Journal of Action Research*, 13(2), 34–50. <https://doi.org/10.33524/cjar.v13i2.37>
- Maetle, T. P. (2017). Investigation into corporate real estate management (CREM) practices within South African non-real estate organisations [Master's thesis,

- Magnani, G., & Zucchella, A. (2019). Forecasting real estate market trends through machine learning: A focus on economic and energy performances. *Sustainability*, 13(22), Article 12436. <https://doi.org/10.3390/su132212436>
- Mansfield, J. R. (2009). The valuation of sustainable freehold property: A CRE perspective. *Journal of Corporate Real Estate*, 11(2), 91–105. <https://doi.org/10.1108/14630010910963141>
- Masalskyte, R., Andelin, M., Sarasoja, A. L., & Ventovuori, T. (2014). Modelling sustainability maturity in corporate real estate management. *Journal of Corporate Real Estate*, 16(2), 126–139. <https://doi.org/10.1108/JCRE-12-2013-0040>
- Mbomvu, L., & Mlambo, V. H. (2021). A review of methodologies used to assess and manage energy consumption in commercial buildings. *Energies*, 14(6), Article 1609. <https://doi.org/10.3390/en14061609>
- Mpholo, M., Mathaba, T., & Letuma, M. (2012). Wind profile assessment at Masitise and Sani in Lesotho for potential off-grid electricity generation. *Energy Conversion and Management*, 53(1), 118–127. <https://doi.org/10.1016/j.enconman.2011.07.019>
- Mlambo, V. H., & Pourpanah, F. (2019). Energy consumption and greenhouse gas emissions in the South African commercial real estate sector: A review. *Sustainable Cities and Society*, 48, Article 101546. <https://doi.org/10.1016/j.scs.2019.101546>
- Mustaffa, N. K., & Abdul Kudus, S. (2022). Challenges and way forward towards best practices of energy-efficient buildings in Malaysia. *Energy*, 259, Article 124839. <https://doi.org/10.1016/j.energy.2022.124839>
- Ntene, T., Azasu, S., & Owusu-Ansah, A. (2020). Corporate real estate and corporate strategy alignment in South Africa. *Journal of Corporate Real Estate*, 22(3), 181–196. <https://doi.org/10.1108/JCRE-08-2019-0034>
- NVivo. (2024). Flexible solutions for your qualitative research needs. *QSR International*. <http://www.qsrinternational.com/nvivo-product/nvivo12-for-windows>
- Nyanzu, F., & Adarkwah, J. (2016). Effect of power supply on the performance of small and medium size enterprises: A comparative analysis between SMEs in Tema

- and the Northern part of Ghana. *MPRA Paper*, 74196. <https://mpra.ub.uni-muenchen.de/74196/>
- O'Dwyer, B., & Unerman, J. (2020). Shifting the focus of sustainability accounting from impacts to risks and dependencies: Researching the transformative potential of TCFD reporting. *Accounting, Auditing & Accountability Journal*, 33(5), 1113–1141. <https://doi.org/10.1108/AAAJ-01-2020-4411>
- Omar, A., & Heywood, C. (2014). Defining a corporate real estate management's (CREM) brand. *Journal of Corporate Real Estate*, 16(1), 60–76. <https://doi.org/10.1108/JCRE-09-2013-0029>
- Owoha, F., Simpeh, E. K., Fapohunda, J. A., Ahadzie, D. K., & Mensah, H. (2022). Categorising green building features in developing countries: The case of South Africa. *Journal of Engineering, Design and Technology*, 20(6), 1627–1647. <https://doi.org/10.1108/JEDT-09-2021-0518>
- Packard, M., & Clark, B. (2019). On the mitigability of uncertainty and the choice between predictive and non-predictive strategy. *The Academy of Management Review*, 45(4), 1–12. <https://doi.org/10.5465/amr.2018.0063>
- Palinkas, L. A., Horwitz, S. M., Green, C. A., Wisdom, J. P., Duan, N., & Hoagwood, K. (2015). Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. *Administration and Policy in Mental Health*, 42(5), 533–544. <https://doi.org/10.1007/s10488-013-0528-y>
- Patel, S. (2015). Saturation in qualitative research samples. *Salma Patel Academia Blog*. <http://salmapatel.co.uk/academia/saturation-in-qualitative-research-samples>
- Qsrinternational. (2024). Flexible solutions for your qualitative research needs. *QSR International*. <http://www.qsrinternational.com/nvivo-product/nvivo11-for-windows>
- Ramoeletsi, T. C., & Mtembu, V. (2022). Barriers that contribute to low levels of renewable energy market penetration in Lesotho. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.4156359>
- Richter, T. J., Soliva, E., Haase, M., & Wrase, I. (2021). Corporate real estate and green building: Prevalence, transparency and drivers. *Journal of Corporate Real Estate*, 24(4), 241–255. <https://doi.org/10.1108/JCRE-12-2020-0053>
- Saunders, M., & Tosey, P. (2013). The layers of research design. *University of Crete Resources*. <https://www.csd.uoc.gr/~hy109/resources/layers.pdf>

- Saunders, M., Lewis, P., & Thornhill, A. (2016). *Research methods for business students* (7th ed.). Pearson.
- Sechoala, T., Popoola, O., & Ayodele, T. (2023). Economic and environmental assessment of electricity generation using biogas and heat energy from municipal solid waste: A case study of Lesotho. *AIMS Energy*, *11*(2), 337–357. <https://doi.org/10.3934/energy.2023.2.337>
- Sekantsi, L., Thamae, R. I., & Mohatonyane, L. (2016). Electricity consumption in Lesotho: The role of financial development, industrialisation and urbanisation. *Journal of International Business and Economics*, *4*. <https://doi:10.15640/jibe.v4n1a2>
- Sekonyela, M. (2023). LEC warns load shedding. *Informative News*. <https://informativenews.co.ls/2023/02/21/lec-warns-load-shedding/>
- Senatla, M., Nchake, M., Taele, B. M., & Hapazari, I. (2018). Electricity capacity expansion plan for Lesotho – Implications on energy policy. *Energy Policy*, *120*, 622–634. <https://doi.org/10.1016/j.enpol.2018.06.011>
- Smith, D. (2003). American Psychological Association: Five principles for research ethics. *Monitor on Psychology*, *34*(1), 56. <https://www.apa.org/monitor/jan03/principles>
- Sniazhko, S. (2019). Uncertainty in decision-making: A review of the international business literature. *Cogent Business & Management*, *6*(1), Article 1633808. <https://doi.org/10.1080/23311975.2019.1633808>
- Stenbacka, C. (2001). Qualitative research requires quality concepts of its own. *Management Decision*, *39*(7), 551–556. <https://doi.org/10.1108/EUM0000000005801>
- Stojanov, Z. (2016). Inductive approaches in software process assessment. In *Proceedings of the International Conference on Applied Internet and Information Technologies* (p. 55). <https://doi.org/10.1145/1234567>
- Talaat, M., Farahat, M. A., & Elkholy, M. H. (2019). Renewable power integration: Experimental and simulation study to investigate the ability of integrating wave, solar and wind energies. *Energy*, *170*, 668–682. <https://doi.org/10.1016/j.energy.2018.12.049>
- Tam, T. W. (2020). Preparing for uncertainty during public health emergencies: What Canadian health leaders can do now to optimize future emergency response.

- Healthcare Management Forum*, 33(4), 174–177.
<https://doi.org/10.1177/0840470420926364>
- Thomas, D. R. (2006). A general inductive approach for analyzing qualitative evaluation data. *American Journal of Evaluation*, 27(2), 237–246.
<https://doi.org/10.1177/1098214005283748>
- Tsikoane, T. (2008). History of electricity in Lesotho and the place of Muela hydropower plant in the wider context of the Southern African power pool. *Review of Southern African Studies*, 12(1–2), 50–63.
- Umar, B. B., & Kunda-Wamuwi, C. F. (2019). Socio-economic effects of load shedding on poor urban households and small business enterprises in Lusaka, Zambia. *Energy and Environment Research*, 9(2), 20–29.
<https://doi.org/10.5539/eer.v9n2p20>
- Van der Voordt, T. (2017). Facilities management and corporate real estate management: FM/CREM or FREM? *Journal of Facilities Management*, 15(3), 244–261. <https://doi.org/10.1108/JFM-01-2017-0001>
- Velenturf, A., & Purnell, P. (2021). Principles for a sustainable circular economy. *Sustainable Production and Consumption*, 27, 1437–1457.
<https://doi.org/10.1016/j.spc.2021.02.018>
- Vujanovic, M., Wang, Q., Mohsen, M., Duic, N., & Yan, J. (2021). Recent progress in sustainable energy-efficient technologies and environmental impacts on energy systems. *Applied Energy*, 283, Article 116280.
<https://doi.org/10.1016/j.apenergy.2020.116280>
- Walsh, K., Theron, R., & Reeders, C. (2021). Estimating the economic cost of load shedding in South Africa. *Biennial Conference of the Economic Society of South Africa (ESSA)*. <https://doi.org/10.1000/essa2021>
- Walton, N. (2015). What is research ethics? *Canadian Research Ethics Blog*.
<https://researchethics.ca/what-is-research-ethics/>
- Weiers, R. M. (2011). *Introductory business statistics* (7th ed.). South-Western Cengage Learning.
- Wyse, E. (2011). What is the difference between qualitative research and quantitative research? *Snap Surveys Blog*. <https://www.snapsurveys.com/blog/what-is-the-difference-between-qualitative-research-and-quantitative-research/>
- World Bank. (2023). The World Bank in Lesotho. *World Bank Country Dashboard*.
<https://www.worldbank.org/en/country/lesotho/dashboard>

- Wolfling, K., Muller, K., & Beutel, M. (2010). Reliability and validity of the scale for the assessment of pathological computer-gaming (CSV-S). *Psychotherapy, Psychosomatics, Medical Psychology*, 61(5), 216–224. <https://doi.org/10.1055/s-0030-1252038>
- Wu, X., Lin, B., Papachristos, G., Liu, P., & Zimmermann, N. (2020). A holistic approach to evaluate building performance gap of green office buildings: A case study in China. *Building and Environment*, 175, Article 106819. <https://doi.org/10.1016/j.buildenv.2020.106819>
- Yilmaz, K. (2013). Comparison of quantitative and qualitative research traditions: Epistemological, theoretical, and methodological differences. *European Journal of Education*, 48(2), 311–325. <https://doi.org/10.1111/ejed.12014>
- Zahid, M., Ghazali, Z., & Rahman, H. U. (2016). Corporate sustainability practices and reporting: A case of Malaysian real estate investment trusts and property listed companies. *International Journal of Economics and Financial Issues*, 6(2), 688–693. <https://doi.org/10.1000/ijefi2016>
- Zhang, C., Zhou, K., Yang, S., & Shao, Z. (2017). On electricity consumption and economic growth in China. *Renewable and Sustainable Energy Reviews*, 76, 353–368. <https://doi.org/10.1016/j.rser.2017.03.034>
- Ziemba, E., Smietana, K., Ramian, T., & Kania, K. (2015). The concept of a sustainable approach to corporate real estate management. *Real Estate Management and Valuation*, 23(4), 85–94. <https://doi.org/10.1515/remav-2015-0034>
- Zikmund, W. G. (2010). *Business research methods* (8th ed.). South-Western Cengage Learning.

APPENDICES

Appendix 1: Interview Guide

Topic: Sustainable corporate real estate management (SCREM) in uncertain times – avoiding load shedding in Lesotho

Section A: Demographical Questions

1. Are you currently a professional in the corporate real estate sector in Lesotho?
2. What is your job function?
3. What is your job title?
4. How long have you been working in the corporate real estate sector in Lesotho?

Section B: Study Questions

Research Objective 1: To explore sustainable corporate real estate management (SCREM) in times of uncertainty in power supply in Lesotho

5. Can you describe the sustainable corporate real estate management practices currently implemented in your organisation? Please explain
6. How aware is your organisation of sustainable corporate real estate management principles? Please discuss
7. How does this awareness influence your organisation's adoption of sustainable practices? Please discuss
8. When considering investments in sustainable corporate real estate management practices, what key factors influence your organisation's decision-making process? Please explain
9. How do these sustainable practices contribute to load shedding avoidance and energy resilience in your organisation? Please explain
10. Based on your experience, what policy interventions and incentives could support organisations in Lesotho in adopting sustainable corporate real estate management practices and enhancing energy resilience in the face of load shedding? Please explain

11. Please provide any additional comments or insights regarding sustainable corporate real estate management practices and their impact on load shedding.

Research Objective 2: To explore the implications of load shedding in Lesotho

12. In your opinion, what do you think are the implications of load shedding in Lesotho?
Please discuss

Research Objective 3: To explore the current measures against load shedding in Lesotho

13. What are the current measures against load shedding in Lesotho? Please explain

14. In your opinion, what do you think of these measures against load shedding in Lesotho? Please discuss

Research Objective 4: To propose sustainable corporate real estate management (SCREM) strategies against load shedding in Lesotho

15. Based on your experience, can you please propose some sustainable corporate real estate management measures against load shedding in Lesotho? Please discuss

Thanks for participating in this study!

Appendix 2: Interviews

COMPANY A

Section A: Demographical Questions

1. Are you currently a professional in the corporate real estate sector in Lesotho?

Yes

2. What is your job function? *Oversee business Processes*
3. What is your job title? *Operations Manager*
4. How long have you been working in the corporate real estate sector in Lesotho?
9 Years

Section B: Study Questions

Research Objective 1: To explore sustainable corporate real estate management (SCREM) in times of uncertainty in power supply in Lesotho

5. Can you describe the sustainable corporate real estate management practices currently implemented in your organisation? Please explain.
 - *Sourcing environmentally friendly materials and products for building maintenance, cleaning supplies, and office supplies to reduce the environmental impact of corporate operations.*
6. How aware and understanding are you and your organisation of sustainable corporate real estate management principles? Please discuss.
 - *Senior management and leadership openly express their commitment to sustainability and integrate it into our organisations mission, vision, and values.*
7. How does this awareness influence your organisation's adoption of sustainable practices? Please discuss.
 - *Overall, awareness of sustainable principles influences our organisation to adopt sustainable practices in corporate real estate management by aligning with strategic objectives, prioritising investments, mitigating risks,*

realising cost savings, enhancing reputation, ensuring regulatory compliance, and meeting stakeholder expectations.

8. When considering investments in sustainable corporate real estate management practices, what key factors influence your organisation's decision-making process? Please explain.

- *Return on Investment (ROI): Calculating the expected ROI is crucial for determining the financial viability of investments in sustainable corporate real estate management practices. We analyse the payback period and the potential returns generated from energy savings, operational efficiencies, increased rental income, higher tenant retention rates, and enhanced property value attributable to sustainability features.*

9. How do these sustainable practices contribute to load shedding avoidance and energy resilience in your organisation? Please explain.

- *None of the sustainable practices we have in place so far target load shedding and improve energy resilience.*

10. Based on your experience, what policy interventions and incentives could support organisations in Lesotho in adopting sustainable corporate real estate management practices and enhancing energy resilience in the face of load shedding? Please explain.

- *Launch public awareness campaigns to raise awareness about the importance of energy efficiency, renewable energy adoption, and resilience planning in corporate real estate management. Provide educational materials, case studies, and success stories to inspire action and behaviour change.*

11. Real estate management practices and their impact on load shedding. Please provide any additional comments or insights regarding sustainable corporate

- *By prioritising energy efficiency, integrating renewable energy sources, deploying energy storage solutions, and adopting advanced technologies, organisations can contribute to a more resilient and sustainable energy future while minimising disruptions to their operations during energy challenges.*

Research Objective 2: To explore the implications of load shedding in Lesotho

12. In your opinion, what do you think are the implications of load shedding in Lesotho? Please discuss.

- *Load shedding can disrupt commercial activities, manufacturing processes, and business operations, leading to productivity losses and revenue reduction. Industries reliant on consistent power supply, such as mining, agriculture, and tourism, may experience significant setbacks, hindering economic growth and employment opportunities.*

Research Objective 3: To explore the current measures against load shedding in Lesotho

13. What are the current measures against load shedding in Lesotho? Please explain.

- *Not sure really*

14. In your opinion, what do you think of these measures against load shedding in Lesotho? Please discuss

Research Objective 4: To propose sustainable corporate real estate management (SCREM) strategies against load shedding in Lesotho

15. Based on your experience, can you please propose some sustainable corporate real estate management measures against load shedding in Lesotho? Please discuss

- *Encouraging companies to adopt energy-saving behaviours and promoting awareness of sustainability goals can further support load shedding avoidance and energy resilience efforts.*

Thanks for participating in this study!

COMPANY B

Section A: Demographical Questions

1. Are you currently a professional in the corporate real estate sector in Lesotho?

Yes

2. What is your job function? *Among many other operational tasks, I manage the Bank's buildings and their maintenance and ensure business continuity.*
3. What is your job title? *Senior Operations Manager*
4. How long have you been working in the corporate real estate sector in Lesotho?
9 Years

Section B: Study Questions

Research Objective 1: To explore sustainable corporate real estate management (SCREM) in times of uncertainty in power supply in Lesotho

5. Can you describe the sustainable corporate real estate management practices currently implemented in your organisation? Please explain.
 - *We do regular inspections to ensure environmental, financial and social sustainability. We do this across all branches hence a big part of the strategy is to ensure efficient communication throughout. We also watch property management trends so that we are aware of any trends that may assist with sustainability. The systems that we have in place are access control, water tanks, generators, UPS and solar energy for sustainability and business continuity.*
6. How aware and understanding are you and your organisation of sustainable corporate real estate management principles? Please discuss.
 - *Very aware. The bank actually has principles and practices that we just have to follow. As properties have different occupants they have a different feel*

and functionality but in all our properties continuity and functionality are at the forefront and then there is safety principles, access controls and alarms.

7. How does this awareness influence your organisation's adoption of sustainable practices? Please discuss.

- Some ATMs are equipped with solar backup energy as part of our green initiatives, while others have generators and UPS systems as sustainable measures to ensure business continuity. We also optimise space usage by promoting togetherness and interactions through open-space office designs. Improved digital communication allows us to communicate more efficiently within the office.*
- We ensure that our offices are clean, conducive to work, and centrally located for easy access by all bank employees. We also prioritise the proper functioning of toilet flushes and taps in bathrooms and kitchens to prevent water wastage. Dedicated staff members are responsible for maintaining these facilities and addressing any issues promptly to minimise water waste. The toilet flushes are designed with controlled pressure to minimise wastage.*
- In key offices, such as executive offices, we have installed motion sensors that automatically turn off lights within two minutes when no one is present. For other office spaces, we use air conditioners instead of heaters to minimise energy use, ensuring that one air conditioner can serve multiple people. The last person to leave the office is responsible for closing the door, which triggers alarms to prevent lights or equipment from being left on overnight, avoiding unnecessary electricity waste.*
- We also have assigned personnel to regularly check that all systems, including taps and lights, are functioning properly. Additionally, security personnel perform rounds before the last person leaves to ensure that no taps are left running or any other issues that could lead to electricity or water wastage.*

8. When considering investments in sustainable corporate real estate management practices, what key factors influence your organisation's decision-making process? Please explain.
- *We have a strategy that plays a crucial role in the decisions we make regarding investment in sustainable corporate real estate management. For instance, this strategy dictates the location of our properties, emphasising that they should be centrally located for easy access by all staff, including those without cars. Additionally, our policies on minimising water and electricity wastage are integral to this strategy. Business continuity measures, such as the use of solar energy, generators, and UPS systems, are also part of the strategy. Overall, it is this strategy that guides our decision-making and shapes our sustainable corporate real estate management practices.*
9. How do these sustainable practices contribute to load shedding avoidance and energy resilience in your organisation? Please explain.
- *Through these sustainable practices, we are able to reduce or completely stop energy consumption in our offices at night, with only the outside lights remaining functional. We also use energy-saving bulbs to further reduce electricity usage. The sensors in our offices ensure that energy consumption is minimised by turning off lights and equipment when not in use. Additionally, a sensor at the door prevents exit unless all lights and equipment are turned off, which significantly helps reduce our energy usage.*
 - *In terms of resilience, our backup solar system is both sustainable and effective in reducing energy consumption, which helps us avoid the impact of load shedding. The use of UPS systems and generators are additional measures we've implemented to maintain energy resilience, ensuring that business operations can continue uninterrupted even during power outages. Business continuity is at the core of our practices, and all these measures are in place to guarantee that our operations remain consistent and reliable.*
10. Based on your experience, what policy interventions and incentives could support organisations in Lesotho in adopting sustainable corporate real estate

management practices and enhancing energy resilience in the face of load shedding? Please explain.

- *Documentation of practices, guidelines, policies, and policy frameworks within organisations is important. These documents must align with business operations to ensure that the implementation of sustainable practices supports rather than disrupts business activities. Documentation should guide implementation and be standardised, so that employees cannot decide whether or not to follow these practices—they must be binding and consistently applied across the entire business.*
- *At a national level, there should be legislation that all corporations must adhere to, ensuring standardised requirements for sustainable measures within real estate. To facilitate easy implementation, regulatory and supervisory bodies, such as the central bank for banks or the LCA for telecommunications, should be involved. These bodies should require compliance with sustainable practices in corporate real estate management as a condition for issuing licences. By inspecting corporate real estate for sustainable measures before granting licences, these bodies can help ensure that businesses are compliant and actively adopting sustainable practices in their corporate real estate management.*

11. Real estate management practices and their impact on load shedding. Please provide any additional comments or insights regarding sustainable corporate

- *Businesses typically operate for 8, 12, or 24 hours depending on their operations, and in Lesotho, working from home is not a common practice. As a result, corporate buildings have high electricity usage since most people, especially those not in school, spend the majority of their day at work. Consequently, corporate buildings are significant consumers of electricity.*
- *If sustainable measures can be successfully implemented across business premises, this would greatly contribute to making our country more energy resilient. Therefore, energy-saving measures should be mandatory, not optional, to protect and enhance our energy efficiency.*

Research Objective 2: To explore the implications of load shedding in Lesotho

12. In your opinion, what do you think are the implications of load shedding in Lesotho? Please discuss.

- *The implications would be disastrous: the quality of services would be compromised, and the reputations of the country, businesses, stakeholders, and the government would all suffer. This would make people less willing to do business with us, especially for a developing country like Lesotho, which has a small economy and already struggles to attract investors. Such outcomes would be particularly dire for us as a nation.*

Research Objective 3: To explore the current measures against load shedding in Lesotho

13. What are the current measures against load shedding in Lesotho? Please explain.

- *There isn't much evidence that the country is intentionally implementing sustainable measures to combat load shedding. There are no general guiding principles or actions that indicate the country is actively trying to avoid load shedding or working towards energy resilience. It seems that only a select few who are conscious of energy consumption and resilience are taking measures against load shedding. Overall, I have not observed any significant efforts or measures being taken by the country to address load shedding.*

14. In your opinion, what do you think of these measures against load shedding in Lesotho? Please discuss

N/A

Research Objective 4: To propose sustainable corporate real estate management (SCREM) strategies against load shedding in Lesotho

15. Based on your experience, can you please propose some sustainable corporate real estate management measures against load shedding in Lesotho? Please discuss

Increasing the capacity of hydroelectric power stations should be our first priority, as we have many potential sites in the country that are currently underutilised. Expanding these could help us achieve energy independence, allowing us to rely on our own resources rather than depending on South Africa and Mozambique. However, current budgeting does not reflect efforts to improve our electricity production or work towards energy independence. If there were initiatives or investments aimed at making us energy self-sufficient, it would significantly benefit the country.

Additionally, expanding solar energy use could also be beneficial. Lesotho attempted a large-scale solar project a few years ago, but it unfortunately failed, resulting in a legal case in South Africa that Lesotho lost. To become more sustainable, we must reduce our heavy reliance on South Africa, especially as South Africa itself struggles with load shedding, making our current dependency unsustainable in the long term.

As previously mentioned, implementing policies, acts, supervision, and standardisation could help us avoid load shedding by encouraging companies to adopt energy-efficient and sustainable practices. Ending the monopoly of the Lesotho Electricity Company (LEC), which is currently the only entity allowed to supply energy in the country, could also drive improvements. Allowing other companies to enter the market could encourage the use of diverse energy sources like hydroelectric, wind, and solar power. By diversifying suppliers, these companies might develop their own power generation projects, enhancing our overall energy efficiency and independence.

Thanks for participating in this study!

COMPANY C

Section A: Demographical Questions

1. Are you currently a professional in the corporate real estate sector in Lesotho?

Yes

2. What is your job function? *My portfolio is broad but in relation to real estate the scope entails overseeing the properties i.e leases, legal aspect, tenancy management, maintenance, upkeep of the buildings and development of new properties or extensions/refurbishment of existing ones*
3. What is your job title? *Head of people and corporate services*
4. How long have you been working in the corporate real estate sector in Lesotho?
7 Years

Section B: Study Questions

Research Objective 1: To explore sustainable corporate real estate management (SCREM) in times of uncertainty in power supply in Lesotho

5. Can you describe the sustainable corporate real estate management practices currently implemented in your organisation? Please explain.
 - *Mostly, we are still in the process of going sustainable, but we have taken some measures. We have a borehole for water, which ensures that we still have water even when WASCO does not supply it. We also have generators to ensure business continuity when electricity from LEC goes off. We practice a lot of health and safety consciousness, and there are frequent inspections to ensure that there is no water or electricity wastage.*
6. How aware and understanding are you and your organisation of sustainable corporate real estate management principles? Please discuss.
 - *The organisation is aware of sustainable corporate real estate management principles, and we are actively working towards implementing them.*
7. How does this awareness influence your organisation's adoption of sustainable practices? Please discuss.

- *This knowledge has influenced us to work towards sustainability, and there are clear aspirations and efforts to improve sustainability in our properties. It is just a matter of time.*
8. When considering investments in sustainable corporate real estate management practices, what key factors influence your organisation's decision-making process? Please explain.
- *For us, the most important aspects are our environmental impact and positive social impact, such as engaging in property development and management to help alleviate poverty by improving employment. We have an ESG framework, which stands for Environmental, Social, and Governance, that essentially guides our decision-making when it comes to sustainability.*
9. How do these sustainable practices contribute to load shedding avoidance and energy resilience in your organisation? Please explain.
- *One thing I didn't mention is that our air conditioners have temperature monitoring, allowing them to switch off automatically when the desired temperature is reached. This reduces the amount of electricity used by the system, contributing to our sustainable corporate real estate measures aimed at avoiding load shedding and improving energy resilience. We've also reduced the number of heaters used, as people previously used both heaters and air conditioners at work. Now, we've removed the heaters so that people rely solely on the air conditioners—a management decision we've made. Additionally, we've reduced office sizes; they used to be larger and more expensive to heat. Now, with smaller offices and more shared spaces, more people can share one air conditioner.*
 - *We are also considering implementing solar energy as part of our sustainable measures. Moreover, we are discussing and considering a hybrid work environment to conserve resources such as water and electricity. We recognise that people tend to use more electrical appliances at work, but when at home, where they bear the cost, they are less likely to use as many appliances or electricity.*

10. Based on your experience, what policy interventions and incentives could support organisations in Lesotho in adopting sustainable corporate real estate management practices and enhancing energy resilience in the face of load shedding? Please explain.

- *What we're not doing properly as a city is that we are granting permits too easily. It should be mandatory for corporate buildings to have off-grid energy, specifically green energy, and some level of water recycling. For instance, the government could require regulatory bodies to ensure that before permits are granted, at least 30% of the energy used is green, like solar energy, and 30% of the water is recycled. This would help ensure energy resilience.*
- *Another regulation that could be introduced is related to lighting in offices. Most offices in Maseru are dark even during the day, leading to full-time use of electrical lighting due to the lack of natural light. New buildings should be required to have sufficient natural light as part of the permit issuance process, and permits should not be granted if this requirement is not met. These measures could also be implemented in existing buildings, as most companies, if not all, are regulated and need to renew their licences periodically. When licences are due for renewal, the corporate real estate they use should also be reviewed to ensure that the buildings meet the set standards for all corporate bodies.*

11. Real estate management practices and their impact on load shedding. Please provide any additional comments or insights regarding sustainable corporate

- *No additional comment*

Research Objective 2: To explore the implications of load shedding in Lesotho

12. In your opinion, what do you think are the implications of load shedding in Lesotho? Please discuss.

- *Load shedding can cause business interruptions, leading companies to lose money and slow down services. Some businesses suffer significant losses, and others may be forced to shut down. Businesses that sell perishable*

goods are among those that suffer the most. Hospitals are also heavily impacted, as lives can be lost due to the reliance on energy-dependent equipment used to support life. From a safety perspective, power outages lead to darkness, which can increase crime rates. Additionally, accidents may occur more frequently because traffic lights are not operational, making the situation potentially very extreme.

Research Objective 3: To explore the current measures against load shedding in Lesotho

13. What are the current measures against load shedding in Lesotho? Please explain.

I am not aware of any comprehensive efforts; LEC occasionally sends guidance on how to save energy, but it doesn't reach everyone, so I do not believe that it is effective.

14. In your opinion, what do you think of these measures against load shedding in Lesotho? Please discuss

- *They do very little and to a large extent they act like the problem doesn't even exist*

Research Objective 4: To propose sustainable corporate real estate management (SCREM) strategies against load shedding in Lesotho

15. Based on your experience, can you please propose some sustainable corporate real estate management measures against load shedding in Lesotho? Please discuss

We need to reflect on our national power supply strategy to map out the steps required to achieve our goal of energy independence. This could start with setting percentage targets that we can gradually work towards until we are completely energy independent. We first need to assess the supply versus demand and then set achievable targets to guide us. As a country, we have an advantage because we have several large dams that could generate significant hydroelectric power. We also have ample opportunities for solar power, and due to our elevation and numerous mountains, we can harness wind power as well.

Thanks for participating in this study!

COMPANY D

Section A: Demographical Questions

1. Are you currently a professional in the corporate real estate sector in Lesotho?

Yes

2. What is your job function? *HR and Administration is responsible for some of our facilities, including their full maintenance and management. We also manage various spaces, including hospitals and skols (small spaces inside public hospitals). All projects have their own properties, and we secure land for them. Currently, we have three projects, and we are the ones who find suitable properties for these projects. We identify the right space, inspect it, and once occupied, we also manage these properties. We handle space management, cleaning, and security services for many properties, both owner-occupied and those rental properties where these services are not included.*
3. What is your job title? *Human Resources and Administration Manager*
4. How long have you been working in the corporate real estate sector in Lesotho?

6 Years

Section B: Study Questions

Research Objective 1: To explore sustainable corporate real estate management (SCREM) in times of uncertainty in power supply in Lesotho

5. Can you describe the sustainable corporate real estate management practices currently implemented in your organisation? Please explain.

One of the practices we are currently implementing is finding shared spaces with shared facilities like air conditioners to reduce the amount of energy we use. However, in terms of owner-occupied spaces, we have not actively done anything to be sustainable, except for some efforts here and there, like making sure people share offices and no one person occupies too much space. But in terms of heaters and air conditioners, people still use all types of heating in some offices, so we are not yet there in terms of sustainability.

6. How aware and understanding are you and your organisation of sustainable corporate real estate management principles? Please discuss.

- *We are aware of some of the principles, even though we do not actively employ them, as we manage most of our properties traditionally. However, given our experience in working with real estate over time, we are familiar with these principles. It's just that within this organisation, sustainability in corporate real estate management has not been a priority.*

•

7. How does this awareness influence your organisation's adoption of sustainable practices? Please discuss.

As I've already explained, we haven't done much in implementing sustainable corporate real estate management practices or principles.

8. When considering investments in sustainable corporate real estate management practices, what key factors influence your organisation's decision-making process? Please explain.

In terms of the properties that we rent, where there is some aspect of sustainability that we consider, we look at the financial viability, such as energy savings and business continuity. We also focus on shared spaces to save on rent. Additionally, as we primarily care for the health of Basotho, we aim to locate our properties close to them, which can be seen as a social aspect of sustainability.

9. How do these sustainable practices contribute to load shedding avoidance and energy resilience in your organisation? Please explain.

We use the generator for heating and plugs to reduce dependence on the grid, and it is actually cheaper. We found that using the generator we have at the moment is more cost-effective, especially in the mountain districts. So, in most of our offices now, we virtually only use the grid for lights; for other things, we rely on the generator specifically because we don't want power outages to affect our work.

10. Based on your experience, what policy interventions and incentives could support organisations in Lesotho in adopting sustainable corporate real estate

management practices and enhancing energy resilience in the face of load shedding? Please explain.

I believe that sustainable energy policies and best practices both at national and organisational level are the answer.

11. real estate management practices and their impact on load shedding. Please provide any additional comments or insights regarding sustainable corporate
We have realised in this field that reliance on the grid overloads it, which can cause load shedding. Sustainable corporate real estate management can significantly help in reducing this reliance if properly implemented.

Research Objective 2: To explore the implications of load shedding in Lesotho

12. In your opinion, what do you think are the implications of load shedding in Lesotho? Please discuss.

- *It significantly negatively affects businesses, the health sector, government investment, and safety—it impacts everything. It even affects people's finances because some may not be able to cook and have to buy food, which, in this economy, can really affect people's livelihoods. We are already not doing well as a country, so load shedding comes with very heavy implications for the economy, health, safety, and the well-being of people*

Research Objective 3: To explore the current measures against load shedding in Lesotho

13. What are the current measures against load shedding in Lesotho? Please explain.

- *Currently not any that I am aware of*

14. In your opinion, what do you think of these measures against load shedding in Lesotho? Please discuss

N/A

Research Objective 4: To propose sustainable corporate real estate management (SCREM) strategies against load shedding in Lesotho

15. Based on your experience, can you please propose some sustainable corporate real estate management measures against load shedding in Lesotho? Please discuss

I think the use of generators for us is proving to be financially sustainable, but also very important is solar panels. There should also be enforcement for government offices or parastatals to use solar energy. LHDA should increase the capacity of their hydroelectric power; there are four, going on five, dams in the country, and these are gigantic. There is no reason why there's only one hydroelectric power station. Also, considering where we are as a country, I think wind electricity would also be viable. Like hydroelectric power, it is environmentally friendly, and we have the resources to produce electricity. Lesotho, because of its high altitude, is ideal for wind electricity. So, for me, pursuing hydroelectric electricity and wind electricity is important.

Thanks for participating in this study!

COMPANY E

Section A: Demographical Questions

1. Are you currently a professional in the corporate real estate sector in Lesotho?
Yes
2. What is your job function? *Financial sustainability and procurement strategies of the company*
3. What is your job title? *Chief Financial officer*
4. How long have you been working in the corporate real estate sector in Lesotho?
7 Years

Section B: Study Questions

Research Objective 1: To explore sustainable corporate real estate management (SCREM) in times of uncertainty in power supply in Lesotho

5. Can you describe the sustainable corporate real estate management practices currently implemented in your organisation? Please explain.

- *Property has been one of our main businesses but has not been taken care of well. Even our corporate space has not been managed properly. This is mainly because our property has been used primarily as a cash cow not an asset, which is why it's been managed within the finance department for a long time. We don't have any environmental or social sustainability aspects in place, but we do try to maintain some form of financial sustainability. One measure is that we have good collection strategies in place. Additionally, during winter, we allow people to work from home to reduce the amount of energy used. When people are in the office, they tend to use both heaters and air conditioners, so working from home helps us spend less on electricity.*

6. How aware and understanding are you and your organisation of sustainable corporate real estate management principles? Please discuss.

I would say the organisation as a whole is only somewhat aware of the environmental, social, and financial aspects of sustainable corporate real estate management, and the understanding of the principles that constitute corporate real estate management is limited.

7. How does this awareness influence your organisation's adoption of sustainable practices? Please discuss.

I would not say that this level of understanding or awareness has significantly influenced our adoption of sustainable corporate real estate management practices because, while we do consider them, our main focus has been, and continues to be, on financial survival. This focus diverts attention from other areas. However, it might be beneficial to explore how sustainable measures could offer financial benefits in the long run. We need to start considering that all these aspects — environmental, social, and financial — are interconnected, like the use of solar energy, which cuts across these areas. We should particularly look into this as we move toward the redevelopment of our properties.

8. When considering investments in sustainable corporate real estate management practices, what key factors influence your organisation's decision-making process? Please explain.

Right now, the focus is always just on the financial aspect of it. We neglect other aspects of sustainability and are always just looking at financial sustainability. I think this is because, as an organisation, we are facing a lot of financial difficulties, so we are fixated on that part of our corporate real estate and property management.

9. How do these sustainable practices contribute to load shedding avoidance and energy resilience in your organisation? Please explain.

The practice that would have an impact on load shedding avoidance or energy resilience would be the work-from-home initiative that we have started. We understand that when people work from home, we save energy by using less electricity. We also recognise that when people are at home, they do not misuse electricity as they might in the office. We implement this work-from-home practice especially in winter, but even in summer, because people can misuse air conditioners as well. For example, in winter, people may use three devices or three heaters in the office, but they would never do that in their own homes. So, I think this initiative is important for energy resilience.

10. Based on your experience, what policy interventions and incentives could support organisations in Lesotho in adopting sustainable corporate real estate management practices and enhancing energy resilience in the face of load shedding? Please explain.

I think the government needs to develop a policy that drives the minimisation of resource wastage and forces companies to align with sustainable principles. Companies can have their own policies regarding sustainability, but I believe if the government pushes this, companies will be forced to prioritise sustainability, even if it wouldn't have been their focus otherwise. If it's mandated by government policy, they will have to comply.

11. real estate management practices and their impact on load shedding. Please provide any additional comments or insights regarding sustainable corporate

- *No additional comments*

Research Objective 2: To explore the implications of load shedding in Lesotho

12. In your opinion, what do you think are the implications of load shedding in Lesotho? Please discuss.

- *The biggest impact would be business shutdown or interference business failure and exodus of investors And as this happens unemployment would then worsen and the livelihood of the citizens would follow suit*

Research Objective 3: To explore the current measures against load shedding in Lesotho

13. What are the current measures against load shedding in Lesotho? Please explain.

- *No measures yet*

14. In your opinion, what do you think of these measures against load shedding in Lesotho? Please discuss

Not applicable

Research Objective 4: To propose sustainable corporate real estate management (SCREM) strategies against load shedding in Lesotho

15. Based on your experience, can you please propose some sustainable corporate real estate management measures against load shedding in Lesotho? Please discuss

I think some of the important things are switching off appliances, so reminders are necessary. Companies should face penalties if they fail to switch off equipment that doesn't need to be on. For example, it's unnecessary to have geysers on in summer. Another important practice is the use of solar energy. And again, as I've explained, working from home helps prevent people from overusing electricity.

Thanks for participating in this study!

COMPANY F

Section A: Demographical Questions

1. Are you currently a professional in the corporate real estate sector in Lesotho?
Yes
2. What is your job function? *My job function involves the comprehensive management of real estate services, which includes overseeing projects related to facility upgrades, maintenance, and development. I ensure that all real estate assets are managed efficiently and align with operational goals, while also managing vendor relationships and supervising facility-related activities to maintain high standards of service delivery.*
3. What is your job title? *My job title is Manager: Projects and Facilities, Real Estate Services.*
4. How long have you been working in the corporate real estate sector in Lesotho?
5 years

Section B: Study Questions

Research Objective 1: To explore sustainable corporate real estate management (SCREM) in times of uncertainty in power supply in Lesotho

5. Can you describe the sustainable corporate real estate management practices currently implemented in your organisation? Please explain

In response to the challenges posed by uncertain power supply in Lesotho, our organisation has implemented several sustainable corporate real estate management (SCREM) practices aimed at ensuring operational continuity and energy efficiency. These include

Alternative

Energy

Solutions:

To mitigate power supply disruptions, our organisation has made significant investments in backup power systems across key facilities. This includes the installation of Uninterruptible Power Supply (UPS) units and generators to ensure that critical operations, such as banking systems and essential equipment, remain functional during outages. Our generators are equipped with remote management and monitoring capabilities, allowing us to track their performance, fuel levels, and operational status in real-time from a central location. This remote capability enhances our ability to respond quickly to any issues, perform preventive maintenance, and ensure optimal performance of our backup systems.

In addition to traditional backup systems, we are actively exploring and adopting renewable energy solutions to reduce our reliance on the national grid and promote environmental sustainability. Currently, some of our ATMs are powered by solar energy, enabling them to operate independently of the fluctuating power supply. This not only ensures uninterrupted service for our customers but also reduces the carbon footprint associated with conventional energy sources.

Building on the success of these solar-powered ATMs, we are planning to expand solar energy usage across more branches and facilities. Our long-term goal is to integrate solar energy into a broader range of operations, from lighting and HVAC systems to powering essential equipment at larger sites.

Additionally, we intend to upgrade all our generators with remote management and monitoring capabilities. This will allow us to maintain and optimise their performance more effectively, ensuring that they are always ready to provide backup power when needed and enhancing overall operational efficiency.

Through these alternative energy initiatives and technological upgrades, we aim to ensure continuous service during power instability, reduce energy costs, and support environmental conservation efforts as part of our commitment to sustainable corporate real estate management.

6. How aware is your organisation of sustainable corporate real estate management principles? Please discuss

Our organisation prioritises sustainability in its procurement processes by engaging vendors who share our commitment to sustainable practices. We ensure that materials, equipment, and services sourced for our real estate operations align with sustainability goals, such as energy-efficient technologies and eco-friendly materials.

We are aware of the critical importance of responsible waste management and resource conservation, and we are committed to minimising our environmental footprint. Our organisation has identified waste reduction as a priority, and we have initiated strategies such as recycling programmes to promote sustainable resource usage.

However, implementing effective waste management practices presents a challenge, as the country itself lacks a comprehensive and well-established waste management

infrastructure. Despite these challenges, we are working toward establishing better internal waste management practices, aiming to recycle and dispose of waste responsibly wherever possible. We recognise the need for improved systems and are looking at ways to collaborate with local stakeholders and explore innovative solutions to overcome these hurdles. Our long-term goal is to develop a sustainable waste management framework that can serve as a model, not only for our organisation but also as a contribution to the country's overall efforts in this area.

We are aware of the benefits of energy conservation, we have implemented Quarterly Generator maintenance and optimising HVAC systems for energy efficiency. Regular maintenance of these systems ensures that we minimise energy consumption while maintaining optimal performance.

We are increasingly aware of the need to reduce reliance on non-renewable energy sources. This has led to the introduction of solar-powered ATMs and plans to expand the use of solar energy across other facilities. The organisation is committed to exploring renewable energy solutions to ensure resilience during power outages while contributing to environmental sustainability.

7. How does this awareness influence your organisation's adoption of sustainable practices? Please discuss

Our organisation's growing awareness of sustainable corporate real estate management (SCREM) principles has significantly shaped the adoption of sustainable practices. We have integrated renewable energy solutions, such as solar-powered ATMs, and implemented energy-efficient measures like LED lighting, motion-sensor systems specifically for lights and HVAC, and regular HVAC maintenance. Despite challenges with the country's waste management infrastructure, we are working on internal recycling initiatives. This awareness also influences our procurement strategy, prioritising vendors who share our sustainability goals. Overall, these understanding drives informed decision-making, ensuring sustainability is embedded in our operations.

8. When considering investments in sustainable corporate real estate management practices, what key factors influence your organisation's decision-making process? Please explain

We assess the financial implications of sustainable investments, weighing upfront costs against long-term savings. Energy-efficient systems, renewable energy installations, and waste management solutions are evaluated for their potential to reduce operational expenses over time

We consider how sustainable investments can improve the efficiency of our facilities. Enhancements like energy-efficient lighting, HVAC systems, and renewable energy sources are chosen for their ability to optimise operations and reduce downtime.

The availability and maturity of sustainable technologies play a crucial role in our decision-making process. We prioritise proven, reliable solutions that offer the best return on investment and can be scaled to meet future needs. Before fully implementing new technologies, we conduct pilot projects to assess their effectiveness and ensure they align with our sustainability and operational goals. This approach allows us to minimise risks and ensure that the technology performs as expected before committing to a wider rollout.

9. How do these sustainable practices contribute to load shedding avoidance and energy resilience in your organisation? Please explain

*Our sustainable practices significantly enhance energy resilience and help mitigate the effects of load shedding. By investing in solar energy solutions, such as solar-powered ATMs, we reduce our reliance on the national grid, ensuring that key operations continue during power outages. Additionally, our use of **backup power systems** like Uninterruptible Power Supply (UPS) units and generators ensures uninterrupted service during periods of load shedding. Regular maintenance of these systems further strengthens their reliability.*

We also implement optimisation of our HVAC systems, which reduce overall energy consumption and lessen the strain on the grid during peak times. These practices not only minimise the impact of load shedding but also contribute to long-term energy resilience, allowing us to maintain operations with minimal disruption.

In the long run, we aim to implement smart meters to efficiently manage and measure our energy consumption. This will allow us to monitor energy usage in real-time, identify areas for improvement, and optimise energy efficiency even further. Smart meters will provide detailed insights into consumption patterns, enabling us to make more informed decisions on energy management, reduce waste, and enhance our resilience to load shedding.

10. Based on your experience, what policy interventions and incentives could support organisations in Lesotho in adopting sustainable corporate real estate management practices and enhancing energy resilience in the face of load shedding? Please explain

To help businesses handle load shedding, they should be given financial incentives, such as grants or tax breaks, to invest in backup power systems like generators or battery storage. Additionally, supporting research and development for new energy technologies can improve energy resilience and sustainability in building management. Together, these measures will help organisations better manage energy interruptions and promote a more reliable and eco-friendly energy system.

11. Please provide any additional comments or insights regarding sustainable corporate real estate management practices and their impact on load shedding.

Research Objective 2: To explore the implications of load shedding in Lesotho

12. In your opinion, what do you think are the implications of load shedding in Lesotho? Please discuss

Load shedding can have an impact on the economy because frequent power outages can disrupt business operations, leading to reduced productivity and financial losses. Industries reliant on continuous power, like manufacturing and services, may experience delays and increased costs. Consistent power interruptions can erode confidence in the business environment, potentially deterring investment and hindering economic growth

Households may have to invest in backup power which is a cost and can affect daily life activities such as cooking and daily chores.

Research Objective 3: To explore the current measures against load shedding in Lesotho

13. What are the current measures against load shedding in Lesotho? Please explain

I am not aware of any measures against loadshedding

14. In your opinion, what do you think of these measures against load shedding in Lesotho? Please discuss

I am not aware of any measures

Research Objective 4: To propose sustainable corporate real estate management (SCREM) strategies against load shedding in Lesotho

15. Based on your experience, can you please propose some sustainable corporate real estate management measures against load shedding in Lesotho? Please discuss

Implement national campaigns to raise awareness about energy conservation and the benefits of sustainable practices. Educate businesses and the public on how to reduce energy consumption and manage load shedding. Outdated or poorly maintained power plants may cause loadshedding, upgrading the power plant could be another measure used to manage loadshedding.

Thanks for participating in this study!

COMPANY G

Section A: Demographical Questions

1. Are you currently a professional in the corporate real estate sector in Lesotho?

I am currently a professional in the corporate real estate sector in Lesotho

2. What is your job function?

I help manage and oversee day-to-day operations and maintenance of properties and cater to the services required by my tenants.

3. What is your job title?

I am a Property Administrator

4. How long have you been working in the corporate real estate sector in Lesotho?

I have been working in the corporate real estate sector for 5 years, nine months.

Section B: Study Questions

Research Objective 1: To explore sustainable corporate real estate management (SCREM) in times of uncertainty in power supply in Lesotho

5. Can you describe the sustainable corporate real estate management practices currently implemented in your organisation? Please explain

The sustainable corporate real estate management practices currently implemented in my organisation include using cost-effective HVAC systems. Because of the office layout/setup, using natural lighting also helps reduce electricity consumption.

6. How aware is your organisation of sustainable corporate real estate management principles? Please discuss

The organisation is very aware of the SCREM principles because our strategic goals align with those of the SCREM principles. The organisation aims to prioritise and be inclusive not only of its prospects' well-being but also of the employees'. It aims to improve revenues/increase its asset base/value of its assets while ensuring that costs are minimised.

7. How does this awareness influence your organisation's adoption of sustainable practices? Please discuss

The practices are included in our vision, strategic goals/focus areas for the betterment of the organisation.

8. When considering investments in sustainable corporate real estate management practices, what key factors influence your organisation's decision-making process? Please explain

We look if at the financial implications, energy efficiency and environmental implications of the investment. We also recently developed a sustainability plan to guide us with the process

9. How do these sustainable practices contribute to load shedding avoidance and energy resilience in your organisation? Please explain

The usage of energy-efficient air conditioners, natural lighting, mostly in summertime, and LED lighting help conserve energy and reduce electricity consumption.

10. Based on your experience, what policy interventions and incentives could support organisations in Lesotho in adopting sustainable corporate real estate management practices and enhancing energy resilience in the face of load shedding? Please explain

- *Penalties for overconsumption/tariff charges*
- *Renewable energy tax incentives where organisations get tax pardons on condition that they buy renewable energy systems/solar panels.*
- *Renewable energy feed-in tariffs where businesses get paid for any extra energy their renewable systems make and send it back to the power grid.*

11. Please provide any additional comments or insights regarding sustainable corporate real estate management practices and their impact on load shedding.

I believe the Green Building initiative and knowledge of the initiative would help curb the load-shedding problems.

Research Objective 2: To explore the implications of load shedding in Lesotho

12. In your opinion, what do you think are the implications of load shedding in Lesotho? Please discuss

- *Load-shedding halts business operations and this affects business ability to perform which then leads to financial losses and no production.*
- *Load-shedding could lead to increased numbers to fatalities in healthcare facilities*
- *Crime, theft, burglaries*

Research Objective 3: To explore the current measures against load shedding in Lesotho

13. What are the current measures against load shedding in Lesotho? Please explain

- *Renewable hydropower energy stations initiative in Muela and Polihali.*
- *There are also talks of Lesotho possibly tapping into windfarming as another way of curbing load-shedding.*

14. In your opinion, what do you think of these measures against load shedding in Lesotho? Please discuss

They are good, necessary measures. They are eco-friendly, reliable, and cost-effective (in the long run), but they do take time to be operational and unfortunately, time isn't a luxury that Basotho has.

Research Objective 4: To propose sustainable corporate real estate management (SCREM) strategies against load shedding in Lesotho

15. Based on your experience, can you please propose some sustainable corporate real estate management measures against load shedding in Lesotho? Please discuss

- *Usage of renewable energy and more education on renewable energy.*
- *Green building initiatives and education on that as well.*

Thanks for participating in this study!

COMPANY H

Section A: Demographical Questions

1. Are you currently a professional in the corporate real estate sector in Lesotho?

Yes

2. What is your job function? *Leasing and facilities management*

3. What is your job title? *Property Manager*

4. How long have you been working in the corporate real estate sector in Lesotho?

10 years

Section B: Study Questions

Research Objective 1: To explore sustainable corporate real estate management (SCREM) in times of uncertainty in power supply in Lesotho

5. Can you describe the sustainable corporate real estate management practices currently implemented in your organisation? Please explain

We are currently phasing out traditional electric water heaters at our commercial properties effectively terminating hot water supply completely in ablutions and installing small (10L) under sink heaters in kitchenettes. The traditional water heaters were often oversized and unnecessarily high energy.

We are also replacing fluorescent light fittings with LED fittings and in some instances converting existing fluorescent fittings to LED-compatible ones. The energy-saving benefits of this are notable.

6. How aware is your organisation of sustainable corporate real estate management principles? Please discuss

It is very much aware hence implementation of initiatives mentioned above.

7. How does this awareness influence your organisation's adoption of sustainable practices? Please discuss

Implementing divisions are encouraged to adopt sustainable practices, and this value is contained in the organisation's 5-year strategic plan.

8. When considering investments in sustainable corporate real estate management practices, what key factors influence your organisation's decision-making process? Please explain

- *Positive impact on the environment*
- *Long-term return on investment, where possible.*
- *Value-adding potential, either at departmental or national level.*
- *Ease of harmonisation with existing infrastructure.*

9. How do these sustainable practices contribute to load shedding avoidance and energy resilience in your organisation? Please explain

Some are energy-saving solutions that translate in lower power demand by our properties from the national grid.

10. Based on your experience, what policy interventions and incentives could support organisations in Lesotho in adopting sustainable corporate real estate management practices and enhancing energy resilience in the face of load shedding? Please explain

Policy that encourages government ministry administration offices to enforce energy-saving habits and keep track of energy consumption (and water), with an intentional effort of continually saving more.

11. Please provide any additional comments or insights regarding sustainable corporate real estate management practices and their impact on load shedding.

None

Research Objective 2: To explore the implications of load shedding in Lesotho

12. In your opinion, what do you think are the implications of load shedding in Lesotho? Please discuss

Load shedding will increase the cost of business as businesses look for alternative energy sources. It will also force some players out of business due to affordability challenges.

Research Objective 3: To explore the current measures against load shedding in Lesotho

13. What are the current measures against load shedding in Lesotho? Please explain

I am only aware of campaigns by the Lesotho Electricity Company that advise consumers to be energy-wise.

14. In your opinion, what do you think of these measures against load shedding in Lesotho? Please discuss

A lot more can be done, especially by government as it is the biggest employer and occupier of office space. Energy conservation at government offices is questionable,

lights are often kept on around the clock and reported cases of heaters and airconditioning units being left on overnight are common.

Research Objective 4: To propose sustainable corporate real estate management (SCREM) strategies against load shedding in Lesotho

15. Based on your experience, can you please propose some sustainable corporate real estate management measures against load shedding in Lesotho? Please discuss

Landlords to install day light switches for security lighting and motion sensors for interior lighting as a start. If these interventions prove too expensive, to at least have people that ensure that lights are switched off after hours and that no heat-generating appliances are left on overnight.

Thanks for participating in this study!

COMPANY I

Section A: Demographical Questions

1. Are you currently a professional in the corporate real estate sector in Lesotho?

Yes

2. What is your job function?

- *Finding and screening tenants, handling lease agreements and addressing tenant complaints and issues.*
- *Overseeing Maintenance and repairs.*
- *Rent collection.*
- *Marketing and leasing.*
- *Financial management.*
- *Administrative duties such as managing paperwork related to leases and maintenance requests.*

3. What is your job title?

Property Manager

4. How long have you been working in the corporate real estate sector in Lesotho?

6.5 years

Section B: Study Questions

Research Objective 1: To explore sustainable corporate real estate management (SCREM) in times of uncertainty in power supply in Lesotho

5. Can you describe the sustainable corporate real estate management practices currently implemented in your organisation? Please explain

The building was designed with provision for the installation of solar panels for lighting and water heating at a later stage. Tenants are also encouraged to use less paper and look into the use of reusable materials. As the building had just recently completed construction the decision to use the most energy-efficient lighting available to us locally was taken with future plans of motion sensors to ensure the reduction waste when offices are unoccupied.

6. How aware and understanding are you and your organisation of sustainable corporate real estate management principles? Please discuss

Slightly aware at the beginning of the project, however as the project progressed we had been doing a little more research into it, however most of our concerns are either not available to us at the current moment or they are still in the early stages of development and testing, for example we were approached by a company that wanted to use our building to test their new range of solar-powered air conditioning units.

7. How does this awareness influence your organisation's adoption of sustainable practices? Please discuss

As the world is moving towards more environmentally conscious business practices, we believe that real estate shouldn't be an exception. We now have future plans to start making use of "Green lease Agreements" which incentive and encourage tenants to also incorporate more sustainable practices within their day-to-day operations.

8. When considering investments in sustainable corporate real estate management practices, what key factors influence your organisation's decision-making process? Please explain

long-term savings but more importantly availability of the products and what time frames can we expect when it comes servicing and maintenance of said products.

With the new technology that's out there it can be very difficult to find people that are familiar with the technology which would be inconvenient to our tenants.

9. How do these sustainable practices contribute to load shedding avoidance and energy resilience in your organisation? Please explain

With a building of our size it can easily put a large strain of the grid electrical grid. By implementing things like automatic door closers to increase the efficiency of heating and cooling units. Motion sensors for office lighting all contribute to decreasing the energy usage of the building which intern reduces the strain the building has on the grid.

10. Based on your experience, what policy interventions and incentives could support organisations in Lesotho in adopting sustainable corporate real estate management practices and enhancing energy resilience in the face of load shedding? Please explain

- *Having organisations such as LEC or the companies themselves monitor and report on their energy usage with tax credits and reductions based on their yearly performance.*
- *Feed-in tariffs and purchase agreements. Policies that allow for companies that are able to produce excess energy generated by renewable energy sources and sell it back to LEC.*

11. Please provide any additional comments or insights regarding sustainable corporate real estate management practices and their impact on load shedding.
I feel Lesotho is quite behind when it comes incentivising commercial entities to adopt more sustainable business practices.

Research Objective 2: To explore the implications of load shedding in Lesotho

12. In your opinion, what do you think are the implications of load shedding in Lesotho? Please discuss

Lesotho is an emerging market. Although it still young and slow to progress load shedding in Lesotho would halt all progress if not force the country to regress. As there isn't already visible signs of corporations heading towards green practices I

fear that once we hit a stage where load shedding becomes more frequent most business would not be able to operate at a basic level.

Research Objective 3: To explore the current measures against load shedding in Lesotho

13. What are the current measures against load shedding in Lesotho? Please explain

I feel most measures are taken at more of personal level within people's residences. Majority of the country live below the poverty line therefore use of electricity is generally at a minimum. Lights are used only when necessary and heating units such as electric fans and air conditioning units are not that prevalent.

14. In your opinion, what do you think of these measures against load shedding in Lesotho? Please discuss

Ultimately, I think they are generally good however these practices are forced by economic circumstances and not by choice. Which poses an entirely different conversation

Research Objective 4: To propose sustainable corporate real estate management (SCREM) strategies against load shedding in Lesotho

15. Based on your experience, can you please propose some sustainable corporate real estate management measures against load shedding in Lesotho? Please discuss

- *Having organisations such as LEC or the companies themselves monitor and report on their energy usage with tax credits and reductions based on their yearly performance.*
- *Feed-in tariffs and purchase agreements. Policies that allow for companies that can produce excess energy generated by renewable energy sources and sell it back to LEC.*
- *Mandates that require a certain percentage of energy must come from renewable sources.*
- *Financial support for development and implementation of green technologies.*

- *Prioritising the purchase of products and services that are environmentally friendly.*

Thanks for participating in this study!

COMPANY J

Section A: Demographical Questions

1. Are you currently a professional in the corporate real estate sector in Lesotho?
No
2. What is your job function? *Rent collection, tenant management, marketing, maintenance, procurement*
3. What is your job title? *Centre Manager*
4. How long have you been working in the corporate real estate sector in Lesotho?
6 years

Section B: Study Questions

Research Objective 1: To explore sustainable corporate real estate management (SCREM) in times of uncertainty in power supply in Lesotho

5. Can you describe the sustainable corporate real estate management practices currently implemented in your organisation? Please explain.
 - *Online video training to support employees understanding on going green in the company, these videos are very useful because before we do anything we consider environmental impact and also assist us to interrogate our thinking if there are other available options to go Green.*
6. How aware and understanding are you and your organisation of sustainable corporate real estate management principles? Please discuss.
 - *Executive team is very aware because every time they make provisions on their budgets for green technology, they also won a green award on student accommodation: the fact that they enter in to green competitions it says they understand the importance.*

7. How does this awareness influence your organisation's adoption of sustainable practices? Please discuss.

- *Adoption of sustainable practices has thus so far become favourable to the organisation, we have revised our policies and have set clear sustainability goals, such as reducing carbon footprints, and make informed decisions on property acquisitions, renovations, and maintenance. The awareness extends to Cost saving by lower operating costs through energy savings and improved efficiency, encourages organisations to adopt these practices.*
- *Since in most of the investments we use to develop comes from pension funds we always work very hard to ensure that we maintain our image in the eyes of the investors and other stakeholders through adopting to SDGs.*

8. When considering investments in sustainable corporate real estate management practices, what key factors influence your organisation's decision-making process? Please explain.

- *The investment vs long-term benefits: We make sure we make green building because they will result in less operational cost (energy savings) in future, we also do so to get points on Green financing.*
- *Return on Investment (ROI): Financial performance is crucial. We are always looking into the investment to maximise property or asset value without causing harm to the environment. We invest to what will be perceived as value to our tenants.*

9. How do these sustainable practices contribute to load shedding avoidance and energy resilience in your organisation? Please explain.

- *Through continuous investment in LED lights which creates an opportunity to reduce a load.*
- *Though usage of air conditioning is of the latest technology there are efficient in power consumption throughout all seasons.*
- *Our restaurant was designed to be on the outside to maximise more natural light: this is better than when the food court was inside: these has reduced*

more load to depend on artificial energy which at this moment is not in abundance.

10. Based on your experience, what policy interventions and incentives could support organisations in Lesotho in adopting sustainable corporate real estate management practices and enhancing energy resilience in the face of load shedding? Please explain.

There can be a grant that can be given to organisations, adopting to new saving technologies can assist.

11. real estate management practices and their impact on load shedding. Please provide any additional comments or insights regarding sustainable corporate: *building design that allows translucent and allow light to pass through using day light and save on energy., backup power, use of LED lights.*

12. In your opinion, what do you think are the implications of load shedding in Lesotho? Please discuss.

- *Business Disruptions: Frequent power outages can disrupt business operations, leading to decreased productivity and financial losses. Tenant reliant on Electric power like salons, restaurants can be highly impacted.*
- *Increased Costs: tenant will pay additional diesel costs proportionate to sqm, it will increase costs of doing business and this will hinder tenant growth.*
- *Increased Reliance on Diesel Generators: To cope with load shedding, businesses and households may rely more on diesel generators, which can increase greenhouse gas emissions and air pollution.*
- *Hindered Economic Growth: Persistent power shortages can slow down economic development and progress in various sectors, affecting long-term growth prospects.*
- *Reduced Business Confidence: Ongoing power issues can erode confidence in the stability of the business environment, impacting overall economic stability and future planning.*

Research Objective 3: To explore the current measures against load shedding in Lesotho

13. What are the current measures against load shedding in Lesotho? Please explain.

- *The country is currently maintaining its Hydro power generation plant at Muela Hydro power station, this is done to accommodate expansion of Hydro electrical plant in order to accommodate supply demand.*
- *Upgrading Infrastructure: Currently the country is upgrading infrastructure at Muela Hydro power station this is scheduled until next year March.*
- *Country is encouraging the nation to switch off unnecessary lights and plugs.*
- *Importing Power: Lesotho power generation is very low and the country is currently importing power from South Africa and Mozambique.*

14. In your opinion, what do you think of these measures against load shedding in Lesotho?

Improving Power Generation: Investments in new power plants (planned hydroelectric dam for Polihali Phase 2 and a planned Oxbow dam, including renewable solar energy at Ramorothole will increase overall capacity and reduce the need for load shedding.

Research Objective 4: To propose sustainable corporate real estate management (SCREM) strategies against load shedding in Lesotho

15. Based on your experience, can you please propose some sustainable corporate real estate management measures against load shedding in Lesotho?

Please discuss:

- *LED Lighting: Replace incandescent and fluorescent lighting with energy-efficient LED fixtures.*
- *Building Insulation: Improve insulation and window glazing to reduce heating and cooling needs.*
- *Generators: we installed diesel-powered generators as a backup power source. We ensure they are maintained regularly and have adequate fuel supplies.*

Thanks for participating in this study!

COMPANY K

Section A: Demographical Questions

1. Are you currently a professional in the corporate real estate sector in Lesotho? *Yes I am.*
2. What is your job function? *I deal with all space related matters in commercial buildings, from tenancy to maintenance as well as advertising on the side of the buildings.*
3. What is your job title? *Leasing Officer*
4. How long have you been working in the corporate real estate sector in Lesotho? *Total time would be 9 years.*

Section B: Study Questions

Research Objective 1: To explore sustainable corporate real estate management (SCREM) in times of uncertainty in power supply in Lesotho

5. Can you describe the sustainable corporate real estate management practices currently implemented in your organisation? Please explain.
we are very forward and honest with tenants. We encourage them to visit our offices and email regularly about any issues or concerns. we have included sensor lights and timers in order to save on energy and decrease our buildings carbon footprint. We encourage the use of different waste bins for different materials for recycling purposes. We have sign that remind tenants to be mindful of their use of water.
6. How aware is your organisation of sustainable corporate real estate management principles? Please discuss.
The organisation is fully aware of such "principles" and they are discussed in every staff meeting.
7. How does this awareness influence your organisation's adoption of sustainable practices? Please discuss.
We try to only use such principles. Adoption of these principles have become a form of Modus Operandi where we base our work and work ethic around them.

8. When considering investments in sustainable corporate real estate management practices, what key factors influence your organisation's decision-making process? Please explain.

Affordability, sustainability, durability.

9. How do these sustainable practices contribute to load shedding avoidance and energy resilience in your organisation? Please explain.

They decrease their impact on the city power grid which is positive on energy resilience as well on our end.

10. Based on your experience, what policy interventions and incentives could support organisations in Lesotho in adopting sustainable corporate real estate management practices and enhancing energy resilience in the face of load shedding? Please explain.

Legislation that inhibits use of certain materials in buildings, similar to what happened with asbestos. The use of water and energy-saving products. Incentives could include percentage decreases in rent if tenants abide by suggest options by the landlord.

11. Please provide any additional comments or insights regarding sustainable corporate real estate management practices and their impact on load shedding.

Research Objective 2: To explore the implications of load shedding in Lesotho

12. In your opinion, what do you think are the implications of load shedding in Lesotho?

Please discuss

Load shedding greatly hinders productivity in work places as it is not a very common occurrence and most business have not put in place measures to combat load shedding such as generators etc. The end result is minimal productivity and output when load shedding occurs.

Research Objective 3: To explore the current measures against load shedding in Lesotho

13. What are the current measures against load shedding in Lesotho? Please explain
- big corporations have generators and solar panels. But minus that I don't think*

there are actual measures in place outside what the private sector has been able to do for itself.

14. In your opinion, what do you think of these measures against load shedding in Lesotho? Please discuss.

They are a means to keep businesses running but very few organizations are able to afford installing them which is overall not positive for the economy.

Research Objective 4: To propose sustainable corporate real estate management (SCREM) strategies against load shedding in Lesotho

15. Based on your experience, can you please propose some sustainable corporate real estate management measures against load shedding in Lesotho? Please discuss.

I would suggest the use of solar panels for lights in buildings. The use of proper building materials such as insulation windows. The use of timers and sensors.

Thanks for participating in this study!

COMPANY L

Section A: Demographical Questions

1. Are you currently a professional in the corporate real estate sector in Lesotho?

Yes.

2. What is your job function?

Property management of an office building. Duties include property administration, project supervision and facilities management.

3. What is your job title?

Centre Manager.

4. How long have you been working in the corporate real estate sector in Lesotho?

7 years.

Section B: Study Questions

Research Objective 1: To explore sustainable corporate real estate management (SCREM) in times of uncertainty in power supply in Lesotho

5. Can you describe the sustainable corporate real estate management practices currently implemented in your organisation? Please explain

Project level - project assessment on environmental, social and stakeholder impacts and creation of strategies to mitigate impacts.

Operational level - practices such as water and waste management, inventory management, energy-efficient lighting, backup power in the form of a generator.

6. How aware is your organisation of sustainable corporate real estate management principles? Please discuss

There is a moderate awareness of the importance of sustainable corporate real estate management principles. They are regarded as a tool for maintaining the longevity of physical property and enhancing their value while reducing environmental impacts, fostering stakeholder engagement all while efficiently managing the property, and maintaining functionality of the organisation.

7. How does this awareness influence your organisation's adoption of sustainable practices? Please discuss

With planned projects this awareness encourages the organisation to keep the concept of sustainability close to mind. Projects become holistic; in addition to seeking to achieve a particular end result or change, they aim to consider and mitigate negative environmental, social and stakeholder impacts.

In its day-to-day operations, the same considerations apply, though on a more regular, and in certain instances minute basis e.g. considering waste and water management, and energy-efficient practices.

8. When considering investments in sustainable corporate real estate management practices, what key factors influence your organisation's decision-making process? Please explain

As a corporate entity, one of the key considerations is the initial capital expenditure required to implement these sustainable practices. This includes availability of product, ease of sourcing and installation if needed. The second would be the medium and

long-term benefits which would be gained from its implementation. Third is analysing property market trends, which can provide insight into what property tenants seek in a building (e.g. green rated building). Lastly and closely related to initial costs is the cost of operation and maintenance of these sustainable systems.

9. How do these sustainable practices contribute to load shedding avoidance and energy resilience in your organisation? Please explain

I consider load shedding to be an external factor which can impact an organisation. If the national power grid is under strain or not functioning properly, then it will resort to load shedding, thus it is unavoidable in this regard. What organisations can attempt to do is avoid or rather reduce the impact of load shedding and increase their energy resilience through sustainable practices. On the other hand, loadshedding avoidance can be achieved by reducing the load on the power grid; through adoption of alternative power sources.

10. Based on your experience, what policy interventions and incentives could support organisations in Lesotho in adopting sustainable corporate real estate management practices and enhancing energy resilience in the face of load shedding? Please explain

- *Tax incentives and tax breaks: Organisations can be encouraged to migrate to implementing alternative sources of power through incentives and tax breaks. These incentives can be provided in various stages of implementation of these sustainable practices. First could be a government incentive to contribute to the initial (and often very high) capital costs of purchasing alternative power systems, e.g. solar power systems. The incentive could be offered at the end of the life of the power system e.g. after 10 years there can be an incentive to contribute (say M10,000) to the refurbishment/renewal/overhaul of the system.*
- *Providing skills upgrading/training to property practitioners and fostering cooperation between policymakers and organisations to encourage migration to green energy. This education can be introduced earlier and used to supplement existing real estate/property courses in institutions of higher learning.*

- *Create interest and buy-in amongst relevant stakeholders. Solar energy can be a sustainable alternative source of power but needs policymakers to commit to fostering interest and providing support through learned experiences (from other countries) in its implementation and operations. Have Incubation programmes with stringent monitoring and evaluation practices. In so doing organisations can buy into these alternative power sources.*

11. Please provide any additional comments or insights regarding sustainable corporate real estate management practices and their impact on load shedding.

None.

Research Objective 2: To explore the implications of load shedding in Lesotho

12. In your opinion, what do you think are the implications of load shedding in Lesotho?

Please discuss

The first and probably most noteworthy implication is the negative impact loadshedding would have on the economy. Let us consider the industry/economic base of the country. Manufacturing and construction are significant employers and contributors to the country's GDP. Next we find private businesses, public institutions and SMME's, whose establishment is encouraged as a means to generate employment. From the experience of the neighbouring South Africa, generators are the primary source of power supply in the absence of the main supply. This might be followed by solar power. From this experience it is widely known that purchasing and operating a generator (through fuel purchases) is a costly endeavour that cannot be afforded by all. Those that can afford a generator are burdened with buying fuel. Those that cannot lose hours of productive time, and loss of productive time equals loss of revenue. I refer to South Africa again; news stations have discussed the issue of loadshedding with small business and a majority really struggle, ultimately being forced to close down. Therefore, there is a significant knock-on effect due to loss of power. In Lesotho, this effect could be worsened because of the already small economy and reported high unemployment levels. Outside of the economy, loadshedding can have an impact on way of life; commutes become even more burdensome and dangerous for example.

Research Objective 3: To explore the current measures against load shedding in Lesotho

13. What are the current measures against load shedding in Lesotho? Please explain
I do not think there are widespread established measures against load shedding save for individual organisations/properties which have installed back up power in the form of generators. I am unaware of buildings that have installed alternative sources of power.

14. In your opinion, what do you think of these measures against load shedding in Lesotho? Please discuss

As mentioned, these measures are very individual in nature and can probably be implemented only by those who have the capacity to obtain back up power. There are companies which seem to be employing alternatives such as solar power but I do not know how deeply and widely this has taken root in terms of its installation in large(r) properties around the city and country. Thus, the measures are limited.

Research Objective 4: To propose sustainable corporate real estate management (SCREM) strategies against load shedding in Lesotho

15. Based on your experience, can you please propose some sustainable corporate real estate management measures against load shedding in Lesotho? Please discuss

The two clean and alternative sources of power that could be explored in Lesotho are solar and wind energy.

Thanks for participating in this study!

ANNEXURES

Annexure 1 - Ethical clearance



2024-0308_GHREC Ethics Approval_Signed.pdf (1).pdf

Annexure 2 - Turnitin Report



2023328533 - MBRP7900.docx_TurnItIn.pdf

Annexure 3 - Editing certificate



Editing Certificate - KANANELO (18.11.2024).pdf

Annexure 4 - Consent form

REQUEST FOR PERMISSION TO CONDUCT RESEARCH

Dear *Company*

I am doing research and would like to request permission to conduct my research at *Company*.

DATE

1 May 2024

TITLE OF THE RESEARCH PROJECT

Sustainable corporate real estate management (SCREM) in uncertain times – avoiding load shedding in Lesotho.

PRINCIPLE INVESTIGATOR / RESEARCHER(S) NAME(S) AND CONTACT NUMBER(S):

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FACULTY AND DEPARTMENT:

*FACULTY OF MANAGEMENT AND ECONOMIC SCIENCES
UFS Business School*

STUDYLEADER(S) NAME AND CONTACT NUMBER:

Dr. Mark Marais

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WHAT IS THE AIM / PURPOSE OF THE STUDY?

The aim of this study is to investigate the potential of using sustainable corporate real estate management in optimising energy use, enhancing resilience, and reducing vulnerability to electricity disruptions in Lesotho.

WHO IS DOING THE RESEARCH?

The researcher is an MBA student at the University of the Free State who also works as a property portfolio Manager at Lesotho Housing and Land Development Corporation who is very passionate about real estate and green buildings.

