

THE ROLE OF LOCAL LEVEL AGENCY IN A JUST GREEN TRANSITION: THE CASE OF RHODES UNIVERSITY

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Abstract

The research uses a richly contextualised case study of Rhodes University to explore the role of local level agency in a just green transition. The central concept of the thesis is *mainstreaming sustainability*. Sustainability has become a core objective both at the macro and micro levels. The just green transition and triple bottom line are shorthand for these macro and micro concepts. At the macro level, there is increasing evidence suggesting that transitioning to a sustainable economy can be a key driver of economic development. At the micro level, the elements of the triple bottom line increasingly overlap, with sustainability no longer a separate goal, or a ‘nice to have’, but integral to organisational success. However, this potential is clearly not being realised, and sustainability often remains ‘niche’.

Lack of progress at the macro-level reinforces the importance of bottom-up, local level agency. In keeping with the broader micro-level literature, the case study strongly suggests that mainstreaming sustainability would have multiple benefits. These include reducing dependence on unreliable state-provided services and enhancing Rhodes University’s standing as a genuinely transformative institution. The evidence suggests that there is a pure financial case for green investments, such as the construction of a solar farm at Rhodes University, even before accounting for the social and environmental benefits of such an initiative.

This shifts the focus to *why* institutions like Rhodes University have not been proactive in mainstreaming sustainability. The document analysis and the interviews showed that there is an awareness of the importance and potential of mainstreaming sustainability. However, the funding squeeze is often misperceived as a binding constraint, and there is an absence of innovative thinking about how to finance projects with high returns, such as a solar farm. A theme amongst several of the interviewees was that the university should embrace a policy of enhancing small changes as a way of mainstreaming sustainability gradually. Even here, there are doubts about whether the organisational structure of the university will allow this. On the other hand, there are positive signs that the increasing sense of crisis means management and other key stakeholders are gradually shifting towards seeing the crucial importance of the university embracing a more proactive stance.

Declaration

This thesis has not been submitted to a university other than Rhodes University, Makhanda, South Africa. The work presented is that of the author and all references have been accurately recorded.

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List of Abbreviations:

AG: Auditor General

ANC: African National Congress

CED: Climate Emergency Declaration

DEAT: Department of Environmental Affairs and Tourism

DEFF: Department of Environment, Forestry and Fisheries

DFFE: Department of Forestry, Fisheries and Environment

EIA: Energy Information Administration

EKC: Environmental Kuznet's Curve

EU: European Union

EV: Electric Vehicle

FNB: First National Bank

GBCSA: Green Building Council South Africa

GDP: Gross Domestic Product

GHG: Greenhouse Gas Emissions

GND: Green New Deal

IDP: Institutional Development Plan

IMF: International Monetary Fund

IPCC: Intergovernmental Panel on Climate Change

IRENA: International Renewable Energy Agency

NCCAS: National Climate Change Adaptation Strategy

NDC: Nationally Determined Contributions

NFSD: National Framework for Sustainable Development

PCAN: Place-based Climate Action Network

RET: Renewable Energy Tariff

RU: Rhodes University

SA: South Africa

SDGs: Sustainable Development Goals

SMMEs: Small, Medium and Macro Enterprises

SOE: State Owned Enterprise

SRC: Student Representative Council

TBL: Triple Bottom Line

UK: United Kingdom

UN: United Nations

UNDG: United Nations Development Group

UNEP: United Nations Environmental Program

UNFCCC: United Nations Framework Convention on Climate Change

US: United States

USA: United States of America

WWF: World Wildlife Foundation

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Chapter 1 – Introduction

1.1 – Research Context

Sustainability has been framed in various ways, with the United Nations (2022a) defining sustainability as “meeting the needs of the present, without compromising the ability of future generations to meet their own needs”. A just green transition refers to greening economic, institutional or organisational practices in a manner that is inclusive, fair and sustainable (Inderst *et al.*, 2012: 10). There are three interconnected dimensions to sustainable development, namely, economic, environmental and social dimensions (Wong, 2017: 375). Sustainable development is economic development that does not deplete or damage natural resources (Wong, 2017: 375).

According to Ramakrishna and Jose (2022: 65), the catastrophe that is climate change poses a great threat to sustainability. Climate change and the consequences thereof are already evident in South Africa. In a report by Carbon Brief (2018), South Africa is the 14th largest emitter of greenhouse gases in the world. Erasmus *et al* (2018: 2) argue that climate change has severely impacted the air, food security and weather patterns in SA. Erasmus *et al* (2018: 2) note that 4% of deaths recorded in SA in 2015 were linked to air pollution. Climate change is a pressing global problem that affects local communities. Similarly, local level issues have major spillovers to global issues, such as plastic waste and pollutants entering the ocean. Sustainability issues are global, but they can both have local impacts and be addressed locally.

The issue of unsustainability and its potential solutions has been framed in economic theory as follows. The core issue is externalities. Externalities are the costs (negative) or benefits (positive) that are imposed on a third party by another (Moselle, 2010: 74). Theoretically, there are two broad approaches to solving externalities, namely, top-down and bottom-up. Pigou (1920: 163) argues that the state has the ability to control externalities through implementing incentives or restraints, such as taxes. This essentially draws on a top-down approach. Current policies and commitments at the global and national levels aimed at climate action, such as The Paris Agreement and Nationally Determined Contributions under the UN’s framework, draw on this top-down approach. According to Bregman (2020: 65), governments are deemed necessary to regulate markets and control externalities.

However, the top-down approach, especially in the South African context, has been criticised. The WWF (2018: 7) has dubbed the South African government's efforts to steer the economy into a direction of green growth a "public-relations exercise" and stated that the government has "failed to grasp the opportunities" that are associated with green growth. Furthermore, the WWF (2018: 8) found that poor leadership, poor planning and poor implementation capacity are obstacles to a just green transition in SA. Death (2012: 12) argues that the biggest barrier to a just green transition is the institutional arrangements in SA. Chhatre and Agrawal (2009: 243) found "community management", essentially a bottom-up approach, to be more progressive. According to Leichenko (2011: 165), the focus of cities, and communities at large, needs to shift towards sustainable development and sustainable practices. There has been a global tendency towards top-down approaches; however, considering the South African case, it seems that government has been an obstacle rather than a facilitator of a just green transition. Therefore, it is imperative to consider bottom-up solutions.

Negative externalities are inefficient (Moselle, 2010: 7); however they are untapped opportunities that present a potential gain from trade, provided an appropriate mechanism exists. These mechanisms can be market, collective action or individual action by entities with agency such as universities. Coase (1974: 363) states that government intervention is not necessary to resolve externalities and market economies are capable of reaching Pareto-efficient outcomes, if left alone. According to Ostrom (1997: 37), neither the state nor the market has been uniformly successful in resolving externalities or attaining long-term sustainability; instead, there is a need for collective action and community. Coase and Ostrom essentially draw on the bottom-up approach. The Coase and Ostrom logic draws on trade and collective action, respectively, to resolve externalities. However, there is another bottom-up solution at the micro level, which is essentially centred on the role of firms, institutions and organisations – the triple bottom line (TBL). Organisations, institutions and firms, particularly those with significant agency, have the ability to act independently. Therefore, a multilayered approach can be imagined, where the bottom-up sphere consists of individual firms and institutions like Rhodes University. This extends to the TBL where a just green transition is linked to the bottom line, due to the profitability of sustainability. Moreover, collective action at the local level, and a less local but

still bottom-up layer, such as the emergence of markets, leads to green benefits. The top-down sphere consists of regulation at the local level, such as municipal by-laws, and regulation at the national and multilateral level. The bottom-up and top-down sphere, and the different aspects discussed above relating to these spheres, are not mutually exclusive. For example, Rhodes University can act in its own capacity and engage with other stakeholders. Cross-cutting this is the degree to which externalities can be internalised and made into profitable opportunities, versus the extent to which they remain collective issues that require top-down solutions. For example, renewable energy generation can provide profitable opportunities; however, at the opposite end of the spectrum issues such as global warming and the over-exploitation of natural resources are more challenging to internalise.

Sustainability ultimately encompasses the three dimensions of economic, environmental and social. The TBL is an organisation's attempt at meeting corporate social responsibility objectives that are "economically justifiable" while also meeting environmental and societal expectations (Zak, 2015: 251). The bottom line, or core aspect, of the TBL is profits (Zak, 2015: 251). Sustainable development and the TBL are ultimately fundamentals of a just green transition. Rhodes University is a non-profit organisation; therefore, profits might not be regarded as essential. However, the bottom line does extend to non-profits seeing that non-profits are concerned with costs and revenues. Revenue stream is of the utmost importance in order for the institution to invest in infrastructure, increase funding for research, offer more scholarships, and employ more academic staff. When further considering the micro level, Wong (2017: 376), argues that by improving environmental performance, firms can improve financial performance through cost saving and positive market responses, such as improved brand image.

Despite a "myriad of benefits" that are associated with organisations adopting green practices, implementing these green practices in the organisations' operations presents numerous obstacles (Baki, 2018: 117). Potrich *et al* (2019: 273) found that firms that adopted a proactive approach to sustainable development and environmental awareness gained considerable competitive advantage. Furthermore, Potrich *et al* (2019: 274) argue that a reactive approach is inefficient and costly, whereas an appropriate proactive approach to environmental issues could result in cost-reduction and an increase in operational efficiency. Given the evidence that a proactive

approach is beneficial, *why* are there firms, organisations and institutions that have not adopted this approach?

According to Govindan *et al* (2014: 558), the main obstacle for organisations to switch to sustainable practices is finance. Other obstacles include lack of knowledge of the benefits of sustainable practices, lack of expertise with regard to the implementation and adoption of sustainable technologies, and lack of top management commitment to sustainability (Baki, 2018: 119). Through primary research, the thesis aims to explore the extent to which these constraints are relevant to the case, Rhodes University, and also explore whether these constraints are binding. Bottom-up approaches, and ultimately independent action by firms and institutions at the local level such as Rhodes University, could prove pivotal. The Rhodes University Annual Report (2020: 16) claims that the university is by far the largest employer in the Makana region and contributes between 60% and 65% of GDP in this region. According to Rhodes University (2020), one of its missions is to pursue “a policy of environmental best-practice”. Rhodes University has significant agency and has policies or goals in place to be more sustainable. Due to this agency, it is imperative to investigate the university’s *potential* with regard to sustainability. Is Rhodes University optimising its triple bottom line? And if not, what are the binding *constraints*?

Sibindi (2021: 57) argues that tertiary education institutions have “lagged behind” in implementing renewable energy policies. While there have been other studies on the role of local agency in South Africa (Morombo, 2016: 146; van Wyk, 2018: 31) and internationally (Stoknes and Rockstrom, 2018: 42; World Economic Forum, 2021), an intensive study of the case of Makhanda and Rhodes University is of great interest for two reasons. Firstly, while the findings may not be directly generalisable to different contexts, the study may yield insights and hypotheses that may be valuable to other contexts where the same basic problem of slow implementation of green policies by entities with apparent agency applies. Secondly, even to the extent that the results are not generalisable, Makhanda is a significant town, and Rhodes University is an important potential change agent, both locally and because of its wider teaching, community engagement, and research mandates.

1.2 – Goals of the Research

The main objective of this thesis is to explore the potential contribution of local level agency to a just green transition in South Africa and the constraints to achieving this potential, using the case of Rhodes University.

Sub-goals this research serves to address are:

1. To determine how sustainability is conceptualised at the multilateral, global, national and local levels, with a particular focus on the role of local agency, and how this connects with concepts such as triple bottom line and just green transition.
2. To contextualise Rhodes University, in its roles as both an important player in the local economy (Makhanda) and as part of South Africa's higher education system.
3. To determine whether the necessary technology is available to facilitate a green transition and to explore the feasibility of a green transition at Rhodes University
4. To explore the extent to which sustainability is proactively integrated into the university's planning and the potential drivers of and constraints on such integration.
5. To explore the generalisability of results drawn from the Rhodes University case and to outline insights for broader issues of sustainability.

1.3 – Methodology

The methodology used in this thesis is set out in detail in Chapter 2. This section provides a brief overview of the methodology. This study is located in a post-positivist paradigm and makes use of a qualitative research approach, based on primary and secondary research. Qualitative research consists of methods that are sound and well-grounded and that provide rich descriptions of processes in identifiable local contexts (Castleberry and Nolan, 2018: 5).

The qualitative approach suits this thesis, as it focuses on the local context. The qualitative, post-positivist approach aims to produce an in-depth picture that values the individual responses of participants and is especially appropriate when the questions that are asked by the researcher do not have one precise answer and are challenging to answer (Ryan, 2006: 10). Post-positivism emphasises the need for new meaning, ideas and knowledge (Ryan, 2006: 10).

The research method consists of a broad literature review, a detailed analysis of existing publications and grey literature, and in-depth interviews with well-positioned individuals. Qualitative research often consists of thematic analysis that aims to identify, analyse and report patterns or themes within data (Braun and Clarke, 2006: 87). This research study conducted a thematic analysis of primary data collected using in-depth interviews with key informants. The primary research was based on findings from semi-structured and open-ended interviews with key informants and probed themes highlighted in the literature. The questions were structured in a manner that gives insight into specific themes such as financing, institutions' relationship with the government, costliness of adopting green systems/practices, commitment of top management to sustainability, and awareness of the benefits and costs of sustainability.

The interviews made use of purposive sampling. The purposive sampling method pertaining to this field of research is *expert sampling*. The sample consisted of individuals who are well-positioned at Rhodes University, with a lesser focus on the municipality, as well as a local supermarket. The thesis aimed to interview at least two people with expert knowledge pertaining to each theme and aimed to conclude the interview process if, or once, this point of saturation was reached.

The research does have obvious limitations of generalisability because of its reliance on a single case study. Even to the extent that the results are not generalisable, the research remains important due to the significance of Rhodes University in the local economy and as an academic institution. Beyond this, the literature suggests that the problems that the university faces, both organisational and in terms of its context, are not unique, and consequently, that the insights from this study have broader resonance.

1.4 – Chapter Outline

The thesis is structured as follows:

Chapter 2 sets out the methodology. Chapter 3 considers the theoretical framework and different approaches relevant to the research. South Africa is contextualised in Chapter 4 and the role and current state of government is investigated. In Chapter 5, the case, Rhodes University, is contextualised. Chapter 6 details the findings of the primary research. The conclusions are presented in Chapter 7.

Chapter 2 – Methodology

2.1 – Introduction

As noted in Section 1.2, the aim of this thesis is to explore the role of local level agency in a just green transition using the Rhodes University case and the method is to use a richly contextualised case study. The contextualisation is done by a review of the existing literature by using semi-structured interviews, conducted between September and October 2022, as the primary research instrument. This chapter explains and justifies the research methodology used.

The research question is not easily answered with a large sample therefore a post-positivist approach is used, as described in Section 2.2. The research findings were compared using thematic analysis as detailed in Section 2.3. In Section 2.4, the sampling method is justified. Collection and storing of data is considered in Section 2.5.

2.2 – Research Paradigm

The research is qualitative and falls into the post-positive paradigm. A positivist, quantitative approach would not be suitable for this thesis, because a quantitative approach is not able to consider and examine individual cases, and in most instances, it is highly structured which does not allow for the researcher to follow up on unexpected outcomes (Ryan, 2006: 10). The research questions cannot be answered through a large ‘n’ approach because the questions are not well defined. Rather, an approach that is rich both in its contextualisation of the case and in the detailed probing of the case itself was used. For example, the binding constraint(s) could not be gleaned just by asking a large sample and finding the most common answer. Responses needed to be evaluated both by considering the expertise and position of the respondent and by checking with other sources such as publicly available information. The aim was not to answer pre-prepared questions; instead the aim was to explore and gain in-depth insight into the case, which leads to new questions arising.

The research paradigm is post-positivist. Post-positivism emphasises meaning and the generation of new ideas and knowledge (Ryan, 2006: 12). Furthermore, Hammersley (2000: 452) argues that post-positivism encourages the researcher to “see the whole picture” and gain subjective,

rather than objective, truth. The difference between positivist and post-positivist research is that the positivist research approach regards positivist research methods and data as mirrors of reality. In contrast, Ryan (2006: 12) argues that the post-positivist approach regards the positivist approach as mirroring “representational ideologies” of the positivist researcher. Post-positivist research attempts to disrupt the predictability that is often found in traditional, positivist interviews and strives to engage in social construction of narratives with participants, rather than to generate a neutral, unbiased opinion (Ryan, 2006: 12). This is especially relevant to the Rhodes University case study, as the aim was to probe the opinions and views of experts, whilst maintaining confidentiality, in order to have a rich understanding of the Rhodes University case. Confidentiality was of utmost importance to protect the interviewees and to allow the interviewees to be honest and open. Interviewees from different departments and with different positions within Rhodes University were asked the same questions. However, their different departments and positions allowed for differentiating insight into the Rhodes University case. This is especially important in order to “see the whole picture” and, at times, generate varying responses. According to Ryan (2006: 12), this is a useful means of gaining insight into the participants’ stock of knowledge, which relates to the expert sampling method as will further be discussed in Section 2.4.

According to Hammersley (2000: 456), post-positivism does not necessarily aim to solve problems but rather to have an open-ended, exploratory approach. This is especially relevant to this thesis which aimed to explore the factors constraining the university’s potential and eventually set out to determine the bindingness of these constraints, without searching for one specific answer. The post-positivist research approach can answer questions, indicate the causes of problems and simultaneously raise problems through open-ended interviews (Hammersley, 2000: 456). Furthermore, Hammersley (2000: 456) argues that obvious and evident problems “should not always be taken at face value” and that problems often need to be discovered. The post-positivist approach is a means of discovery and an open-minded approach to problem solving. This is especially relevant to the research case because different problems and different solutions to these problems are considered, with no ‘one-set answer’ being probed.

Post-positivism is characterised by broad rather than specific research (Schatz and Walker, 1995: 125). Schatz and Walker (1995: 125) argue that post-positivism is subjective; it regards the interviewee as a research subject from whom to collect and extract information and strives to work with interviewees in all their complexity. Post-positivist research goes beyond the limitations of positivism. The post-positivist approach does not aggregate data as a means to get to one, general truth; instead, it recognises the complexities of life and experiences (Schatz and Walker, 1995: 126). This motivated the post-positivist approach for the research, seeing that experts from different fields would be interviewed on their views of the Rhodes University case and broader issues of sustainability. The interviewees have different experiences and perspectives, which reiterates that this research did not aim to reach one general truth. According to Richie and Rigano (2001: 752), post-positivism strives to get to the individual truths of interviewees through open-ended dialogues. Individuals with knowledge on particular issues are identified and interviewed in order to construct interpretations and discuss possible actions that can be taken. Due to the flexibility and open-endedness of the post-positivist approach, it was most appropriate for the research study.

The search for meaning can lead to value-led social change. The post-positivist approach takes account of the concept of discourse which produces a certain way of thinking or responding (Ryan, 2006: 11). Discourse influences individual participants' interpretations of events. Ryan (2006: 11) argues that discourse involves different beliefs, practices, categories and statements that are used to filter and interpret experiences at a certain time in history. The value of narrative is a pillar of the post-positivist approach (Ryan, 2006: 14). Narratives highlight how individuals actively assume certain positions in discourse and how they assume certain positions due to the actions of others, social structures and discursive practices (Ryan, 2006: 14).

The post-positivist approach often relies on data from participants with different, competing discourses which gives rise to contradictions. According to Lather (1991: 7), these contradictions and differing opinions are central to the post-positivist theme and the researcher needs to strive to examine these contradictions rather than try to control or resolve them. Throughout this research these contradictions were studied and examined, instead of trying to solve them should they arise. Post-positivism produces an awareness of the complexities surrounding truth.

2.3 – Thematic Analysis

Thematic analysis is a form of qualitative analysis that is used to analyse certain patterns, themes and observations that relate to data (Alhojailan, 2012: 40). Thematic analysis interprets data extensively and explores diverse subjects through interpretation (Alhojailan, 2012: 40). Moreover Alhojailan (2012: 40) argues that thematic analysis is most appropriate for research that looks to explore data through interpretation. This is especially applicable as this thesis sought to discover and analyse different themes pertaining to the research topic by interpreting interviews. Themes and patterns were analysed from the primary research interviews to inform the findings. Thematic analysis was conducted in a semi-structured, interpretive manner, and as such, the primary research was conducted through semi-structured interviews. The broader theme of sustainability and a just green transition was probed; however, the interviews remained open in order to gain insight into other themes.

According to Braun and Clarke (2006: 81), grounded theory and thematic analysis is similar in that both approaches aim to construct theories through analysing data. Thematic analysis provides the ability for the researcher to explore the frequency of a certain theme in relation to the research content as a whole (Alhojailan, 2012: 40). According to Alhojailan (2012: 40), this will result in accurate and intricate research and enhance the whole meaning of the research. Thematic analysis provides the researcher with insight to grasp a certain issue more extensively and enriches the understanding of the issue (Marks and Yardley, 2004: 8). This is especially relevant to the research case, as the thesis sought not only to determine which obstacles and constraints are being faced, but also to gain more insight into these issues. Thematic analysis allows for the cross-comparison and interpretation of data from different sources in order to inform a conclusion (Alhojailan, 2012: 40). Thematic analysis is flexible in that it can be used for inductive and deductive methodologies. According to Alhojailan (2012: 40), the inductive approach will start with an analysis of certain content, in this case Rhodes University and the theme around sustainability, which could later feed into broader generalisations. These broader generalisations could be sustainability at other institutions with significant agency. The flexibility around thematic analysis allows the researcher to deal with the trends and patterns that were identified during the study.

The themes probed are in the interview schedule (Appendix B). The themes that were probed originated from the contextual analysis, namely, the broader literature review, and more specific analysis of Rhodes University and Makhanda. At an early stage of the interview process, certain themes continuously emerged, such as a vision for renewable energy and cost considerations. The themes were then refined for later interviews in order to gain deeper insight into constraints. Once the interview process was completed, the themes were compared and analysed, as extensively detailed in Chapter 6.

2.4 – Sampling

When considering research, the sample is the portion of the population that is used to generate results (Tailor, 2005: 1). The gathering of data is essential in research to provide a better understanding of the theoretical framework (Tailor, 2005: 1). Hence, the data that is collected – essentially the sample – needs to be acquired through sound judgement since improperly collected data is detrimental to research (Etikan *et al.*, 2016: 2). According to Etikan *et al* (2005: 2), purposive sampling is also referred to as “judgement sampling” since the sample is deliberately chosen based on the knowledge and qualities of the participants.

Purposive sampling is a non-random technique since the participants are chosen and interviewed based on their positions. Furthermore Bernard (2002: 2) argues that purposive sampling is commonly used in qualitative research because the researcher sets out to gather information from informed individuals with experience in their respective fields. Moreover Bernard (2002: 2) argues that purposive sampling is used to identify “information-rich cases” that can provide the necessary insight pertaining to the field of research. In contrast to random sampling and studies that aim to gain insight from a diverse population sample, purposive sampling concentrates on individuals with specific knowledge, experience, influence, characteristics and information who are more qualified to assist with the research (Etikan *et al.*, 2005: 2).

As mentioned in Chapter 1, the purposive sampling method pertaining to the field of research of the thesis is expert sampling. As stated in the name, expert sampling aims to gain insight and information from individuals who are well-informed in their fields (Etikan *et al.*, 2005: 3). The thesis aimed to interview key, informed and knowledgeable individuals, who are well-positioned

in the university and town and who were most suitable to inform the research area. Interviewees from Rhodes University were senior academics and senior management, chosen because of their experience at the university and because of their experience in decision-making bodies like Senate. The interviewee from the municipality was part of senior management at the municipality. The local business person was interviewed due to their role as owner of one of the largest businesses in Makhanda, as well as their role as business in the local town which entails community projects such as the pothole program. Generally, interviewees had expert knowledge about more than one theme pertaining to the research case.

2.5 – Data Collection, Storage and Ethics

Data was gathered from the sample group through semi-structured interviews. The interviews were conducted between 5 September 2022 and 25 October 2022. Ethical approval (Appendix C) was obtained before the interview process commenced. Interviewees were required to read and sign a ‘participant informed consent declaration’ (Appendix A), before the interview commenced. The consent declarations were emailed to interviewees one week prior to the scheduled interviews, and a printed copy of the consent declaration was given to interviewees on the day of the interview. Interviews were recorded using an iPhone 8 and stored on Google Drive, which is encrypted, to ensure safe-keeping. The Otter transcription application was used to transcribe interviews. Access to interviews is limited to my supervisor and me, for confidentiality reasons.

Semi-structured interviews are a versatile and powerful qualitative research method (Galletta, 2013: 9). Semi-structured interviews are adequately structured to address certain topics pertaining to the phenomenon of a study, while allowing participants to contribute new meanings and knowledge to the area of focus (Galletta, 2013: 24). Furthermore, Galletta (2013: 24) says that semi-structured interviews are an efficient way of addressing the complexities within one’s research and the questions can be structured in a way to yield considerable, multi-dimensional sources of data. As mentioned above, the aim of the research was not to get to one general truth or to generate specific answers; instead, the aim was to probe issues pertaining to the research case from the perspective of experts.

The semi-structured interview approach does not have a set number of participants that need to be interviewed; however, Galetta (2013: 34) states that interviews should be concluded once the interview data from participants no longer generate new thematic patterns. At this point of saturation, an analysis of the data can commence.

Semi-structured interviews are designed in a way to generate “subjective responses from people regarding a certain situation” (McIntosh and Morse, 2015: 1). The semi-structured interview is most appropriate when there is sufficient objective knowledge pertaining to a certain phenomenon, but where subjective knowledge is lacking (Morse., 2006: 55). Furthermore Morse (2006: 55) argues that the objective knowledge provides a platform to structure questions in order to gain insight into subjective knowledge. According to McIntosh and Morse (2015: 1), semi-structured interviews are structured using open-ended questions in order to generate and formulate unstructured responses. The questions, as detailed in the interview schedule (Appendix B), were structured in a manner that would give insight into specific themes such as financing, institutions’ relationship with the government, costliness of adopting green systems or practices, commitment of top management to sustainability, and awareness of the benefits and costs of sustainability.

Rich data can be derived from semi-structured interviews due to the interviewers being allowed to diverge slightly from the script, granting variability to the researcher, whilst conveying equivalence in the meaning of the questions (McIntosh and Morse, 2015: 5). This was especially relevant to the area of research of the thesis because the thesis aimed to interview individuals from different institutions and departments, and individuals with different knowledge and expertise pertaining to the research case.

2.6 – Conclusion

Post-positivism and a qualitative framework was most appropriate for this thesis because the research question could not be answered using a large sample size. Thematic analysis was useful to compare and study similarities across interviews. Expert sampling was used to gain insight into the research question. Data was collected through semi-structured interviews, which informs the findings in Chapter 6.

Chapter 3 – Theoretical Framework

3.1 Introduction

This chapter relates to Sub-goal 1. The goal of this chapter is to set out the theoretical framework introduced in Chapter 1. The climate crisis and unsustainability are conceptualised, with the focus shifting to sustainable solutions that incorporate social, environmental and economic elements. This chapter investigates how these sustainable solutions have been framed in top-down and bottom-up theory. This chapter studies how sustainability has been conceptualised at the different levels – multilateral, national and local, with an extensive focus on the local level. Furthermore, this chapter explores the role of green capitalism and developmentalism within the context of sustainability. Moreover, the chapter relates to Sub-goal 3 where the feasibility, and applicability, of a just green transition is studied, with a particular focus on the local layer.

In Section 3.2, the focus is on the climate crisis and how it affects society at large. In Section 3.3, the different theories relating to the problem of climate change are studied in order to have an informed theoretical framework which later supports the grounds for the primary research. Section 3.4 emphasises solutions within the context of the different layers – multilateral, national and local. These layers are conceptualised, with the focus shifting to their relationship with each other and the ultimate importance of the local layer. Lastly, in Section 3.5, the local level focus is extended and evidence is considered from numerous case studies relating to the profitability and financial benefits of switching to renewable energy alternatives for businesses, organisations, and institutions, as well as considering the impediments to realising these benefits.

3.2 – Unsustainability and the Climate Crisis

As briefly discussed in Chapter 1, global warming or climate change has become synonymous with the 21st century and is one of the biggest crises currently faced. Climate change is a change in the climate that is either directly or indirectly related to human activities that alter the global atmosphere (Hardy, 2017: 34). There are climate sceptics that disregard climate change as a whole, and these sceptics oppose the view that global warming is happening or is as a result of

human activities. Due to the overwhelming scientific evidence this paper accepts the consensus view and serves to address the pressing issue of climate change.

Certain human activities lead to greenhouse gas (GHG) emissions which result in global warming (Philips, 2020: 868). These activities include the burning of fossil fuels, cutting down trees for urbanisation and agriculture, and other industrial activities (Phillips, 2020: 868). According to Tol (2009: 30), the sources of greenhouse gases are the most diffuse of all the environmental problems due to the fact that every household, farm or business emits some greenhouse gas. Furthermore Tol (2009: 31) argues that the effects are similarly pervasive in that the weather affects farming practices, health, energy use and other aspects of nature, which in turn, affects everyone. Short and Nickles (2020: 170) note that atmospheric concentrations of carbon dioxide have increased by more than 25% since the Industrial Revolution and are continuing to increase at an alarming rate. Failure to minimise carbon dioxide emissions will be catastrophic (Short and Nickles, 2020: 173). As a result of greenhouse gas emissions, the Earth is becoming warmer, with the last decade being the warmest on record and average temperatures rising by 1.1°C since the 1800s (Hardy, 2017: 39). The Earth is a system that is interconnected, and changes in one area can influence changes in other areas (Hardy, 2017: 39).

According to Abdullah *et al* (2013: 3840), emerging evidence suggests that the deterioration of natural habitats and marine biodiversity can be attributed to global warming, the excessive pollution load, and organic matter pollution. These changes in the climate disturb the habitual balances of aquatic and terrestrial species (Abdullah *et al.*, 2013: 3841). Yanik and Aslan (2018: 353) state that the destruction of zones that contain aquatic macrophytes in freshwater, terrestrial ecosystems and wetlands leads to ecological problems. The consequences of climate change have led to substantial damages and irreversible losses in freshwater, terrestrial, coastal and open ocean ecosystems (Climate Change Synthesis Report, 2023: 46). The impact of climate change has been experienced in diverse ways with climate change affecting the physical and mental health of human beings, as well as affecting food security, water security, livelihoods and infrastructure (Climate Change Synthesis Report, 2023: 50). As a result of climate change, ‘climate refugees’ have arisen—people and communities that have had to relocate as a result of rising sea levels. It is essential to address the climate crisis or these negative impacts will persist

and worsen. Globally, there is a need for greater environmental awareness in order to ensure the preservation of life on Earth.

These are problems that arise as a result of global challenges, yet they are felt at the national and local level. Global warming has far-reaching effects and impacts people directly, especially those living in poorer and developing countries such as South Africa (Himanshu and Gupta, 2012: 58). According to the Department of Environment, Forestry and Fisheries (DEFF, 2019: 25), South Africa is already encountering the negative impacts of climate change and it is expected that the country will suffer further in the future. According to Carbon Brief (2018), as a result of warmer temperatures, crop yields have declined and livestock losses have increased.

As noted, South Africa is the 14th largest emitter of greenhouse gas emissions in the world which can largely be attributed to the country's heavy reliance on coal. Carbon Brief (2018) argues that South Africa's commitment to climate change has been widely criticised due to the country's heavy reliance on coal. According to Himanshu and Gupta (2012: 58), one of the ways in which global warming threatens human life is by the spreading of natural diseases, such as malaria, due to the rise in temperatures that leads to the expanding of tropical temperature zones. Malaria is one of the deadliest diseases in the world and heavily impacts Southern Africa. Himanshu and Gupta (2012: 58) also argue that increased occurrences of extreme weather conditions such as droughts and floods will lead to the destruction of property and loss of human life. At the local level, Rhodes University is not shielded from these risks. As will be discussed in Chapters 4 and 5, as a result of continued carbon-intensive coal reliance, South Africa is experiencing an energy shortage, and an ongoing drought and lack of maintenance have led to severe water constraints in the Makana area. There are disease risks as a result of not having a reliable water supply and other pressing safety risks such as fire risks from students having to use candles during loadshedding.

Extreme natural disasters, such as floods and drought, are a direct result of environmental degradation, such as deforestation (Ahmed, 2014: 99). Ahmed (2014: 99) argues that these natural disasters have the biggest impact on poor and vulnerable communities that are often reliant on nearby natural sources, such as rivers and forests, as a means of survival, and poor

communities are more vulnerable to extreme weather events. Environmental degradation, such as deforestation, often directly leads to negative effects elsewhere, such as the fast melting of glaciers (Ahmed, 2014: 100). The climate crisis impacts local communities, but the actions of local communities also have a global impact. In addition, local impacts directly affect local communities but can be resolved locally. Attending to these local problems can have large positive externalities. This will further be discussed in Section 3.5.

According to Griggs *et al* (2015: 15), the prioritisation of sustainable practices in the operations of firms and organisations is needed because “the global economy services society, which falls within the Earth’s life support system”. Griggs *et al* (2015: 15) suggest a model whereby global economic aspects are “subservient” to social aspects, which are “subservient” to environmental aspects. According to Griggs *et al* (2015: 15), the argument for the environmental focus to supersede the economic or social focus is simple, because if economic-based actions destroy the environment, mankind itself will be unsustainable. Sustainability can be defined as the “progressive maintenance” of the Earth’s resources and ecological services whereby traditional economic criteria are subordinated to a criterion that is based on social and environmental aspects (Milne and Gray, 2013: 16). Montabon (2016: 15) poses the Ecological Dominant logic where the environment is the central focus. The Ecological Dominant model draws on the triple bottom line, as discussed in Chapter 1 and as will be further discussed in Section 3.5.3, but places central emphasis on the environment, with the social and economic focus following.

Montabon (2016: 15) argues that the functioning of the ecosystem and ecosystem services is needed for mankind’s survival. Montabon (2016: 15) places a primary focus on the environment, with social aspects such as quality of life, health, employment opportunities and housing being secondary to the environmental focus. Firms that earn profits or countries that earn economic gains through practices that damage the environment or society are not sustainable. Currently GDP is used as a measure of economic performance (Montabon, 2016: 17); however GDP presents an “unassailable sway” where economic growth is rewarded regardless of how it is obtained. Montabon (2016: 18) argues that environmental embeddedness is a requirement for firms to become sustainable and that firms, organisations and supply chains in general, should be

judged on their value creation towards the environment and society, instead of their financial gains.

Climate change presents a significant challenge but there are numerous, viable solutions to address this crisis. The climate crisis is rooted in unsustainability and produces endless negative externalities. However, unsustainability and negative externalities are opportunities that present a potential gain from trade (Moselle, 2010: 72). According to the United Nations Framework Convention on Climate Change (UNFCCC, 2022: 1) addressing climate change and embracing a just green transition will result in economic benefits while also protecting the environment and improving the lives of humans. There is a relation between a just green transition and the triple bottom line as briefly discussed in Chapter 1. This relationship will further be detailed in Section 3.5. Furthermore, the UNFCCC (2022: 1) argues that the necessary technology, such as solar and wind energy, is available in order to drive the energy transition from non-renewable to renewable sources. Renewable energy sources will reduce the current emissions that are driving climate change. Climate action will require large investments by businesses, corporations and national governments (Arnell and Parry, 2022: 3). However as detailed in Chapter 1, climate inaction will be vastly more expensive than climate action. Failing to take action now will cost society dearly in the future (Arnell and Parry, 2022: 4).

3.3 – Theoretical Framework

The climate crisis needs to be addressed. The focus shifts to *how* the climate crisis and issues of unsustainability can be addressed. In this section, different *potential* solutions and approaches that have been framed theoretically to address unsustainability and its associated negative impacts are considered.

3.3.1 – Top-down and Bottom-up Approach

As discussed in Chapter 1, there are two main approaches to addressing the climate crisis and achieving green objectives: a top-down or bottom-up approach. According to Panda (2004: 157), a bottom-up approach emphasises local decision-making, community participation and engagement at the local level to achieve objectives. A top-down approach is one where decision-

making authorities such as governments make rules and enforce them. Furthermore, a top-down approach relies on governments and government agencies to achieve objectives (Panda., 2004: 157). The bottom-up approach is an approach of learning where various participants are involved to solve problems whereas the top-down approach relies on a handful of individuals to make decisions. Throughout Section 3.3 different theories relating to a bottom-up or top-down approach are considered and the relevance of both approaches is studied.

3.3.2 – Pigou and the Notion of Externalities

As briefly mentioned in Chapter 1, Pigou (1920: 142) introduced the notion of externalities whereby the actions of an economic agent influence the utility or production of another where no means of compensation exists. Pigou (1920: 163) argues that the state has the ability to introduce encouragements or restraints in any field, in the form of taxes, to remove any divergence. At the core of Pigou's theory, is a top-down approach where government plays the leading role. Pigou's theory is a central theme of this research in that it addresses the need for government to play an active role in order to solve externalities. The government is a key player in addressing the climate crisis; however, it is not the only player.

An example of an externality, as discussed in Section 3.2, is pollution or other forms of waste that are emitted, for example, pollution as a result of coal mining for coal-based electricity generation, but where the consequences negatively affect society, for example, by causing illnesses and environmental damage due to air pollution. A local example could be Rhodes University and the waste from university kitchens that is not being recycled. Another example is the university's continued use of paper, most of which is not being recycled. University residences produce a lot of rubbish, such as plastic and other recyclable materials, which are disposed of at municipal dumpsites instead of being recycled. These externalities, such as waste from kitchens and plastic, if recycled and sold, could be an additional income stream for the university. These funds could be redirected towards sustainable practices such as the procurement of solar panels, batteries etc.

As discussed in the section above, externalities are opportunities. The examples mentioned above are ones that, if addressed properly, can lead to cost-saving and sources of income. Waste from

university kitchens, such as vegetable peels, can be sold to farmers as organic matter that they can use in their farming practices. However, if innovative solutions are not implemented in the university's practices, these externalities become negative.

Currently climate change and the associated unsustainable acts, such as pollution, is a negative externality because it is not being addressed. According to Tol (2009: 30), climate change is the largest, most complex and most uncertain externality. However, if addressed by means of switching to renewable energy, it becomes an opportunity for economic growth and will result in environmental and social benefits – as discussed above and further in this chapter. As the purely economic case for switching to renewable energy improves, the positive effect is an externality. For example, if Rhodes University moves off the national electricity grid and constructs a solar farm for energy generation, the university will not directly benefit from the reduced coal use. However, as long as the switch to renewable energy generation is profitable, the full external benefits of reducing negative externalities do not have to be captured.

3.3.3 – The Coase Theorem

As detailed in Section 3.2, externalities are inefficient; however, they are potential opportunities and present a potential return from trade (Coase, 1974: 363). As mentioned in Chapter 1, it is possible for economic agents to reach a Pareto-optimal level without government intervention (Coase, 1974: 363). Negative externalities are opportunities, provided that parties can cooperate. According to Coase (1974: 364), bargaining between the parties concerned in a market economy, will resolve the problem of negative externalities, provided that a market exists, transaction costs are not too high and that contracts can be enforced. The latter reinforces the importance of property rights. Regardless of the initial distribution of property rights, parties can negotiate to reach a Pareto-optimal outcome, however to reach an efficient equilibrium requires restrictive conditions which ensure clearly defined and enforceable property rights (Coase, 1974: 366). Furthermore, Bernholz (1997: 420) argues that in accordance with the Coase Theorem, government intervention is not necessarily needed, if two parties attempt to remove an externality. Central to the Coase Theorem is the need for binding and enforceable internal and external contracts which is based on the premise of enforceable property rights (Bernholz, 1997: 426). In the presence of negative externalities, a Pareto-efficient outcome can be reached given that these internal and external contracts are in place, and assigned to parties which would enable

bargaining between parties. The Coase Theorem draws on a central theme of the thesis: it is not optimal or necessary to leave the problem of climate change and pollution solely to the government to solve. Local stakeholders and the private sector play a pivotal role as well and are needed in order to address climate change. Governments, especially in developing countries, face numerous constraints; therefore, private sector players have a role to play in addressing the climate crisis and moving towards sustainability.

3.3.4 – Ostrom

In many cases where the depletion of resources occurs, or what can be referred to as “the tragedy of the commons”, some scholars recommend that the state control these resources and others recommend the privatisation of these resources (Ostrom, 1990: 37). According to Hardin (1968: 1245), “the tragedy of the commons” is where the commons are destroyed as a result of overharvesting which leads to the eventual depletion of natural resources. The commons refer to things such as oceans, rivers, lakes, air and parklands, and these commons will eventually be over-exploited or degraded (Hardin, 1968: 1245). The tragedy of the commons is the obvious conclusion when external effects are present. However, as discussed in Chapter 1, Ostrom (1990: 37) observed that neither the state nor the market has been uniformly successful in achieving long-term sustainability and effective use of resources. Ostrom (1990: 39) found that communities that have relied on institutions not resembling the state, or the market, have been successful in achieving long-term sustainability. This draws on the bottom-up concept of self-governance and individual action that ultimately leads to effective outcomes. This becomes a central element of the thesis, especially when focusing on local level organisations and other local players when considering self-governance as a viable solution.

3.3.5 – Stakeholder Theory

Stakeholders include owners and non-owners of an organisation; moreover, stakeholders include anyone with a voluntary or involuntary relationship to the organisation, owners of capital or owners of less tangible assets and other actors such as contractors, resource providers to or dependents of the organisation (Mitchell *et al.*, 1997: 854). Stakeholders can be broadly defined as anyone that can affect or be affected by an organisation or firm; this includes people, nature, other organisations, neighbourhoods, institutions and societies (Mitchell *et al.*, 1997: 854).

Stakeholder theory relates to the impact that an organisation has on the environment, whether this environment be of an ecological, behavioural, institutional, resource dependent or transactional nature, and further emphasises that there is a strong relationship between an organisation and this environment (Mitchell *et al.*, 1997: 854). Stakeholders, as coined by Mitchell *et al* (1997: 854), can be identified based upon the possession or the attributed possession of power, legitimacy and urgency. When considering this case study of Rhodes University, its stakeholders would range from students and staff to local businesses that bargain with the university and the local town, environment, municipality and community at large.

3.3.6 – Diminishing Returns and Increasing Returns

A key driving force in favour of switching from the extraction of energy to the harvesting of energy is diminishing returns (Mathews and Reinert, 2014: 14). The extraction of energy, such as fossil fuels, results in diminishing returns because it is not a renewable resource and the extraction process is one that is becoming increasingly expensive as resources deplete. Mathews and Reinert (2014: 14) argue that as a result of scientific and technological advancements, the harvesting of energy such as wind and solar energy has increasing returns. These findings indicate that it will be more cost-effective to transition from extracting energy to harvesting energy. The Coase Theorem states that externalities can be construed as a return, whereas Mathews and Reinert (2014: 14) emphasise returns to scale and the ultimate importance of an investment mentality that reaps benefits as a result of increasing returns to scale, as opposed to a budget mentality. Mathews and Reinert (2014: 18) argue that at the core of increasing returns are systemic interactions, and countries that have taken advantage of switching to renewable energy sources are already reaping the benefits of these interactions as a result of early adaptation.

Relating to the increasing returns story is Kaldor (1957: 595) and the assumption that the growth rate, interest rate, capital output and labour, held constant over time, are an approximation of the long-term growth rate of an economy or industry. Kaldor's (1957: 596) growth laws and the assumption that investment in industries, especially in growing industries such as the renewable energy industry which will lead to increasing returns in the long run, signals the importance of such investments in order to reap the economic benefits. Kaldor (1957: 696) further proposes that investments in increasing returns sectors, for example the renewable energy sector, will lead

to an increase in GDP growth. According to Lin (2016: 112), there is a positive relationship between renewable energy consumption and economic growth in China. Furthermore Lin (2016: 112) argues that an increase in renewable energy consumption will have a positive impact on the Chinese economy. With China being one of the biggest and fastest growing economies, the benefits and advantages of switching to renewable energy becomes clear.

Many other developed countries, such as the USA, have taken the initiative to switch from non-renewable to renewable energy sources. However, the majority of countries, like South Africa, are still heavily reliant on non-renewable energy sources, such as coal and fossil fuels. The ineffectiveness of such reliance is detailed in Chapter 4.

3.3.7 – Theory of Change

According to the United Nations Development Group (UNDG, 2017), theory of change refers to a situation where a given intervention, or set of interventions, leads to specific developmental change. A theory of change aids in finding solutions for problems and addressing these problems that constrain progress. According to UNDG (2017), a theory of change should be based on sound analysis and consultations with different stakeholders, as well as learning from what works and what does not. Theory of change works backwards in a way, whereby a long-term goal, such as a just green transition, is identified and then works back from this long-term goal to determine which conditions or outcomes must be in place for the goal to be realised (UNDG, 2017).

Theory of change is ultimately focused on ‘filling in’ what an initiative aims to do and how the process of filling in can aid in reaching the desired goal. Relating to the theory of change is the need to exit a state of path dependency whereby change can unlock growth potential. A theory of change relates to having a plan to ensure that current mitigation efforts do not lock us into the wrong path. As stated above it works backwards, whereby there is a vision for the future, and then assess and consider ways of realising this vision. The research case is Rhodes University, and for Rhodes University to embrace a just green transition there firstly needs to be a vision to be more sustainable in the future. When sustainability is the goal and encompasses the university’s vision, then proactive strategies need to be in place and need to align to achieving

this vision of change. A successful theory of change solution will ensure that the university does not get stuck in the same path dependence that it is currently in, with a continued reliance on government to provide services which it is no longer able to provide.

Loadshedding and the associated short-term solutions to address its effects is an example of the relationship between theory of change and path dependence if there is a lack of planning. For example, institutions like Rhodes University opt for unsustainable short-term solutions such as diesel generators due to insufficient plans and a lack of commitment to sustainable practices. If the university had a long-term goal of sustainability and worked towards that goal, the institution would not be in a position where it has to rely on unsustainable short-term solutions to power part of the campus. Furthermore, on a national scale, the Department of Forestry, Fisheries and the Environment has granted Eskom an exemption to accelerate the commencement of services at one of its coal plants, but the department admits that “the environment will suffer” as a result of this “temporary solution” (Businessstech, 2023). The “temporary solution” relates to operations that will increase sulphur dioxide emissions, which are harmful to humans and the environment, as a means to relieve pressure on the national electricity grid (Businessstech, 2023). In the absence of clear goals to bring about change, for example a long-term goal such as a just green transition, unsustainable path dependence will persist.

3.3.8 – Path Dependency

According to Sydow (2015: 111), path dependency is a phenomenon whereby what has occurred in the past persists due to resistance to change. This is deeply problematic especially currently where society is stuck with ‘brown’ technologies and this can be attributed to the fact that it is easier to continue along an already set path even if more efficient solutions are available (Sydow, 2015: 112). An example of path dependency could be South Africa’s continued reliance on fossil fuels for energy, as opposed to switching to renewable practices. This relates to the diminishing returns story whereby being stuck in path dependence results in growth opportunities being missed. Furthermore, Rhodes University being dependent on the municipality for services, even when these services such as electricity and water are no longer provided, is an example of path dependence. According to Sydow (2015: 112), industries and economic agents become

accustomed to path dependent solutions and standards and fail to embark on other growth paths even if such paths are better.

3.3.9 – Switching from Non-renewable to Renewable Sources

Tietenberg and Lewis (2020: 201) argue that the switch from non-renewable to renewable energy sources will eventually have to be made “either because the depletable energy sources have been exhausted or because the environmental costs of using the depletable sources have become so high that it is cheaper to switch”. Hotelling (1931: 139) states that there is a possibility for the price of necessities to “increase without limit as supply vanishes”. This points to non-renewable resources and necessities such as coal which is needed to produce energy, and the associated increase in the price of extracting such a necessity as it becomes scarcer. Hotelling (1931: 137) further states that the “exploitation of a natural resource can never be too slow for the public good”.

According to the International Renewable Energy Agency (IRENA, 2020: 19), globally, the cost of renewable energy generation has fallen significantly with renewable power generation being cheaper than the cost of adding the same amount of fossil fuel-fired generation. Onshore utility scale solar and wind projects, on average, produce power for less than the cheapest new fossil fuel-generating plants (IRENA, 2020: 16). Furthermore, the operating costs of coal plants are substantially higher than the renewable energy alternatives, such as solar or wind farms, which further motivate the switch to renewable energy generation (IRENA, 2020: 17). These findings point to the importance of switching to renewable energy sources.

Renewable energy sources such as solar definitely seem to be more affordable than non-renewable alternatives; however, there are problems with renewable energy sources. Trainer (2022: 2) argues that the existing academic literature in support of a renewable energy transition is unsubstantiated, due to issues of base-load capacity, generating capacity and storage capacity. According to Trainer (2022: 2), the generating capacity for renewables is five times that of fossil fuels, due to the large amount of redundant storage needed when wind or sun sources are low. There are further concerns with regards to the availability of materials, such as lithium and the ability to secure sufficient access to these materials (Trainer, 2022: 2). This is a critique of the

switch-point and cost argument, especially on a large-scale. Issues like these that the private market might not be able to resolve signal a role for government in the just green transition. These technological issues are complex, especially in the context of developing countries, and signal that green solutions will require large-scale state involvement as will be discussed further in Chapter 4. It is important to note these critiques, but it is also important to note that the majority of existing literature points to the case that although a green transition has numerous implications, it is becoming increasingly cheaper. Furthermore, issues like these such as base-load capacity are prevalent at the national level, where renewable energy projects will be on a large scale. Local level actors would not be as concerned with these issues because they are not replacing energy providers such as Eskom but are merely supplementing Eskom.

Extending the argument of Tietenberg and Lewis (2020: 201), the ‘brown’ energy path that many countries and organisations are stuck in could be considered. This ‘brown’ path is one where there is a heavy reliance on depletable resources, such as coal, which do not regenerate with little or no progress towards renewable sources. Parallels can be drawn between Tietenberg and Lewis (2020: 201) and Mathews and Reinert (2014: 14), who argue that increasing returns are at the core of switching from non-renewable to renewable energy sources due to the extraction of energy becoming increasingly expensive as the depletable resource becomes scarcer. In essence, the switch is supposed to occur when renewable energy sources are cheaper than their non-renewable counterparts; however, as the findings from IRENA (2020: 14) suggest, generating renewable energy is cheaper than generating non-renewable energy. Tietenberg and Lewis (2020: 201) suggest that until renewable energy sources are cheaper there will not be a green transition; however as can be seen from the Trainer paper, there are numerous other elements such as base-load capacity and storage to consider, which constrains a switch to renewable energy sources. As discussed above, these constraints are especially relevant to large-scale transitions, such as at a national level. If, as the literature suggests, renewables are cheaper than non-renewables, why have organisations and institutions such as Rhodes University not switched to renewables? This is further investigated in Chapter 6.

3.3.10 – Economies of Scale

Economies of scale, similar to increasing returns, are a key driving force in favour of transitioning from non-renewable to renewable energy sources. According to Stigler (1958: 1), economies of scale can be defined as the relationship between the scale of use of a properly chosen combination of all productive services and the rate of output of the enterprise. Economies of scale are cost advantages that organisations will reap as production increases (Stigler: 1958: 4). An increase in cost advantages and production efficiencies are pivotal in order for organisations to adopt green technologies and become more sustainable because as the transitioning process progresses, innovative and technological advancements will result in a decrease in the costs associated with the transition. When considering economies of scale, an example is renewable energy and how it has become more affordable given technological advancements. Hence, there is a strong correlation between economies of scale and increasing returns. As stated above, economies of scale are cost advantages similar to increasing returns, where investment in the present will lead to economic benefits in the future.

The Coase and Ostrom logic, respectively, suggests that markets and local collective action can be very important. This links to the bottom-up approach. However, the problem is that market solutions, which draw on the bottom-up approach, may be stuck in path dependent solutions. This is particularly the case if transitioning requires a switch at scale (national level). Pigou and the increasing returns story suggest that these market solutions and local action nevertheless do need to be embedded in national and multilateral action, to change the basic growth path from ‘brown’ to ‘green’. The bottom-up and increasing returns story are divergent, because ‘brown’ technologies and solutions have become the cheapest option in the short term. However, global warming remains the biggest challenge and requires immediate action. We are left with a very interesting story: if the multilateral and national level policies (the top-down approach) are not pushing far enough, what can bottom-up initiatives do to push towards a green economy?

3.3.11 – Green Capitalism vs. Developmentalism

Given the theory discussed above, such as increasing returns and economies of scale, it becomes clear that the adoption of green technologies is crucial in modern times, not just as a means of addressing the climate crisis, but as a means to stimulate economies and unlock growth potential.

This is relevant for rich countries, like the USA, which are looking for a new growth paradigm, and for low- and middle-income countries that have urgent development needs. In South Africa, the notion of a ‘just sustainable transformation’ has become prominent. There are two broad approaches that build on the theoretical frameworks that have been discussed, as a means to enforce a just transition. These approaches are green capitalism and developmentalism.

According to Scales (2017: 2), green capitalism is a form of environmentalism where the value of ecosystems and biodiversity is emphasised. Green capitalism reflects environmental services in the market economy (Scales, 2017: 2). Furthermore Scales (2017: 2) argues that green capitalism accounts for natural capital, which can be defined as the stock of ecosystems that generate economic and societal benefits. Instead of relying on governments or international policies, green capitalists see pollution, the degradation of the environment and the unsustainable use of environmental resources as market failures. Green capitalists regard negative externalities as opportunities to earn profits (Goldstein, 2016: 74). Goldstein (2016: 84) further argues that green capitalism is an efficient way of addressing the climate crisis and promotes clean energy. Moreover Scales (2017: 2) argues that green capitalism is based on the premise that entrepreneurship, private property, and economic growth can have positive impacts on the environment. The green capitalist approach draws on the Coase Theorem as both stress the need for private resolution and do not regard government intervention as the leading solution to the climate crisis.

In contrast to the green capitalist approach, the developmentalist approach to the green transition stresses the importance of the state in the transitioning process. According to Bresser (2020: 192), developmentalism, in its simplest form, is a means of organising capitalism. In accordance with Bresser, both Pollin (2019: 11) and Mathews and Reinert (2014: 17) argue that developmentalism is not anti-market; it just emphasises a more active role for the state than the green capitalist approach. Bresser (2020: 193) argues that the developmentalist approach aims to generate economic growth through efficient government intervention and policy. Moreover Bresser (2020: 194) argues that developmentalism is embedded in the need for governments to steer economies towards green growth paths. The developmentalist approach coincides with Pollin, in that both emphasise the important role of the government. Green developmentalism

refers to government implementing policy and investing in green technologies as a means to combat climate change (Bresser, 2020: 197). Developmentalists argue that the market will not self-regulate and private initiative will not be sufficient to drive green growth. States will be stuck in path-dependent, diminishing returns until governments intervene.

Part of the developmentalist approach is the Green New Deal (GND). According to Nersisyan and Wray (2021: 68), the Green New Deal is aimed at tackling climate change whilst simultaneously recognising that climate change, inequality, and a global economy that leaves many without access to food, healthcare, shelter and education are linked. The GND increases government expenditure and total aggregate demand but does not have to be financed through raising taxes – taxes should only be raised if there is inflationary pressure (Nersisyan and Wray, 2021: 70). This draws on a top-down approach and an important role for government to play in the just green transition, not necessarily through raising taxes, however, but through active involvement in the oversight of the just green transition. The premise that the GND needs to be funded through raising taxes is flawed, due to the GND bringing “online existing excess capacity, a shift in resources from current uses, and a further increase in capacity along the way”, and it is not certain that the net increase in the demand for resources will be beyond state capabilities (Nersisyan and Wray, 2021: 71). The GND will need a “small fraction” of state resources to achieve its goals as set out above, and the notion that there would be excessive inflationary pressures is flawed (Nersisyan and Wray, 2021: 73). If implemented correctly, the benefits of the GND would go beyond “the reversal of climate change” and will include environmental sustainability, employment opportunities, universal access to healthcare, equality, and access to free education (Nersisyan and Wray, 2021: 70). The Green New Deal draws on a progressive and efficient developmentalist state to facilitate a just green transition. According to Swilling *et al* (2016: 656), a sustainable transition can only be realised if the state adopts a long-term transformation process that emphasises socio-technical transitions to sustainable modes of consumption and production, which is centred on decarbonisation, ecological restoration and resource efficiency.

When considering economies of scale and increasing returns, Hess (2012: 13) argues that this is precisely the reason a just green transition will not happen if markets are left alone. An example

is electric vehicles and the enormous upfront investments, such as charging stations. These capital costs make it expensive to switch and make the already established, cheaper ‘brown’ alternatives more attractive. According to Hess (2012: 13), if the role of the state is disregarded, private stakeholders will not adopt green technologies if existing ‘brown’ technologies are cheaper and if these technologies continue to be a more affordable option in the short run. Furthermore Hess (2012: 13) argues that the government is needed in order to stimulate the transitioning process. Smith (2011: 114) criticises the very nature of economic growth that is rooted in capitalism by stating that the tendency of capitalist economic development is “to develop us to death, and to drive us off the cliff to ecological collapse”. Moreover Smith (2011: 121) criticises green capitalism and states that the fundamental idea that green capitalism, through recycling and new efficiencies, will lead to global economic growth is wrong. Furthermore Smith (2011: 121) argues that green capitalism does not “reverse the eco-suicidal tendencies of capitalist development” due to the fact that the environment has to be “subordinated” in order to maximise growth in a capitalist system.

Green capitalists are sceptical about how governments can achieve a just green transition and the aim of the global economy to transition towards a sustainable growth path. In addition to green capitalist scepticism, there is also strong criticism for the way in which governments and the global economy aim to meet sustainable goals. According to Trainer (2022: 2), GDP growth cannot be decoupled from resource use; instead, growth in GDP is “accompanied by growth in resource use”. However, Swilling *et al* (2016: 658) refer to emerging evidence to suggest that South Africa’s economic growth rate has risen faster than the rate of resource use, which signals a degree of dematerialization – which is a reduction in the amount of materials needed to serve an economic action – and reinforces the call for a transition to a low-carbon and less resource intensive economy. Considering developed countries, substantial degrowth is needed in order to reach sustainability goals, with estimates being that a reduction of 90% in global rich world resource consumption per capita must be achieved before sustainability can be achieved (Trainer, 2022: 3).

Furthermore Trainer (2022: 2) argues that a “100% renewable energy transition” under the Green New Deal, which assumes a low cost of 2 – 3% of GDP, is not feasible. However, Trainer (2022:

5) does note that the prioritisation of GDP growth and the high rate of resource consumption leads to inequality, enormous environmental destruction and impaired social cohesion. Instead of the current approach, Trainer (2022: 5) suggests a transition to a “radically different social system” as opposed to a reform of the current system, as well as a system where growth, affluence, centralisation, globalisation, industrialisation, and production driven by market forces and profits are abandoned. Instead of a degrowth strategy, Green New Deal, developmentalist or green capitalist approach, Trainer (2022: 5) suggests “the Simpler Way” approach where the social form must be of a small-scale, self-sufficient, self-governing, collectivist nature focused on “frugal well-being as opposed to material consumption”. Moreover, Trainer (2022: 5) states that these types of communities are essential if society aims to achieve the dramatic ecological and resource reduction currently needed. It is important to note that there are critics of the current approaches to a just green transition; however, the suggestion of Trainer to “abandon” profits and focus on “the Simpler Way” could be regarded as utopian, due to the radical nature of such a proposed societal shift, which could draw significant resistance.

Although there are limits to the GND, as well as developmentalism in the broader context and green capitalism, these approaches, or a combination of these approaches, could prove pivotal in addressing the climate crisis and embracing a just green transition. There are sceptics of the current approaches to addressing climate change and taking climate action; however, the scepticism is not about the importance of a just green transition or the importance of addressing the pressing challenges of unsustainability. Sceptics of the current approaches, such as Trainer, suggest approaches which could be regarded as political, social and economic non-starters, due to their radical nature, and these approaches attract criticism of their own.

The thesis does not dispute the relevance or significance of the developmentalist or green capitalist approach and the different elements relating to these approaches or regard one approach as more important than the other. Both the developmentalist and green capitalist approaches stress the importance of the green economy and a green transition. Sceptics such as Trainer question the validity of these two approaches but do not question the importance of sustainability and a societal shift towards sustainability. The thesis will explore the two approaches, as both have important policies and frameworks in order to address the climate

crisis. A central part of the thesis is finding the balance between, or a combination of, these approaches that would best fit the South African narrative. Both the developmentalist and green capitalist approaches are considered throughout the research.

Currently, South Africa is lagging behind, and it is of utmost importance for the country to either adopt an approach, or a combination of key elements from both approaches, in order to transition to a green economy. The findings of Mathews and Reinert (2014) and Tietenberg and Lewis (2020), as well as economies of scale, show that increasing returns are a key incentive to embark on the transitioning process, but for that to happen, the country and all organisations, institutions and firms within the country need to start embracing these new, innovative technologies.

3.3.12 – A Global Renewable Energy Transition

When considering the shift from non-renewable to renewable energy sources, the question arises as to *what* is needed in order to make the green transition a reality, or at least *how many* solar panels, or other renewable sources, are needed to reach the global goal of Net Zero as discussed in Chapter 1. According to Land Art Generator (LAG, 2009), a land area of 496 805 km² of solar panels would be needed in order to power the entire world. According to the US Department of Energy Information Administration (EIA, 2021), world energy consumption was just over 600 quadrillion Btu for 2020 and is projected to reach 678 quadrillion Btu by 2030. According to the EIA (2021), this is a drastic increase from 283 quadrillion Btu in 1980 and 500 quadrillion Btu in 2009. According to the EIA (2021), a Btu or British thermal unit is a measure of the heat content of energy sources or fuels. The Btu data are important in calculating how much energy is consumed by individuals globally. This is essentially how the area of renewable energy needed in order to meet demand is calculated.

LAG (2009) points out that 496 805 km² is roughly the area of Spain. Furthermore LAG (2009), states that the area of the Saharan Desert is 9 064 958 km², roughly 18 times the area needed to power the world. More than 9 000 000km² of the Sahara Dessert is unpopulated. LAG (2009) further states that if the entire unpopulated area of the Saharan Dessert is covered with solar panels, it would generate an estimated 630 terawatts of power. The average consumption of power, at any given moment, on Earth is 13.5 terawatts. Moreover, LAG (2009) reports that

approximately 170 000km² of forests are destroyed each year. If the areas destroyed as a result of deforestation, which is also contributing to the climate crisis, could instead be used for the installation of solar panels, regenerative power could be produced globally within 3 years. There are obvious obstacles and challenges, relating to infrastructure, finance, policy and other areas, which impact the viability of a project of this size. However, it is important to consider these examples, in order to illustrate that renewable energy reliance is possible and not utopian.

As mentioned above, increasing returns and economies of scale are crucial to a just green transition. An area of 312km² of solar panels produces the same amount of electricity as a 516km² area of coal (LAG, 2021). A similar report released by LAG in 2021 indicates much improvement on the technological side of renewable energy. In the latest report by LAG (2021), an area of 276 266km² of land, along with 16 881km² of ocean, is needed in order to generate sufficient energy to meet the current global energy demand. From 2009 – 2021 there has been a significant decrease in the area that is needed to generate renewable energy to meet global demand, while there was a simultaneous increase in energy consumption. This is due to technological advancements and innovation and links to the increasing returns logic, along with economies of scale, as detailed above. There has been a significant decline in the cost of solar and wind energy since 2009 and a simultaneous increase in the industrial process efficiency of solar and wind energy (Andreoni *et al.*, 2022: 238).

3.4 – Conceptualising the Different Layers

The three key layers in addressing the issue of unsustainability are the multilateral, national and local layers. Different theoretical solutions and approaches to unsustainability, and the associated issues of the climate crisis, have been framed above. It is important to consider these solutions, and theoretical framework within these three layers. In this section, the multilateral layer and policy implications for a just green transition are considered. Moreover, the importance of all three layers and the impact that coercion between these layers could have are studied. The ultimate focus of the thesis will be on the local layer, which is briefly discussed in Section 3.4.2 and extensively studied in Section 3.5.

3.4.1 – Multilateral and National Layers

At the multilateral layer, the most important policy framework that has been adopted by 196 countries is the Paris Agreement. According to the United Nations (UN, 2022a), the Paris Agreement “is a legally binding international treaty on climate change”. According to the UN (2022a), the ultimate goal of the Paris Agreement is to limit global warming to below 2 degrees Celsius, with an aim of 1.5 degrees Celsius, in this century. The goal is for countries to reach their peak in greenhouse gas emissions as soon as possible, in order to reach a climate neutral state by 2050.

According to the UN (2022a), the Paris Agreement can be regarded as a landmark at the multilateral level because it is a binding agreement that unifies nations for a common cause – to mitigate the growing climate crisis. The progress of countries in meeting their climate goals is measured through nationally determined contributions (NDCs) that countries have to submit every 5 years (UN, 2022a). This is used as a means of measuring a country’s progress and also sets out each country’s ambitions. According to the World Economic Forum (WEF, 2021) the Paris Agreement can be considered as legally binding; however, countries have much room to determine *how* legally binding it actually is. It is up to the lawmakers and courts of individual countries that have signed the Paris Accord to decide on the legal obligations of the agreement. The WEF (2021) does argue that the Paris Agreement has been a landmark in many cases, across different countries, for environmental activists and groups that have leveraged the agreement to not only launch, but win, legal cases against governments and companies in various domestic courts. This signifies the importance of the Paris Agreement. The United Nations has founded a body, the Intergovernmental Panel on Climate Change (IPCC), as a means to assess the science related to climate change. The IPCC compiles comprehensive reports about the “state of scientific, technical and socioeconomic knowledge” relating to climate change and the risk of climate change as well as reducing the rate at which climate change takes place (UN, 2022a). This is another effort by the UN to address the climate crisis and reach the goal of Net Zero.

There are limitations to the Paris Accord and the goal of Net Zero. According to Rogelj (2018: 365), the UN Net Zero policy is vague and countries need to set specific targets and be held accountable to reach these targets. This relates to a lack of enforcement around sustainability

goals as set by countries. Another limitation is that of fairness and adequacy (Rogelj, 2018: 365). Although 196 countries have committed to the Paris Agreement, carbon emissions differ substantially amongst these countries, especially between developed and developing nations (Rogelj, 2018: 365). This has signalled a further impediment to the Paris Agreement which is that developed and industrial countries, such as those in the EU, have greater historical carbon contributions compared to developing countries and have greater resources to reach Net Zero by 2050 (Rogelj, 2018: 366). According to the UNFCCC (2022b: 2), a key step in taking climate action is for developed countries to meet their commitment of providing a \$100 billion per year to developing countries, in order for them to invest in green technologies. According to the South African Government (2023), South Africa, through its relationship with the World Bank, the IMF and the G20, has signalled that developed countries can do a lot more to support the green economic transitions of developing nations, particularly through financial assistance. Guarascio (2022) states that roughly 80% of the \$8.5 billion dollars pledged by developed nations to South Africa's green transition are loans, not grants. According to Guarascio (2022), the South African government requested grants to fund the country's green transition but developed nations such as the US and Britain instead offered loans at rates yet to be decided. Developed countries have pledged funds to developing countries in order to transition, but it remains unclear how these funds will be managed and effectively distributed. Though of utmost importance, the Paris Agreement does have limitations and certain aspects of the policy remain unclear.

Considering the national layer, there has been advancement around macroeconomic policy in certain countries. At the macro level certain governments such as the UK and Ireland have declared a Climate and Ecological Emergency (PCAN, 2021: 4). According to PCAN (2021: 4), this Climate Emergency declaration involves the implementation of policies that seek to reduce the emission of greenhouse gases and limit the impact of climate change. Declarations like these at the national level are a commitment by countries to address the climate crisis and serve an important purpose.

Uganda has introduced programs to accelerate the switch to renewable energy, such as tariff top-up arrangements. According to GetFit's (2020: 5) annual report, this program that commenced in 2013 in Uganda has led to the development of 17 small power plants that have spurred the local

investment climate. Furthermore, GetFit (2020: 5) states that the program has led to increasing successful private investments of more than \$450 million in the Ugandan renewable energy sector. These renewable energy projects have numerous positive spillovers, such as the creation of 910 jobs in 2020 alone, during a time when the Covid-19 pandemic heavily impacted operations, and more than 11 000 direct jobs have been created as a result of the program (GetFit, 2020: 6). The generation of power through this program covers about 10% of the total electricity consumption in Uganda. For the third year running, Uganda was ranked as number one on the Electricity Regulatory Index for Africa in 2020.

Stoknes and Rockstrom (2018: 42) found a direct correlation between green growth and economic growth in Sweden. Stoknes and Rockstrom (2018: 42) argue that there is increased economic growth when there is an absolute decoupling of GDP growth from resource use. The green transition is also coupled with increased employment as was the case in Denmark where the growth of the renewable energy industries has added 1.5% to employment (Stoknes and Rockstrom, 2018: 45). Green growth is a viable means of stimulating the economy. According to Stoknes and Rockstrom (2018: 48), the adoption of green technology and a just transition to green practices could result in rapid growth for poorer countries, while richer countries, like the Nordic countries, who have expansive economies and who have reached a high degree of saturation, will need to have larger absolute emission reductions in order to grow at the same rate as poorer countries. Developed countries have lower growth rates than developing countries that are in the process of catching up. However, according to Stoknes and Rockstrom (2018: 48), as developed countries grow richer and their growth rates begin to decline, the research suggests that their carbon emissions also decline.

According to UNEP (2020), the climate transition has already begun in accordance with governments' aim of Net Zero, which is the aspiration to eradicate greenhouse gas emissions. According to UNEP (2020), these transitions are necessary and occurring due to governmental actions, but this top-down approach will not be effective in controlling carbon emissions to an efficient standard that will reach a level of global heating that scientists will deem safe. According to Bregman (2020: 67), current policies have been designed on the basis that governments are needed in order to regulate the market and regulate externalities in the form of

carbon taxes and other measures, instead of seeing people as capable of altruism and collaboration. This draws on Pigou and justifies the top-down approach at the national level; however, as Ostrom (2010: 131) points out, people are capable of self-governance and solving collective action problems. In some cases, collective self-governance of common resources has proved to be superior to top-down governance. Chhatre and Agrawal (2009: 243) found that in the case of carbon in Pakistan, community forestry management absorbed more carbon than the equivalent governmental schemes.

Policy frameworks suggested by national government to address climate change and goals of global organisations and initiatives, such as the Paris Agreement, are crucial to combat the climate crisis. However, there is much room for action at the local level. The ultimate delivery of climate policy occurs at the local layer through place-based initiatives regarding sustainable business opportunities, green technology and investment in local renewable energy projects (Ramsey and Waterhouse-Bradley, 2011: 54). According to Gouldson *et al* (2020: 83), the effective implementation of climate policy requires the development of new governance operations, in particular, the development of processes where the public and private sector can engage at the local level.

3.4.2 – Local Layer

According to Howarth *et al* (2022: 1), an essential element to reach the global goal of Net Zero, as well as national goals which align with Net Zero, is through local action and local level development. As mentioned in Chapter 1, local communities have emerged as important players to ensure the implementation of climate action policies and have emerged as influential drivers of action against climate change. According to Amundsel *et al* (2018: 61), the role of local government is to lead and coordinate climate action and to establish an enabling local environment in order to reduce carbon emissions in both the public and private sector.

There are successful examples of local governments taking the lead against climate change and partnering with the private sector to implement green initiatives. A start-up company is building a mile-long road that will charge electric vehicles as they drive in the US city of Detroit (Business Insider, 2022). According to Business Insider (2022), the company, Electreon Wireless, has already implemented the same infrastructure on roads in Sweden, Italy and Israel and is now expanding its operations to the USA. The State of Michigan has contributed \$1.9 million towards the construction of the road, which is set to be fully functional in 2023 (Business Insider, 2022). According to the Michigan Government (2022), “the state is continuing to lead the charge on EV’s and investments like these that aim to further the EV industry solidifies the US’s position as a leader in electric vehicle technology”. Furthermore, the Michigan Government (2022) stated that private-public partnerships like the one with Electreon are how the USA will “promote innovation and outcompete the rest of the world”. Projects like these are not only major steps forward in terms of sustainable development and innovation but also reiterate the importance of state funds being spent efficiently. The State of Michigan is a leading example of a local government committing to sustainability and sustainable green growth.

As a result of South Africa’s continuous energy problems and as a means to stimulate green growth, some municipalities have opted to decrease their reliance on Eskom. Even though financial constraints remain a burden for most municipalities, some have found innovative solutions to address these problems. According to Businesstech (2022), the City of Cape Town has accepted an offer from the US Agency for International Development, in an attempt to move off Eskom’s grid. Businesstech (2022) claims this was as a result of South Africa’s energy

constraints, the city's climate mitigation objectives, and the changing energy governance landscape. Furthermore Businessstech (2022) reports that the assistance is free of charge but will help the city with its renewable energy purchases and enhance the city's ability to generate renewable energy.

Another successful example of such a place-based, local level initiative is the Belfast Climate Commission that was formed in the city of Belfast, Northern Ireland, as a means to bring about collaboration between the local public and private sector, in order to translate climate policy into action (Gouldson et al., 2020: 87). According to Gouldson (2020: 88), this commission was formed as a result of the macro level that can be reticent to change. According to the Belfast Climate Committee (2019: 1), a bottom-up approach was adopted due to the importance of micro-level players and the local community with the aim of making the city a better place to work, live and visit. There are other examples of local stakeholders enabling action, such as the Community Empowerment Act that enables place-based work in Scotland. According to the Scottish Government (2020), place-based work makes it possible for local communities to focus on specific issues such as climate adaptation. Local level initiatives like these are pivotal in combating climate change and creating a sustainable future. It is possible for cities and municipalities to move away from a path-dependent state of being 'stuck'. As discussed above, through foreign investments, private-public partnerships, local green initiatives and implementation of progressive policy, local level players will be able to switch from 'brown' to 'green' technology. Local municipalities and cities are essential in implementing a bottom-up approach, which could prove pivotal in the green transition.

However, considering the South African case and Grahamstown (Makhanda) in particular, which will be extensively analysed in Chapter 4 and Chapter 5, there is a clear lack of successful projects and initiatives aimed at climate action. The focal question remains: *Why* is this the case?

One of the key differences between developed countries, such as Ireland and Scotland, and developing countries, such as South Africa, is access to finance. However, according to Eckersley and Tobin (2019: 460), funding for local governments has been reduced by a real rate of 27%, on average, in the UK over the last decade. Furthermore, Dixon and Wilson (2013: 56)

argue that due to the withdrawal of the National Reporting Framework for local government in 2011, the ability of local governments across the UK to address the carbon agenda has been weakened. Finances and limitations to political authority constrain the ability of local governments to take action (Eckersley and Tobin, 2019: 461). Despite these challenges, local governments across the UK have re-established their commitment to Net Zero (Eckersley and Tobin, 2019: 461). Because local governments globally face similar financial challenges, the question arises again as to *why* South Africa has not made more progress towards a green economy.

From these findings it becomes clear that there is a role for the local level to play in the just green transition, through implementing broader sustainable goals. Significant investments are being made and action being taken at the local level, which reiterates the importance of the local level in the green transition. Local level players are essential in implementing macro policies and taking climate action. A bottom-up instead of a top-down approach could prove pivotal in reaching the Net Zero goal and cutting carbon emissions in an efficient and effective manner. An essential element of climate governance at the local level is the ability of different players to work together in order to implement climate policies. This relates to stakeholder theory and the impact that different agents have on one another, but also extends the stakeholder theory in that these different agents, or stakeholders, would benefit from cooperation due to the impact they have on each other. Considering the Rhodes University case and the local Makana Municipality, both institutions have an impact on each other and are affected, to an extent, by the actions of the other. Is there successful collaboration between these two local players? This is investigated in Chapter 6.

3.5 – A Just Green Transition and the Triple Bottom Line

As discussed in Chapter 1, sustainable development can be defined as economic development that does not deplete or damage natural resources. Wong (2017: 375) argues that there are three dimensions to sustainable development, namely, economic, environmental and social, which can also be referred to as the triple bottom line. As discussed in Chapter 1, the triple bottom line refers to companies that pursue objectives that are economically justifiable, while also meeting societal expectations and being environmentally acceptable. At the foundation of corporate social

responsibility, which is synonymous with sustainable development (Zak, 2015: 251), is the triple bottom line. Sustainable development at firm level is not a new concept, with Elkington (1994: 3) arguing that sustainable development policies are not only important for firms to reduce costs but are also needed for firms, their customers and the environment “to all become winners”. According to Elkington (1994: 3), every company should have three different bottom lines: firstly, one that is focused on traditional corporate profit, which is the “bottom line”, secondly, one that is focused on social aspects and social responsibility which is the “people’s account”, and lastly, one that is focused on nature and the organisation’s environmental impact, the “planet account”. The performance of a corporation or organisation should be measured based on these three aspects (Zak, 2015: 251). Throughout this section the importance and increasing significance of the triple bottom line is considered.

3.5.1 – The Role and Benefits of a Green Transition and the Triple Bottom Line

Building on Section 3.2 and the logic of putting a primary focus on the environment and sustainable development, Villanueva and Garcia (2015: 1277) argue that the majority of firms are not aware of the potential benefits and increased profits, as briefly mentioned in Chapter 1, which are associated with incorporating sustainable green initiatives into business practices. The United Nations Industrial Development Organization (2022) defines the greening of an industry, firm or organisation as “a method to attain sustainable growth and promote sustainable practices”. The greening of a firm’s supply chain, practices, products, services and processes will not only reduce the firm’s environmental footprint but also contribute towards differentiation from competitors which can increase financial performance (Walz and Eichhammer, 2012: 82). If a firm shifts its focus towards growth in the future, green innovation is needed to explore or create new markets, as reports indicate that green industries will have above average growth in the future (Walz and Eichhammer, 2012: 83). If firms make the transition towards green sustainable practices, these firms will reap the early benefits associated with implementing green practices and will “acquire the associated financial gain and competitive advantage” (Villanueva and Garcia, 2015: 1281).

Villanueva and Garcia (2015: 1289) conducted a study in Mexico on 205 major companies, most having more than 500 employees, to investigate numerous aspects of the relationship between green practices and financial performance. Villanueva and Garcia (2015: 1289) found that there is a positive relationship between the implementation of green practices and financial performance. Companies can benefit through green practices by better waste management and material management which will ultimately lead to cost effectiveness (2015: 1289). Furthermore, Villanueva and Garcia (2015: 1291) found that there was “enough statistical evidence” gathered from the companies in the study to suggest a positive relationship between green product design and financial benefits, green attributes and financial performance, the implementation of green practices and financial benefits, and green attributes and corporate image, which also increases the company’s financial performance.

In breaking this down, Villanueva and Garcia (2015: 1291) consider green attributes and practices to be a reduction in a company’s energy consumption through the use of renewable sources instead of non-renewable sources as well as a reduction in carbon emissions, better waste management, green research and development, increased recycling and a general reduction of a company’s impact on the environment through the implementation of sustainable practices. Implementing green practices is essential to increase economic benefits through corporate image, which will not only lead to a competitive advantage but also result in differentiation (Villanueva and Garcia, 2015: 1282), which has “tremendous profit potential”.

In a study conducted on 3490 listed firms from 58 countries, Barontini and Testa (2017: 341) found a positive relationship between the reduction of firms’ environmental impact and financial performance. In their findings, Barontini and Testa (2017: 346) suggest a positive relationship between pollution prevention practices and financial performance due to pollution prevention practices increasing competitive advantage and reducing costs and risks. Barontini and Testa (2017: 347) found that pollution prevention is the main contributor to financial success. Barontini and Testa (2017: 347) also found a positive relationship between green supply chain management and green product development and the financial performance of the firms. This suggests a positive relationship between corporate environmental performance and corporate financial performance.

The use of non-renewable energy sources, such as coal, results in growing carbon emissions that increase financial, social and environmental impacts (Ganda, 2018: 6). According to Narayan and Sharma (2018: 87), investments in green technology increase the profitability of firms. Narayan and Sharma (2018: 87) argue that failure to address the climate crisis at a local level will influence a firm's future. More than 80% of South African firms are reliant on non-renewable sources, such as coal, for energy (Narayan and Sharma, 2018: 87). South Africa is the leading emitter of greenhouse gases in Africa and emits three times more carbon than the average African country (Narayan and Sharma, 2018: 88). A study conducted by Ganda (2018: 27) on 63 South African firms found overwhelming evidence suggesting a negative correlation between the carbon emissions of a firm and profitability. Moreover Ganda (2018: 27) suggests that companies that adopt green technologies to cut emissions and invest in sustainable development are more inclined to generate better financial performance than others. These findings are essential in promoting a just transition to green technologies at the micro and firm level. Local players do not only consist of local government and public institutions, but also include businesses, organisations, institutions and corporations.

It is possible for sustainability in firms to directly increase profits and improve environmental performance (Ambec and Lanoie, 2008: 34). Wong (2017: 376) argues that by improving environmental performance, firms can then improve financial performance through cost saving and positive market responses. Greening supply chains, either through reducing carbon footprints, reducing energy, or reducing material consumptions through recycling, could result in cost saving for firms, which will improve financial performance (Ambec and Lanoie, 2008: 35). In a study conducted on companies within three large manufacturing industries (automotive, food and electronic) in Thailand, Wong (2017: 382) found that the implementation of sustainable development policies indirectly, or in some cases directly, influences financial performance. In running the regression, Wong (2017: 283) found a positive relationship between sustainable development, environmental performance and cost-reduction, which ultimately influences financial performance. Wong (2017: 283) concluded that the implementation of sustainable environmental practices reduces costs and that reducing costs is a "major route towards improved financial performance".

The adoption of sustainable development practices and strategies aimed at environmental and ecological balance, socially responsible behaviour, and human capital retention leads to brand building and better management of organisational resources (Husted, 2000: 30). Bodhanwala (2018: 1739) conducted a study on the relationship of the profitability of firms and their sustainability performance in the “developing nation” of India, to determine whether there is significant correlation between sustainable development and firm profits. The sample consisted of 56 Indian companies (Bodhanwala, 2018: 1739). According to Bodhanwala (2018: 1741), there is a positive relationship between a firm’s profitability and sustainability. In order for firms to maximise profits, they should “align organisational strategies and economic goals with good governance, environmental protection and social cause” (Bodhanwala, 2018: 1744). If firms place greater importance on sustainability, it should increase their profits in the long run (Bodhanwala, 2018: 1744). Furthermore, Bodhanwala (2018: 1744) argues that firms that were found to place greater emphasis on sustainable practices did not only enjoy greater growth in revenues, but also had a more favourable brand image and improved market reputation.

Thus, emerging evidence from various studies suggests a positive relationship between a firm’s profits and growth and its commitment to sustainable development. The findings above indicate that there is a positive relationship between the profitability of a firm and the implementation sustainable practices. Considering the extensive financial literature above, this research aims to determine whether the financial case extends to the research case: Rhodes University. This is further studied in Chapter 5.

There are numerous benefits to incorporating sustainable green initiatives into a firm or institution’s practices and operations. These benefits include increased financial performance, competitive advantage, increased cost effectiveness and better corporate image, which further increase the firm or institution’s economic advantage. These financial benefits serve as an incentive to embrace a green transition, before taking into consideration the environmental and social benefits of sustainability. These findings can be illustrated using a Venn diagram:

Figure 1: Venn diagram of the Triple Bottom Line

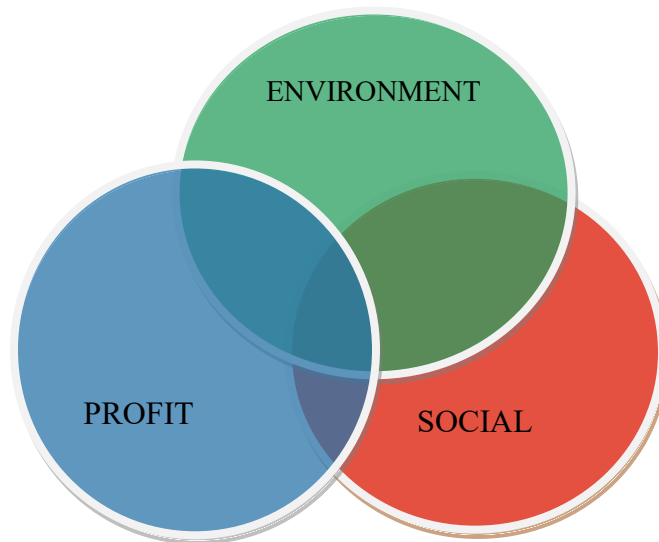


Figure 1 illustrates the interconnected relationship between the environment, profits and society. Regardless of a firm's starting point, by means of investing in sustainable practices, these interconnected dimensions have positive spillovers, whereby focusing on one of these three elements will positively affect the other elements. For example, if a firm aims to increase its profitability through investing in sustainable practices, this will lead to environmental benefits as well as societal benefits. Contrary to Elkington's suggestion that the triple bottom line consists of three "different" bottom lines, with firms having to focus on each one of these bottom lines, the triple bottom line does not consist of individual dimensions. Firms do not need to address each of the three bottom lines independently. Instead, by focusing on any of the three bottom lines, through sustainable development, whether it is social, environmental or profits, there will be positive spillovers to the other bottom lines. As can be seen from this section, sustainability is profitable, and with that comes a societal benefit.

The implementation of green sustainable practices is not only important for the sustainability of the environment, ecosystem services, and the Earth to a greater extent, but is also an essential part of growth and financial performance for firms. The environmental Kuznets curve (EKC) suggests that environmental quality is a luxury of the wealthy; however Figure 1 counters this point due to the overlap between environmental, social and economic dimensions. The EKC depicts the relationship between various indicators of environmental degradation and income per

capita where high income levels and economic growth lead to environmental improvement (Stern., 2019: 9). The EKC implies that environmental impacts are an inverted U-shaped function of income per capita (Stern., 2019: 9). However, as Figure 1 illustrates, environmental improvement does not have to be linked to high income levels, instead, focusing on environmental improvements and sustainability can increase income and profitability within firms.

Potrich *et al* (2019: 273) argue that the “general consensus towards environmental regulation among firms” from the 1960s to the 1980s was one of an unprepared nature; however, this trend started to change from the 1990s onwards, as firms opted for a proactive, rather than reactive, approach to environmental regulation. A proactive approach entails the ability of a firm to think about the future and the sustainability of a firm in the long run (Potrich *et al.*, 2019: 273). Firms that adopted a proactive approach gained considerable competitive advantage (Potrich *et al.*, 2019: 273), and Potrich *et al* (2019: 274) argue that a reactive approach is inefficient and costly, whereas an appropriate proactive approach to environmental issues could result in cost-reduction and an increase in operational efficiency. In the 21st century there has been an increase in the proactive approach by organisations, firms and certain governments in order to meet sustainability goals (Teixeira, 2012: 321). Teixeira (2012; 322) defines the reactive approach as the “least developed stage of green management” and goes on to critique organisations that are reactive as only meeting legislation and merely aiming to avoid further environmental damage. Whereas Teixeira (2012: 322) defines the proactive approach as one where management regards “environmental issues as fundamental in the business strategy to create competitive advantage”, green management is active in the proactive approach and seeks to incorporate green practices into all areas of the organisation. Considering these findings, it is of utmost importance for institutions, firms and organisations to be proactive with regards to environmental challenges and concerns.

There are green initiatives that firms, institutions and organisations can implement at the local level, and numerous benefits and potential gains, such as increased profits, competitive advantages and favourable corporate image, to be exploited. Evidence suggests that embracing green practices is likely to have high returns. Some of this can be captured by firms, as well as

other institutions like Rhodes University, provided they are proactive and have a proper regard for their future profitability (i.e., an investment mentality). To achieve this, they would have to have the appropriate corporate governance structure and institutional setup. Considering the financial benefits, the argument is that the binding constraint is management.

Some of the return can be captured by collective action at the local level. Furthermore, the actions of individual organisations and collective action can have major positive spillovers. This is not to say that national level policy is unnecessary; on the contrary, good policy enhances the ability of local level action. However, it is to say that a lot can be done even when the state is not helping. However, considering the Rhodes University case, it seems that these potential gains have not been fully exploited. The focus shifts to *why* this may be the case.

3.5.2 – Limitations to the Triple Bottom Line and Bottom-up Solutions

The triple bottom line has incorporated some important aspects into the way businesses operate; however, there are limitations to the triple bottom line (Grant, 2023). Grant (2023) poses three criticisms of the triple bottom line. The first is its inability to accurately measure its impact, especially because there is no clear guidance on how to measure the interrelationship between the principles. Secondly, the triple bottom line is a systemic approach that does not always account for individual parts of complex social and environmental systems (Grant, 2023). Thirdly, Grant (2023) argues that the triple bottom line is based on the compliance of firms and organisations, which results in these organisations not being pushed beyond compliance. This is also a limitation of the triple bottom line.

These criticisms and limitations of what the private sector and local level can do are important, because they stress that there *is* an important role for the state to play. The private sector might have an important role in addressing pressing environmental, social and economic issues, but as Grant (2023) states, organisations are not being pushed beyond compliance, which leaves a large gap for the government to fill.

3.5.3 – Obstacles to a Just Green Transition

When considering the benefits detailed throughout this section, why have these benefits not been exploited by the majority of firms and institutions?

According to Baki (2018: 117), there are numerous barriers to implementing green practices and embracing sustainable development in firms and institutions. These include, but are not limited to, financial, technological and participatory barriers (Baki, 2018: 117). Many of these obstacles and barriers originate internally, from within the firm or institution, but some of these barriers can also be attributed to external factors, such as government policy (Baki, 2018: 118).

According to Govindan *et al* (2014: 558), one of the main barriers to implementing green practices in a firm is a lack of adequate finance or access to loans. Govindan *et al* (2014: 558) argue that firms might be aware of the potential benefits associated with incorporating green practices and might be looking to green their practices, but financial institutions may be reluctant to grant loans due to these benefits only being derived in the long term. The lack of financing options is a barrier for firms, businesses and organisations, but it is also a barrier for households. As will be discussed in Chapter 5, the cost of moving a house off the grid is simply too expensive for the vast majority of South African households, which reiterates the importance of financing options. This financial barrier is extended to the costliness of green systems (Mudgal *et al.*, 2010: 82). Mudgal *et al* (2010: 82) argue that although the long-term benefits of transitioning outweigh the costs, the high initial upfront investment is out of reach for many firms and organisations, especially those of smaller size. Many firms, organisations and households do not have the financial means to transition and also do not have financing options.

Another barrier relates to the lack of awareness around the benefits of sustainable development. According to Baki (2018: 118), the failure to convince parties of the environmental benefits of implementing green practices is a major barrier. Baki (2018: 118) argues that many governments are not raising sufficient awareness around the benefits of green procurement and that if government adopts a more “persuasive role”, small firms will be inclined to contribute towards the green process. This “persuasive role” can not only be limited to providing information and raising awareness around a green transition, but could also be in the form of incentives, tax

rebates or other financial stimuli that could enhance the switch to renewable energy. Furthermore Baki (2018: 118) argues that there is a “lack of knowledge on environmental issues” in organisations, and this lack of expertise and knowledge is a major barrier to the “greening” process. Organisations lack an awareness surrounding the benefits of implementing green practices (Mudgal *et al.*, 2010: 82). A greater awareness of the benefits that are associated with green practices would directly encourage these organisations to transition (Mudgal *et al.*, 2010: 82).

Many firms and organisations do not have adequate “technical expertise” when it comes to the implementation of green practices and technology (Baki, 2018: 118). Baki (2018: 118) argues that this is especially relevant for small and medium sized firms, who do not necessarily have sufficient resources in terms of human resources and technical expertise, which becomes a strategic obstacle.

Insufficient flexibility to the adoption of green practices is an obstacle to the green transition (Revell and Rutherford, 2003: 33). If there is insufficient flexibility to the adoption of new practices, it will lead to technical, financial and managerial problems (Revell and Rutherford, 2003: 33). The process of switching to green, environmentally friendly systems is complex (Baki, 2018: 119) and presents a barrier of its own that may increase the reluctance of organisational or firm management to switch to a new system.

As discussed in Chapter 1 and in Section 3.3.11, there is a role for government to play in the transitioning process. Government can both encourage and discourage the switch to green practices depending on their role, stance, policies, support and regulations regarding the green transition (Baki, 2018: 119). If governments fail to play a proactive role in encouraging organisations and firms to adopt green, innovative technologies, this will discourage organisations to switch (Baki, 2018: 119). This is a barrier to the green transition and links to path dependency. It may be required that governments encourage or provide incentives for the private sector to adopt new technologies; however, without a progressive government role, the private sector might be inclined to continue on its ‘brown’ path.

According to Digalwar and Metri (2004: 98), top management commitment is the process of progressing, formulating, changing, empowering and monitoring strategies in order to ensure that business strategies are well-positioned. Baki (2018: 119) argues that a lack of top management commitment presents a major barrier to adopting green practices and the success of a green system depends on the support, effort and commitment of top management. Furthermore Baki (2018: 119) argues that regressive organisational policies will also hinder the transitioning process and that organisational policies should be aimed at pollution prevention and waste management if a firm aims to become environmentally conscious.

From these findings, it is clear that there *are* pressing existing barriers for firms, organisations, business and households that dampen the transitioning process. These barriers and obstacles are both internal and external to organisations. However, despite the validity and extent of these barriers and obstacles, there is great deal that organisations can do in order to overcome them.

3.6 – Conclusion

In this chapter, sustainability and the concepts relating thereto have been conceptualised. The different theories and approaches relating to sustainability have been explored in order to provide a holistic understanding of these differentiating concepts that inform the rest of the research. The different layers – multilateral, national, and local – have been conceptualised, with the focus shifting to the local level and the importance of the local level. This extensive bottom-up local level focus is justified because it forms, and supports, the basis of the research case in later chapters.

Chapter 4 – The South African Case

4.1 – Introduction

This chapter serves as the basis of the contextualisation of the main goal and further extends to Sub-goal 1. This chapter aims to describe the national and local context of the case study, by focusing on the South African government’s approach, policies, legislation and progress towards sustainability.

Section 4.2 considers the national policy framework within South Africa and notes that there are extensive policies and legislation relating to sustainability. Section 4.3 focuses on the counterproductive South African story at the national level, where the reality is far from what the policies aim to accomplish. Section 4.4 elaborates on the preceding section; however, the focus shifts to the local level. In Section 4.5 the inefficacy of path dependency at the local governmental level is highlighted with the focus shifting to municipalities and the research case.

4.2 – South Africa’s Progressive Policies and Legislation

According to South Africa’s Nationally Determined Contribution (NDC, 2021), the country regards the Intergovernmental Panel on Climate Change (IPCC) reports as essential in guiding its climate actions. South Africa states that a just transition is essential to shifting the country’s development pathway to one which is centred on sustainability, climate resilience, and low carbon emission development, whilst also creating a better life for citizens (NDC, 2021). Furthermore the NDC (2021) states that South Africa adopted sustainable development goals in 2015 in accordance with the Paris Agreement as a means to combat climate change and the impacts of global warming. South Africa’s NDC (2021) claims that “significant progress” has been made in implementing South Africa’s response to the climate crisis. This has mainly been in the form of legislation such as the Natural Environmental Management Act that formally declared greenhouse gas (GHG) emissions priority air pollutants. The government also gazetted GHG reporting regulations in 2017, along with a requirement that large GHG submitters provide annual pollution prevention plans (NDC, 2021). South Africa adopted a Green Transport Strategy in 2018, which includes policies to promote electric vehicles, road to rail and bus rapid transport. In 2018, a Presidential Climate Commission was established in order to oversee the

country's transition. According to the NDC (2021), the Presidential Climate Commission has been approved by Cabinet and is in the process of being established through the Climate Change Bill. The Climate Change Bill is another policy framework that was established in 2018 and is in the process of being finalised, and a national Carbon Tax Act was also passed in 2019 (NDC, 2021). Lastly, South Africa stressed the importance of having effective measures in place that are aimed at workforce re-skilling and job absorption, establishing incentives to promote new green sectors of the economy and diversifying coal dependent regional economies (NDC, 2021).

According to the Department of Forestry, Fisheries and the Environment (DFFE, 2022), South Africa regards green economic development as sustainable development that will focus on the importance of interdependence between economic growth, social protection and environmental protection. The DFFE (2022) claims that “South Africa has developed practical and implementable action plans in order to steer the economy towards an efficient, low-carbon and pro-employment growth path.” South Africa has identified key green economy programmes that include sustainable waste management practices, clean energy, sustainable transport and green buildings that aim at greening private and public buildings (DFFE, 2022). According to the DFFE (2022), Cabinet approved the South African National Framework for Sustainable Development (NFSD) in 2008, along with the National Strategy for Sustainable Development and Action Plan in 2011, as well as a national committee for sustainable development that includes partners from both the private and public sector.

The Department of Environmental Affairs and Tourism (DEAT, 2008: 19) states that the national commitment to sustainable development is informed by South Africa’s Constitution, in particular Section 24, which states that “everyone has the right to live in an environment that is not harmful to their health ... and everyone has the right to have the environment protected through policies and legislation that protects the environment, prevents pollution and prevents ecological degradation”. The DEAT (2008: 19) further claims that the vision of the NFSD is to create a sustainable and economically prosperous South Africa by meeting the needs of the people, managing ecological resources and creating a platform for efficient planning through regional, national and global collaboration. Furthermore, the DEAT (2008: 20) argues that this vision can only be achieved through the effective directing of investment and capital expenditure and

through the creation of innovative technologies aimed at sustainability. Legislation and policies, such as the National Environmental Management Principles, the National Forests Act and the National Development Facilitation Act, are all based on the same principles (DEAT, 2008: 22). These principles are essential to achieve sustainable development and include the efficient use of natural resources and socio-economic systems that are embedded within ecosystems (DEAT, 2008: 22).

According to the Department of Environment, Forestry and Fisheries (DEFF, 2019: 9), the National Climate Change Adaptation Strategy (NCCAS) is based on creating a vision of climate resilience and climate change adaptation in SA and provides an outline of priority areas in order to achieve this vision. The DEFF (2019: 9) argues that the NCCAS draws on various plans, such as Nationally Determined Contributions (NDC) and sectoral, provincial and municipal adaptation plans, that are aimed at meeting South Africa's climate goals. Moreover, the DEFF (2019: 10) states that the NCCAS provides guidance to national and local government, is a supportive instrument to ensure that South Africa meets its international obligations, and serves as a policy instrument in which climate objectives can be articulated.

In the 2023 budget speech, the Minister of Finance, Enoch Godongwana, stated that green technologies are becoming cheaper and that the deployment of low carbon solutions is accelerating in South Africa (South African Government, 2023). As of 1 March 2023, two new tax rebates will be introduced in order to assist households and businesses to transition to renewable energy sources. Firstly, businesses will be allowed to reduce their taxable income by 125% of the costs of investments in renewable energy (South African Government, 2023). Secondly, a tax incentive for the installation of solar panels on rooftops will be introduced. Individuals who install rooftop solar panels will be able to claim a 25% tax rebate on the cost of the solar panels up to a maximum amount of R15 000 (South African Government, 2023). These tax rebates will serve as an incentive for individuals and businesses to transition to renewable energy sources (South African Government, 2023).

The South African government is aware of the importance of a just green transition. The state does recognise that a just green transition has numerous benefits which could “steer” the

economy towards a new growth path. Government is also aware that sustainable practices are becoming increasingly cheaper. There are solutions, in the form of technological advancements, available in order to transition to a green economy. The question is whether South Africa is embracing this opportunity for economic growth. An accelerated transition in South Africa's energy sector is essential to sustained economic recovery and growth (Andreoni *et al.*, 2022: 248). Swilling *et al* (2016: 651) propose that a just green transition needs to be part of a much deeper shift which is linked to developmental welfarism. A just green transition should incorporate a structural transformation to achieve developmental welfarism and a sustainability transition (Swilling *et al.*, 2016: 651). South Africa has numerous policies, legislation, and other frameworks in place to meet global and national sustainable development goals. There is no lack of plans or supposed commitment to sustainable green growth and a just green transition; however, has this translated into action? This is further investigated below.

4.3 – South Africa's Counterproductive Policy Implementation

The South African government has a number of policies and legislation relating to a just green transition; however, they have fallen short in terms of implementation. This is across multiple levels and spheres. This section will analyse the implementation, validity and feasibility of South Africa's policies and frameworks at national, local and municipal government levels.

4.3.1 – National Government Policy Implementation

Switching to renewable sustainable practices will likely require active state involvement because initially costs will be high. The need for active state involvement is compounded by the complexities surrounding a just green transition, such as issues of fairness and the notion that a green transition is for the 'rich'. There is also a large public goods element to consider, for example, electric vehicles and installing an electric vehicle charging grid, and the cost of complete renewable energy supply. There is a role for the state to oversee a just green transition. The state should create an enabling environment, ensure that the poor are not left behind, effectively steer economic growth towards a 'just' and 'green' pathway, and address the public goods element. The role of the state is to enable, guide and facilitate a just green transition.

Continuing on the electric vehicle example, the state might be needed to provide incentives, such as significant tax rebates, in order for consumers to purchase EVs. The state can also assist by implementing other progressive policies or cutting taxes on the import of EVs. According to the Green Building Council South Africa (2019), electric vehicles are subject to 25% import duty tax, compared to internal combustion engine vehicles that are only taxed at 18%. Furthermore the GBCSA (2019) states that EVs are subject to an additional 17% ad volarem (luxury tax duty), that brings the total tax on EVs to 42% compared to 18% for carbon emitting vehicles. This is an example of the state being an obstacle to the transitioning process. The luxury tax is in complete contrast to South Africa's Nationally Determined Contribution (NDC) plan and Green Transport Strategy as discussed in Section 4.2, which aims to "promote electric vehicles" as a means to steer the country towards sustainability and a just green transition.

At the national level there are very few incentives for South African households to make the transition from non-renewable to renewable energy sources (Fontana, 2022: 2). Current regulations make it challenging for households to sell their excess electricity generated from renewable sources, such as solar power, back to the grid (Fontana, 2022: 2). Furthermore Fontana (2022: 2) argues that the situation is compounded by the absence of significant tax incentives and governmental programmes that are aimed at fostering the development of the renewable energy market. As discussed in Section 4.2, the current tax incentive for households is limited to a R15 000 tax rebate. As a result of loadshedding, many households have opted to move off the grid. According to Business Insider (2020), improvements in renewable energy solutions have made the switch to solar energy a reality for the upper middle class in South Africa. Business Insider (2020), reports that for a standard home of four people, that consume 25kWh on average per day, it will cost R200 000 to make the switch to renewables and no longer be reliant on Eskom. Solar systems like these have a lifespan of 25 to 40 years. For many South Africans, however, an upfront investment of R200 000 is simply out of reach. For those that can afford it, it is a viable, long-term solution, but for the majority of households, it would be unaffordable. The tax rebate is a mere 7.5% of the estimated cost. This might not be a binding incentive for households to embrace the transition to renewable energy sources. In order for households to transition to renewable energy alternatives, tax incentives should equalise costs between non-renewable energy, such as procurement from Eskom, and renewable energy, such

as the installation of solar. Furthermore, incentives should address and alleviate the burden of upfront costs for renewable energy generation and ease the financial burden.

Moreover, the tax incentives for business and households are for those who can afford solar installation or those who can access credit in order to install solar. A ‘just’ green transition does not only cater for the rich or for those who can afford to install solar. A ‘just’ transition is inclusive and fair. Although it is of utmost importance to introduce tax incentives like these, it is also crucial for the government to oversee a fair and equitable green transition which can be termed ‘just’. From Section 4.2 above, the government incentives seem to be aimed at richer households, without catering for or accommodating poorer households in the green transition.

South Africa has not implemented any tariff top-up arrangements, as discussed in Chapter 3, which have proved to be very successful in other African countries like Uganda. However, South Africa is in the midst of piloting similar programs, such as the Renewable Energy Tariff (RET), designed by Eskom as a means to switch to renewable energy sources. According to Eskom (2021), the way in which the RET is structured is that the tariff will be an addition to the existing tariff rates. The renewable energy tariff is an additional premium on the existing electricity tariff and is structured as a declining block tariff, where the more green energy an individual or business purchases, the less it pays (Eskom, 2021). The main aim of this project is to allow households and businesses that cannot afford the huge upfront capital costs associated with installing solar systems, to still be able to move towards green solutions by procuring green energy. According to Eskom (2021), the RET program also has numerous benefits for businesses that aim to meet their corporate renewable energy commitments without having the initial capital investment costs. According to Eskom (2021), benefits of this project for households and businesses include improving their environmental credentials, clean green energy alternatives and 24-hour non-variable renewable energy supply although not exempted from loadshedding.

The biggest criticism of this program is that it is *still* affected by loadshedding. The aim in South Africa of moving from non-renewable to renewable energy sources should be aimed at alleviating loadshedding. In essence, there is no real incentive to move to renewable energy sources for households or businesses because they are still affected by loadshedding. Another criticism of this program is the cost element and the fact that it is more expensive to procure

green energy through this program than it is to continue procuring coal-intensive energy. The operations of Eskom are overshadowed by poor and confused policy (Hendrickse, 2022: 29). The RET program from Eskom has little binding incentive, especially for households and firms in an already struggling economy, to transition to renewable energy sources.

In his 2023 budget speech, the Minister of Finance, Enoch Godongwana, announced that South Africa experienced 207 days of loadshedding in 2022 (South African Government, 2023). The minister stated that unreliable electricity supply is the South African economy's "biggest constraint" (South African Government, 2023). According to *Businesstech* (2022), the single largest threat to the South African economy is loadshedding, with loadshedding being the main reason for the 0.7% decline in GDP in the second quarter of 2022 which "hobbled economic output". Stage 6 of loadshedding costs the economy an estimated R4 billion per day, which is irrecoverable (*Businesstech*, 2022). Furthermore Lenoke (2018: 72) states that loadshedding has a negative impact on South Africa's economic growth potential, which supports the existing grey literature that loadshedding has a negative impact on the economy.

Aside from the impact on the broader economy, loadshedding significantly impacts small businesses because these businesses can often not afford generators or solar systems (*Businesstech*, 2022). Loadshedding has adverse effects on small, medium and micro enterprises (SMMEs) in South Africa and affects the productivity of enterprises due to an increase in costs as a result of damages, repairs and the purchase of alternative energy sources such as diesel generators (Olajuyin and Mago, 2022: 3). SMMEs are crucial in addressing unemployment, stimulating economic growth and providing sustainable livelihoods in South Africa (Fatoki, 2014: 930). There is a significant cost to downtime and business disruption. SMMEs are heavily dependent on efficient power supply, and there is a significant relationship between business and electricity; however as a result of loadshedding, a critical limitation has been placed on SMMEs (Olajuyin and Mago, 2022: 4). The crisis of loadshedding severely affects the operational abilities of SMMEs (Olajuyin and Mago, 2022: 4). Loadshedding has further impacts on sectors such as the food sector due to an increase in risk and uncertainties and an increase in production costs (*Businesstech*, 2022). Loadshedding cost the retail sector alone R13.17 billion in the first six months of 2015 (Goldberg, 2015: 88). According to *Businesstech* (2022), there is no way to

quantify the damage done by loadshedding because “the numbers and models simply cannot estimate what could have been, had loadshedding not existed”. According to Business Insider (2020), experts have warned that loadshedding will continue in South Africa due to a myriad of problems at Eskom.

South Africa is unable to alleviate poverty, spur sustainable economic growth, increase employment opportunities and deliver quality public services due to the ongoing energy crisis (Hendrickse, 2022: 290). The inability of the South African government to ensure a reliable electricity supply constrains the country’s structural transformation and was a direct contributor to the pre-Covid economic recession, whilst hindering a post-Covid economic recovery (Andreoni *et al.*, 2022: 250). According to The Conversation (2021), South Africa has numerous governance problems such as corruption and institutional challenges – especially Eskom and the erratic electricity supply that is a detriment to the economy. According to Businesstech (2021), the question of insufficient electricity has become an increasingly pressing concern for South Africa and its economic recovery following the Covid-19 pandemic. Furthermore Businesstech (2021) found that the SOE suffered a net loss of R20 billion in 2020 which was mainly due to state capture and corrupt practices. Millions of taxpayer Rands have ended up in “below the table” transactions at Eskom.

Furthermore Eskom, along with numerous other SOEs, has a significant amount of debt. According to Businesstech (2021), Eskom’s debt due to these pressing challenges amounted to R464 billion in the 2020/21 financial year. Despite a government bailout of R56 billion in the 2020/21 financial year and another of R39.1 billion in 2021/22, continual power outages persist. Government bailouts and transfers to Eskom are mainly used to service Eskom’s interest payments and to repay maturing debt (Andreoni *et al.*, 2022: 252). In his budget speech, the Minister of Finance announced a further bailout of R254 billion over the next three years, while noting that Eskom’s debt is currently at R423 billion (South African Government, 2023). The high debt level and poor financial position at Eskom contributes to the inability of the SOE to operate effectively (Andreoni *et al.*, 2022: 248). This staggering bailout of R254 billion is from taxpayer Rands. These funds could have been rerouted to develop the economy, invest in a just green transition, invest in education, social relief, create employment opportunities, alleviate

poverty and spur sustainable economic growth. There would also have been positive spillovers between these different elements. Instead, the government continues on this unsustainable path where hundreds of billions are given to Eskom, whilst an unreliable electricity supply and a pressing economic climate persist.

At the core of the energy crisis is a lack of effective leadership, confused policy, mismanagement and a complex regulatory framework at Eskom (Hendrickse, 2022: 291). The regulatory framework at Eskom is weak with insufficient capacity to hold the SOE accountable for its actions, decisions, policies and operations (Ting and Byrne, 2020: 7). According to the Daily Maverick (2021), Eskom's average cost of coal purchases amounts to R427 per megawatt-hour (MWh) and this is before the coal has been turned into electricity and excludes maintenance and operational costs. The cost of purchasing renewable power such as solar or wind averages R473/MWh; this means that it is slightly more expensive for Eskom to purchase renewable energy than it is to operate coal plants (Daily Maverick, 2021), but this is before accounting for maintenance and operational costs. According to Daily Maverick (2021), the cost of coal generation, after considering operational costs and maintenance of coal plants, is more expensive than the cost of procuring renewable energy from solar or wind farms. Renewable energy generation such as solar and wind is becoming increasingly cheaper and a more viable option in the South African context due to the rising costs of coal generation and coal-operating stations such as Medupi and Kusile (Walwyn and Brent, 2015: 391).

Eskom is a national level example with numerous policy and other implications to consider before the transition can occur. Furthermore, Eskom is an example of the state being an obstacle in the transitioning process. It is cheaper for Eskom to acquire renewable energy than to opt for diesel generation; however, the SOE continues its heavy reliance on coal and 'brown' practices, such as diesel generation during loadshedding (Daily Maverick, 2021). As discussed in Chapter 3, investments in green technologies and a green economy will create jobs, improve opportunities for market access and ultimately lead to economic growth. According to Lenoke (2018: 68), there is a positive relationship between energy consumption and economic growth in South Africa. It is therefore crucial to have sufficient energy supply, which is not currently the case in South Africa due to continued reliance on coal-intensive technology. Path dependency in

diminishing return activities, such as the coal reliance at Eskom, will continue, unless active steps are taken to switch to sustainable practices.

As detailed above, the state has been a burden in the renewable energy sector. Eskom continues to resist a renewable energy transition by blocking renewable power-purchase agreements, changing grid-connection rules, and stimulating support for trade unions to provoke sentiments with regard to job losses if a just green transition should commence (Ting and Byrne, 2020: 11). Furthermore, Ting and Byrne (2020: 11) support the claims of corruption and irregularities at the SOE by stating that “procurement allocations are being redirected to benefit elites”. If the state reconsiders its position, and introduces enabling legislation and is a catalyst for a just green transition, it could accelerate the transitioning process, but from these findings, it is clear that state capture, corruption, irregularities, confused policy and mismanagement continue to persist.

At the national level, South Africa has countless policies, legislation and commitments in place in order to meet sustainable development goals or to move towards green alternatives. As can be seen in Section 4.2 above, some of these policies were established more than a decade ago. The commitment to green growth and environmental sustainability is in the Constitution of South Africa. However, from this section it is clear that despite all of these policies, acts and legislation, the country has made little progress towards sustainable development and sustainable energy production; instead, the energy crisis has worsened. Why is this the case and why has South Africa failed? The ongoing energy crisis can be described as a ‘symptom’ of a broader failure to shift South Africa’s trajectory and socio-political regime.

The extent to which global policies, such as UN Net Zero are implemented, is dependent on how the state is constituted and on the power relations of the social-political regime within the national context (Swilling *et al* (2016: 657). The South African government is not configured to drive either developmental welfarism or a sustainable transition (Swilling *et al.*, 2016: 657). The government has been accused of delaying the implementation of certain sustainable development policies to cut carbon emissions (Erasmus *et al.*, 2018: 2). According to Erasmus *et al* (2018: 2), despite the “progressive” policies and legislation passed by national government to adopt

renewable energy practices, the country's response to the climate crisis has been dampened by corruption and policy uncertainty.

The South African government is not configured to a developmental state. There is a dominant logic in national policies which defines the socio-political regime (Swilling *et al*, 2016: 659) or a socio-technical regime (Ting and Byrne, 2020: 2). This dominant logic tends to reinforce existing power structures and serve existing interest groups and is resistant to change. The state may, in response to internal pressures such as the failure of Eskom or international pressures such as global goals of Net Zero, start talking about change and a sustainable growth path. As is evident from Section 4.2, the government might go as far as passing laws and introducing policies and legislative frameworks. The reality, as is evident from the findings throughout this section, is that these laws, policies, and frameworks tend to be weakly implemented because they go against the dominant logic. These policies and laws are in contrast to the corrupt interests of a handful of individuals who look to profit from corrupt dealings with SOEs such as Eskom and state capture. The fact that renewables have remained niche (Ting and Byrne, 2020: 2) is a good case study of this, but it is the tip of the iceberg. South Africa has not only failed to mainstream sustainability and a just green transition; the country has also failed to achieve broader transformation. Swilling *et al* (2016: 660), state that “the core structural problem of the South African economy is the dominance of the socio-political regime by the ‘mineral-energy complex’”. The vested interests of a minority of powerful and corrupt individuals are arguably one of the biggest constraints to a just green transition at the national level.

4.3.2 – Local Government and Municipal Government Policy Implementation

The state of national government was described above. Throughout this section the spillovers from what can be described as a “failing state” to the local and municipal level is studied. The problems faced at national level, such as corruption, state capture, and maladministration, affect local and municipal government, as will be discussed in this section.

The local sphere of government is closest to the people and is therefore indispensable in its role of providing basic services and developing local regions (Ndevu and Miller, 2017: 8). Municipalities play a crucial role in propelling national government's agenda of development

and can be utilised as a means by which democracy is deepened in local government (Madumo, 2015: 158). It is therefore of utmost importance to consider the state of municipalities, which is a realm of local government, in the South African context.

Local government in South Africa is faced with numerous challenges which include a lack of knowledge, lack of skills, lack of resources, and self-enrichment by politicians and officials (Ndevu and Miller, 2017: 15). According to Ndevu and Miller (2017: 17), the three main issues that local governments face are political appointments, lack of capacity and lack of accountability. Political appointments are made on the basis of political affiliation as opposed to merit. According to Thornhill (2011: 494), “the South African public service is characterised by three debilitating factors, namely, the prevalence of corruption, the interference of politicians in administrative functions and a lack of appropriate skills and therefore a lack of commitment on the part of officials”.

The local government sphere in South Africa is overshadowed by corruption, maladministration and nepotism and tends to be more susceptible to irregularities due to the weak institutional mechanisms (Madumo, 2015: 158). Municipalities have weak financial management capacity, are faced with inadequate leadership and are faced with a shortage of skills to implement financial management strategies and legislation (Koma, 2010: 116). Political instability and the inability of the South African political framework to address challenges is a significant burden.

According to de Visser (2010: 94), poor governance can be attributed to inefficient government administration, especially at the municipal level, which poses a high degree of political risk. According to Sowetan Live (2020), the poor performance of local governments is a clear indicator of a government in crisis. Infrastructure, such as water supply, buildings and roads, is deteriorating at a rapid pace at the local level. During the 2017/2018 financial year, a mere 18 out of 278 municipalities in South Africa obtained clean audits (Sowetan Live, 2020). This affects the quality of life for residents in both suburbs and townships and calls for concern. Another alarming statistic is that the number of municipalities receiving clean audits has incrementally declined recently in South Africa, with the Auditor General ranking the top three best performing municipalities with regard to clean audits as the Western Cape (73%), Gauteng

(33%), and KwaZulu-Natal (30%) (Ndevu and Miller, 2017: 17). Two of the top three “best performing” municipal regions did not even score above 35% with regard to clean audits.

Regional party structures often aim to control municipalities and promote unjust political agendas and focus on tenders and staff appointments, instead of focusing on ethical leadership (de Visser, 2010: 95). There is undue political interference by political parties in the municipalities where they govern, and there is a growing concern with regard to inappropriate relationships between regional party structures and municipalities (de Visser, 2010: 94). Municipalities are overshadowed by corruption and fraud that highlight the “inappropriate interference” of politicians (de Visser, 2010: 95). According to Sowetan Live (2020), a concrete intervention to address the challenges faced by local government should require that politicians and unqualified people not hold any administrative executive positions that require technical skills or expertise. Positions in municipalities are either filled or overseen by politicians through cadre deployment which furthers their own political interests (The Conversation, 2021). Furthermore, The Conversation (2021) argues that political risk has drastically increased over the last two decades in South Africa, with South Africa moving from stable in 2006 to warning in 2021, in the Fund for Peace’s Fragile State Index.

Currently the problem of unsustainable path dependency persists in South Africa. A local example that is relevant across South Africa is municipalities’ heavy reliance on Eskom. According to StatsSA (2017), municipalities operate by buying electricity from Eskom and then reselling it to their customers, such as households, businesses and other institutions. There is a strong connection between Eskom and municipalities. According to StatsSA (2017), 42% of Eskom’s electricity is rerouted through municipalities and of the 257 municipalities, the average municipality earned more than a quarter of its income from selling power. The stream of revenue earned from selling power is a disincentive for local government to embrace a green transition, because it will lead to a loss in income. This points to the inadequacy and ineffectiveness of government policy. Due to bad government policy, there is a complete lack of coordination between various government policies. According to StatsSA (2017), for many municipalities, such as the Greater Kokstad municipality, 93% of its income is generated through selling electricity. This municipality is reliant on Eskom for survival. The conclusion is that local

governments in South Africa are stuck in path dependence. Path dependence hinders growth and potential (Sydow, 2015: 111). Currently Eskom is faced with a significant debt burden and has extensive financial problems, to say the least. The vast majority of municipalities are also indebted and face severe financial constraints. This leads to a rabbit-hole phenomenon, where these two stakeholders are reliant on one another for survival in the short run, with no prospects for long-term prosperity or growth. The outcome of being stuck in path dependence is failure.

Rhodes University and the local Makana Municipality are no exception. The university continues to rely on the municipality for electricity, which is a source of income for the municipality, but this puts pressure on local infrastructure and the grid. Problems that occur with reliance on government, such as loadshedding, influence the ability of students and staff to operate fully. The current situation can only lead to a downward spiral, as the university is locked into relying on the municipality, and this further weakens the university and makes it harder to change this path dependence, whereas a proactive policy by Rhodes University could not only stabilise the current situation, but also unlock increasing returns. This is extensively discussed in Chapter 5.

The state of local government and municipal government can be compared to the failing national state. Problems of corruption, state capture, and maladministration can be described as symptoms of the “socio-political regime” which focuses on the amoral interests of a few individuals. These problems faced at the municipal and local level are part of the broader problem of this socio-political regime. As is evident from these findings, the local and municipal government levels are plagued with the same pressing issues faced at national level.

4.4 – Conclusion

Numerous national policies and frameworks support the just green transition. South Africa has an abundance of policies committing to sustainable development. However, this progressive national framework is overshadowed by a complete lack of progress. The counterproductive South African story, both at national and local governmental levels, is in complete contrast to what the national framework aims to do. This lack of progress signals the importance of bottom-up solutions, individual action and acting independently. In the following chapter, the focus shifts to individual action and a bottom-up approach in the just green transition.

Chapter 5 – The Context of Rhodes University as a University and an Institution in a Small Town

5.1 – Introduction

In this chapter the case study – Rhodes University – is conceptualised and there is an extensive focus on the economics and financial implications of a just green transition. This chapter relates to Sub-goal 3, and Sub-goal 4, as detailed in Chapter 1. The preceding chapters have focused on the theoretical framework and the broad narrative of a just green transition. The findings inform the focus of this chapter, which is bottom-up action at the local level by individual institutions and organisations, and the importance of bottom-up solutions at the local level to address issues of unsustainability. This chapter will consider the more immediate context of Rhodes University by considering the specific case of the town, and by considering the university as an institution in the South African and global higher education landscape.

Makhanda (Grahamstown) is contextualised in Section 5.2, in order to better understand the current state of the town. The role of universities is considered in Section 5.3.1. In Section 5.3.2, examples of universities implementing sustainable practices in their day-to-day operations is studied, which further signifies the important role of universities and also shows what can be done if there is a strong commitment to sustainable development. The constraints and challenges which universities face are studied in Section 5.3.3. Rhodes University is contextualised in Section 5.4. In Section 5.4.1 the focus shifts to the university’s vision and mission statement and these are analysed in order to understand the university’s priorities. In Section 5.4.2 and 5.4.3 the university’s previous and current IDPs are studied and analysed to determine the role of sustainability within the IDP. In Section 5.4.4 the risk factors are considered, should the university fail to address the risks and continue on an unsustainable path. The pure financial case and economics of a just green transition are analysed in Section 5.5.

5.2 – The Makana Municipality and the State of Makhanda (Grahamstown)

Makhanda (Grahamstown), which is home to Rhodes University, is governed by the local Makana Municipality, which has faced severe scrutiny in recent times. As discussed in Chapter 4, local government and municipal government face severe challenges in South Africa, most of which are prevalent at the Makana Municipality. The local municipality has been overshadowed by corruption, maladministration, infrastructure failure and operational failure which have adversely affected service delivery.

The Makana Municipality has severe governance, infrastructure and financial issues (Mdlongwa, 2015: 3). Service delivery in the municipality has been impacted by operational inefficiencies in providing basic municipal services, a lack of reliable information needed to make decisions, and a general vulnerability to fraud, waste and abuse (Mdlongwa, 2015: 4). The Makana Municipality received its fourth consecutive negative audit report (Grocotts Mail, 2023). The Auditor General (AG) found that the municipality failed to provide accurate financial records “on almost everything” and that there were no adequate plans to address service delivery challenges or punish wasteful municipal expenditures (Grocotts Mail, 2023). The municipality received a negative disclaimer from the AG, who stated that there were more than 80 areas where the municipality failed to provide adequate financial information (Grocotts Mail, 2023). According to the AG, no reasonable steps were taken to prevent irregular and fruitless expenditures and the municipality’s financial statements did not agree with its fixed asset register, billing reports or payroll (Grocotts Mail, 2023).

According to Weaver *et al* (2017: 399), Grahamstown (Makhanda) is faced with serious water challenges, with the majority of water service delivery failures being prevalent in Grahamstown East. Grahamstown East hosts the bulk of the Grahamstown population (Weaver *et al.*, 2017: 399). Contributing to the water service delivery challenges is the municipality’s responsibility to other areas outside of Grahamstown, which also require municipal support but are often neglected due to the pressing water challenges faced in Grahamstown (Weaver *et al.*, 2017: 400). Continuous water supply outages, coupled with poor water quality, have resulted in a breakdown

of trust between local residents and the Makana Municipality (Weaver *et al.*, 2017: 400). The Makana Municipality has been branded as dysfunctional by Provincial Government (Weaver *et al.*, 2017: 400). Currently, Makana residents have water every other day, with water outages sometimes lasting for more than a week. In addition to the water challenges, the municipality faces several other challenges.

The unemployment rate in Makana increased from 25% in 2010 to 38.3% in 2020, with a negative outlook for employment prevailing (Makana Municipality IDP, 2022). According to Makana Municipality IDP (2022), the municipality faces numerous risks. These include no financial sustainability which extends to poor relations with residents and poor governance, inadequate and ageing water infrastructure, ageing road and storm water infrastructure due to lack of maintenance, and unstable and poor reliability of electricity supply due to lack of maintenance and poor planning (Makana Municipality IDP, 2022). The findings of the Makana Municipality IDP correlate with the findings above and with Section 4.3.2, in that the municipality faces significant struggles and pressing issues. Some of these issues are self-inflicted due to maladministration and general poor governance, but most are part of the ‘broader problem’ of a failing state.

From the findings above it is clear that the Makana Municipality has numerous challenges such as infrastructure, corruption, governance, growing unemployment and service delivery failure. These challenges are very similar to the challenges described in Chapter 4, and as described by Mdlongwa, the Makana Municipality is a perfect example of the crippling problems at the local and municipal government level in South Africa. As discussed in Chapter 4, the majority of municipalities and local government structures face the same issues, and the Makana Municipality is not an ‘individual’ case. The Makana Municipality can be described as a ‘symptom’ of the broader structural, economic and political problems facing South Africa. Although national issues such as loadshedding and a weak economy have negative spillovers to local and municipal governments, these regional government structures are plagued with numerous ‘self-inflicted’ problems of their own. A lack of adequate planning and path dependence continues at the municipal level, with little prospect of resolution of the pressing concerns such as water, electricity and infrastructure in Makhanda.

Given that government, whether at national, local or municipal level, is failing and the service delivery crisis is likely to worsen, the onus is on bottom-up action to solve pressing issues such as loadshedding. A change in the political dispensation seems unlikely; therefore, the responsibility lies with individual entities, institutions, organisations, and business to address issues. Action at the local level and just green economic development have the potential to address pressing issues such as the energy crisis, whilst simultaneously leading to economic and social benefits. As discussed in Section 3.5.1 and illustrated using the Venn diagram (Figure 1), there is an increasing overlap between the three elements of the bottom line. This could be an incentive for institutions, organisations and businesses to consider and implement bottom-up solutions. Challenges such as loadshedding are potential opportunities; however, they remain unexploited if institutions fail to be proactive in embracing these ‘problems’ as opportunities. The ‘problems’ as detailed throughout this section and throughout Chapter 4 seem to be worsening with little prospect of a developmental state in South Africa to address them. Bottom-up action seems to be necessary for the survival of institutions, and a failure to act could lead to the downfall of these institutions, which reiterates the importance of bottom-up solutions.

5.3 – The Role of Universities in the Just Green Transition

This section considers the role of universities in their communities and local regions relating to sustainable development within the context of teaching and learning, research and community engagement. Universities can be important drivers of transformative change in their regions, and examples are considered of universities implementing sustainable practices and the broader constraints they face with a particular focus on the South African context. Universities are considered as potential agents to shift sustainability from ‘niche’ to ‘mainstream’ through research, teaching and learning, and community engagement.

5.3.1 – The Role of Universities in Society

The significance and role of universities in their region is often underestimated, despite the generally strong relationship between universities and other organisations in their region (Sedlacek, 2013: 74). Universities are strong facilitators of regional development due to their “connection” with other regional institutions, organisations and civil society at large, and due to this strong relationship universities have great potential to “support sustainable development

more actively” (Sedlacek, 2013: 74). Furthermore, Sedlacek (2013: 75) argues that universities impact their regions and have a very important role in the transformation of the communities that they are in. This transformative role of universities can link to social, environmental and economic spheres. For example, in the face of failing government structures as detailed in Chapter 4, South African universities potentially can play a leading role in the just green transition given their agency as a university.

The sustainable development goals (SDG’s), were adopted by the UN in 2015 as a universal call to take action to end poverty, protect the planet and ensure that all people enjoy prosperity and peace by 2030 (United Nations Development Programme, 2023). The SDG’s are integrated and emphasize social, environmental and economic sustainability (United Nations Development Programme, 2023). Some of the SDG’s which are especially relevant to universities include SDG 4 (quality education), SDG 11 (sustainable cities and communities), SDG 13 (climate action), SDG 16 (peace, justice and strong institutions) and SDG 17 (partnerships for the goals). Universities can play a leading role in the implementation of sustainable development goals (SDGs) through teaching and learning, community engagement, research, and curriculum orientation towards sustainability (El-Jardali *et al.*, 2018: 38). Universities can aid in the implementation of SDGs through generating new knowledge and new approaches (El-Jardali *et al.*, 2018: 38). According to Mawonde and Tongo (2019: 933), universities can be regarded as small cities which can have extensive impacts on the social, environmental and cultural well-being within their cities and communities. The ability of universities to collaborate with other stakeholders strategically aligns them with society, local, national and international organisations in addressing SDGs, as alone they may be financially limited (El-Jardali *et al.*, 2018: 38). According to Mawonde and Tongo (2019: 933), a good university can be reflected by its interaction with its community. Universities do have a very important role in their local communities and in addressing issues such as sustainable development. As emphasised, through their practices such as teaching and learning, research, and community engagement, universities can be catalysts in shifting transformative issues, such as ecological issues and sustainability, from ‘niche’ to ‘mainstream’. Below, examples are considered of universities embracing this important role and implementing sustainable practices.

5.3.2 – Examples of Universities Implementing Sustainable Practices

In this section examples are considered of universities, both globally and locally, taking steps to address the climate crisis and implement sustainable practices. These universities have embraced their important role in society. Compagnucci and Spigarelli (2020: 1) argue that in recent times universities have faced increasing pressure to shift their focus from teaching and research towards adding a significant “contribution to society”.

There are numerous examples of universities from across the world taking active steps in the fight against climate change. Yale University partnered with the City of New Haven and a private company, United Illuminating Company, in a carbon offsetting program which addressed SDG 13 (Climate Action). The program was aimed at the use of public transport, promoting cycling and the use of clean energy sources to assist in carbon offsetting. According to Trencher *et al* (2013: 11), the program of the university is influencing society in transforming towards a low carbon society. Wageningen University and Research (WUR, 2022) states that the university decreased its carbon footprint through the implementation of sustainable practices by 50% from 2010 to 2019. The university generates renewable energy through solar panels, windmills and thermal storage, and in 2019 generated 109% of its energy through these renewable practices (WUR, 2022). Wageningen University is the most sustainable university in the world, with all of its energy consumption is generated from renewable sources (GreenMetric Ranking, 2022).

According to the University of Nottingham (2022), the university has reduced its carbon footprint by 40% from 2010 to 2020, and this was done in accordance with the global goal of reaching Net Zero by 2050, as well as Nottingham’s goal to become the first city in UK to reach “zero carbon” by 2028. Their sustainable goals are in line with the Paris Agreement and in order to meet these goals, they created an “Estates Development Framework” aimed at demand reduction, energy efficiency, zero carbon energy generation (using solar and wind energy), and offsetting (University of Nottingham, 2022). According to the GreenMetric ranking (2022), the University of Nottingham is the second most sustainable university in the world.

The University of Groningen (2022) states that the 17 sustainable development goals that were formulated by the United Nations are used as a framework for the university’s “sustainable ambitions”. The University of Groningen was ranked as the third most sustainable university in

the world (GreenMetric, 2022). The university aims to be carbon neutral by 2035 and has numerous plans in place that have been drawn up by their Green Office. In order to enhance the development of a sustainable society, the university aims to incorporate sustainable teaching, through courses, and research, through interdisciplinary research on sustainability, in its practices.

According to the Universidad Autonoma de Nuevo Leon (UANL, 2022) the university has committed to sustainable development and introduced a “Vice President of Sustainability” in 2010 in order to lead sustainable efforts. Some of the recommendations that the Vice Presidency made were that electricity should be generated through solar panels and other renewable sources and that buildings should have natural lighting, solar water heating systems and green roofs (UANL, 2022). More than 35% of the university’s energy usage is from renewable energy sources (UANL, 2022). UANL (2022) states that it is “imperative to introduce and integrate renewable technology into social, technological and higher education sectors” due to the health and environmental benefits associated with renewable energy. The Universidad Autonoma de Nuevo Leon is ranked as the 18th most sustainable university in the world (GreenMetric, 2022).

The examples of universities taking initiatives to combat climate change are not only limited to international universities. In South Africa, the University of Cape Town (UCT) introduced a Green Campus Action Plan for Carbon Footprint Analysis in 2008. The project led to the formation of an energy centre that was responsible for energy management and campus retrofitting. According to Mawonde and Tongo (2019: 935), electric energy meters were installed to measure the carbon footprint of the university in an attempt to motivate students to think more carefully about their carbon footprint. In a case study conducted by Mawonde and Tongo (2019: 937) on the University of South Africa, the findings suggested that the university is incorporating numerous sustainable practices in its operations which directly relate to SDGs. The university has not only focused on the development of sustainable policies but has also focused on implementing these policies. SDG 11 is aimed at sustainable cities and communities, and the university is contributing towards this goal through a tree planting project (Mawonde and Togo, 2019: 937). Furthermore Mawonde and Tongo (2019: 937) note that although it is not a large-scale project due to the relatively small campus size, this project can motivate students and staff

and give “impetus to the development of similar projects outside the university”. The university has a solar powered energy charge station for electric vehicles at the Muckleneuk campus, in accordance with SDG 7.1 “which calls for universal access to modern energy services”, and the university is further adopting clean energy sources through the installation of solar panels to generate solar energy (Mawonde and Togo, 2019: 940). Sustainability initiatives like those at the University of South Africa cover several SDGs which shows that the SDGs are “intertwined” (Mawonde and Togo, 2019: 947). According to the GreenMetric Ranking (2022), the University of South Africa is 800th on the list of most sustainable universities in the world. The University of South Africa and the other examples discussed above relate to the importance of using global treaties, such as SDGs, as a guideline for action at the local level. Furthermore, these examples illustrate the importance of universities in the just green transition and the role of universities in implementing practices to reach global goals such as Net Zero. From the examples discussed above, all the universities use the goals set by the United Nations as guidelines in their approaches.

5.3.3 – Constraints and Challenges

Universities, both globally and locally, face numerous constraints. These constraints complicate the ability of universities to fulfil their role as discussed in Section 5.3.1. If not addressed, these constraints could impede on the ability of universities to embrace a just green transition.

There is mounting pressure on higher education institutions in South Africa. Funding for higher education in South Africa is comparatively lower than that of countries with a similar economy (Leibowitz and Bozalek, 2014: 95). Government expenditure on higher education is 2.7% in South Africa, whereas the global average is 3.3% (Leibowitz and Bozalek, 2014: 96). Universities globally face severe fiscal pressures, but this is especially relevant in the African context and can largely be attributed to the struggling African economies that make it increasingly difficult to provide funding for higher education (Teferra and Altbach, 2014: 25). The demand for access to higher education, especially in Africa, has grown significantly which strains the resources of higher education institutions. Student enrolments have increased, but “financial resources have not kept pace” (Teferra and Altbach, 2014: 25). Universities globally, but especially African universities, face severe financial pressures (Teferra and Altbach, 2014:

27). Universities face numerous constraints which could seriously impede their ability to implement sustainable practices. The main constraints faced by universities with regard to implementing sustainable practices are financial constraints, a lack of understanding and awareness of sustainability, as well as resistance to change (Wright, 2010: 68).

Considering the constraints discussed above, it is clear that universities, especially in South Africa, face severe financial pressures, which hinder the potential of institutions within the higher education landscape. The financial pressures could further dampen the ability of universities to implement sustainable practices and are prevalent at universities across the globe. Considering the financial pressures which universities face, especially in the context of South Africa, sustainability might be last on universities' lists of priorities. Sustainability might be misconceived as a 'cost' and therefore be low on the list of priorities; however, as discussed in Chapter 3 and illustrated using the Venn diagram (Figure 1), there is an increasing overlap between the environmental, ecological and economic dimensions. Furthermore, considering the benefits discussed in Chapter 3, universities should consider including sustainability within their organisational structure in order to reap the benefits associated with incorporating sustainable practices and the 'overlapping' nature of the TBL. This could aid in easing the financial pressures universities face.

5.4 – Rhodes University

In this section the case study, Rhodes University, is contextualised. The vision, mission, potential and constraints of the university are considered. The goals of the university, as set out in the university's IDP, are considered. The university is not shielded from the failures of national, local or municipal government, such as loadshedding, water outages and infrastructure issues. Considering these failures and Section 5.3.3 above, the 'risks' of failing government structures for the university are considered, along with the university's current approach to addressing these risks.

5.4.1 – Rhodes University Mission and Vision

As discussed in Section 5.3.1, universities have significant impacts on their regions, communities and the cities that they are located in. Often a key focus is placed on government and business

and the role of civil society is disregarded. Civil society comprises local rate-payers associations, trade unions and other institutions such as universities in local communities that are neither strictly market nor strictly state. However, these actors at the local level may have considerable agency and potential for realising important change. The university is the largest employer in the Makana region and contributes 65% of the town's GDP (Rhodes University, 2020). Rhodes University is the single largest ratepayer in the Makana municipal region and has many strategic faculties which cover a large area (Makana Municipality IDP, 2022). Rhodes University has a significant impact on the local town of Makhanda; therefore, it is important that this is reflected in the university's vision, mission and goals.

Rhodes University's vision "is to be an outstanding internationally respected academic institution ... which is committed to sound moral values and social responsibility" (Rhodes University, 2020). According to Rhodes University (2020), one of its mission statements is to "assist in the development of the Eastern Cape Province by availing the university's expertise and resources" and also to "play a pivotal role in creating a culture of environmental concern by actively pursuing a policy of environmental best practice".

Considering the mission statement of Rhodes University, it becomes clear that the university aims to play an active role in the green transition through "pursuing" environmentally concerned policies. Furthermore, the university is committed to the development of the Eastern Cape through 'availing' resources. It would be ideal for local institutions like Rhodes University to partner with the private sector and government in order to mobilise resources and address local issues. As will be discussed in Chapter 6, the primary findings suggest that there is willingness from the university to partner with the Makana Municipality in order to fix the town and that such a collaboration will be 'crucial' in addressing issues. However, if these local stakeholders fail to align, it is still important to consider the individual impact that stakeholders could have. Institutions like Rhodes University are neither strictly public institutions nor for-profit institutions, yet they are essential players in the development of the town.

5.4.2 – Rhodes University Institutional Development Plan (2018)

In 2018, the university introduced its first IDP. The IDP covered a broad spectrum of goals which the university aimed to accomplish in the 5-year period 2018 – 2022. This section considers the goals of the first IDP and the progress towards accomplishing the goals.

As part of Rhodes University’s first IDP, there were many goals aimed at taking action at the local level. The IDP included plans to invest in infrastructure while simultaneously investing in sustainable practices. The annual targets aimed at a continuous decrease of electricity and water usage. From the IDP it is clear that environmental sustainability is a component of the university’s vision and does form part of the university’s long-term goals.

These goals include:

- Goal 4 – Ensure financial and environmental sustainability practices at Rhodes University through good governance, leadership and management.
- Goal 4.3 – Ensure sufficient investment in physical assets.
- Goal 4.5 – Enhance implementation of environmental sustainability policy and practices.

The IDP further aimed to establish partnerships in order to address issues:

- Goal 7.1 – Establish local government collaboration with Makana Municipality and strategic business partnerships that address Grahamstown challenges.
- Goal 7.2 – Promote, establish and co-manage community development partnerships with local NGO’s/Public Institutions/Private Organizations.

From these goals it is clear that the university does regard community and “partnerships” as important because they form part of the university’s IDP. The role of these partnerships will be to address the challenges that are faced in Makhanda and to promote community development. This relates to numerous concepts that were discussed in Chapter 3, such as bottom-up solutions where communities can be pivotal in addressing challenges at the local level.

Rhodes University has shown great commitment to community engagement (Hornby and Maistry, 2022: 124). The community engagement model of the university is based on the “quality not quantity” of partnership (Hornby and Maistry, 2022: 124). The focus on quality

rather than quantity links to the idea of small changes in Chapter 6. It is further linked to appreciative enquiry (Wood, 2022: 174) and Asset Based Community Development (Maponya, 2017: 34)

The idea of Asset Based Community Development is very useful. The focus shifts away from thinking of needs, because there are often too many needs to satisfy, and many of the needs are hard to fix. Therefore resources would be wasted on things that would not work. This would reinforce a sense of the problem being unfixable. Asset Based Community Development focuses on already existing assets, or more broadly *potential*. The idea is to concentrate resources on small projects that are feasible and likely to succeed, or more generally projects with a high return i.e. picking low hanging fruit. For example, the 9/10th program at Rhodes University (Hornby and Maistry, 2022: 128), which takes matric students with a *good* academic record and mentors them so that they can succeed and get grades that will get them into university.

The success is important in itself. It leads to a change in mindset and therefore can contribute to more proactive thinking. This would have to be connected to a theory of change. The small changes should lead to bigger changes as opposed to path dependency.

The university's first IDP (2018 – 2022) had numerous noble goals which were focused on creating a more sustainable, just, and prosperous community. Goals such as ensuring environmental and financial sustainability, implementing sustainable practices and establishing partnerships are suggestive of the path which the university aims to embrace. However, the goals of the IDP can be regarded as rather 'broad' and 'generic', and there does not seem to be a clear link between the goals and the actual problems that the university faced and continues to face. For example, considering Goal 4.5, the performance indicator for this goal relates to a reduction in the electricity and water usage per student and does not seem to be aimed at 'sustainable' energy and water harvesting. Furthermore, there is no clear indication of how the university aims to reduce energy and water consumption. There does not seem to be a clear 'theory of change' strategy, as discussed in Section 3.3.7. The absence of a 'theory of change' could create additional concerns. Having broad goals that fit a 'box-ticking' narrative might not lead to the change needed in the context of Rhodes University in Makhanda. Furthermore, *how* the goals of

the IDP are going to be reached can be described as rather vague, especially with regard to how resources will be allocated and how the goals will be implemented.

5.4.3 – Rhodes University IDP 2023 - 2028

The review of the first IDP commenced in 2022 and was adopted in 2023. The goals in the new IDP seem to be very similar to the goals of the previous IDP which could suggest that the goals have not been fully reached. The latest IDP is considered in this section.

The university's IDP for 2023 – 2028 has a vision “to be foremost in the generation and advancement of locally responsive and globally engaged knowledge dedicated to the creation of a just and sustainable society”. This vision influences the university's goals:

- Goal 5 – Ensure financial and environmental sustainability practices through good governance, effective leadership and prudent resource management.
- Goal 5.6 – Ensure sufficient investment in physical assets.
- Goal 5.8 – Reduce carbon footprint and environmental impact through sustainable waste management, responsible use of water and electricity, reduction in the use of plastics and green procurement.
- Goal 5.9 – Promote research and teaching in environmental sustainability, green economy and just transitions.

From the latest IDP it is clear that sustainability is one of the university's 'core' goals. The university aims to reduce its carbon footprint, and the sustainability goals are in-line with those from the previous IDP. As discussed above, Rhodes University is an important player in the context of the local town, and through taking individual action through their IDP, it could go a long way towards making the university and town more sustainable and take pressure off the national and municipal grid.

The question arises as to how successful the implementation of the goals of the first IDP (2018 – 2022) were and whether these goals were accomplished. This is explored in Chapter 6.

5.4.4 – The Risk Factor for Rhodes University

As detailed in Chapter 3, there are risks pertaining to the climate crisis and unsustainable practices. In addition to the risks discussed in Chapter 3, such as disease risks, there are further risks pertaining to the Rhodes University case which is discussed below.

According to the latest IDP (2023 – 2028), there are risks to consider if the strategic objective of the “enhanced implementation of environmental sustainability and policy” (strategic objective 1) is not met. According to the latest IDP, the main risk to strategic objective 1 is “erratic and inadequate water supply from the municipality”. Some of the impacts if this risk is not mitigated include a negative impact on student enrolment numbers, quality of student experience and quality of life, health risks and reputational damage to the university (Rhodes University, 2022). The current risk exposure level of not mitigating the water risk is labelled as “extreme” and the impact of not reacting being labelled as “catastrophic” (Rhodes University, 2022). The failure of local government to provide basic services in Makhanda severely impacts the university. Negative impacts, such as a drop in student enrolment numbers, could have further negative spillovers to the town. The university is aware of the pressing risks as a result of the water crisis and that these risk factors need to be addressed. If the university fails to address these risks and continues with path dependent reliance on the municipality, these ‘risks’ could become reality.

The risk factors regarding sustainability in the IDP are mainly focused on the ongoing water crisis; however, South Africa is in the midst of a pressing 15-year energy crisis. Loadshedding is a substantial risk factor that impacts students and staff at the university and should not be ignored. These risks include fire risks, where students have to make use of candles for light during loadshedding. In 2022 there were only a few areas, such as the library, that were functional during loadshedding. The current solution to loadshedding is diesel-operated generators, which are unsustainable due to the associated environmental and noise pollution and the costs associated with operating and maintaining generators. Rhodes University’s response to loadshedding can be labelled as being reactive, due to many areas on campus still being affected by loadshedding. Furthermore, areas such as the Geography and Economics department only received back-up power in the second term of 2023. The majority of residences still do not have back-up power during loadshedding. The energy crisis has been ongoing for 15 years; therefore, it calls for concern that the university has not taken a more proactive stance to address the crisis.

It is of utmost importance for the university to consider sustainable practices such as renewable energy generation and extensive rainwater harvesting and borehole alternatives in order to shield the university from the risks that loadshedding and watershedding pose. The issues in question are not only ‘green’ issues but extend to the sustainability of the university itself. If these issues are not addressed, the university could face further reputational damage. It is therefore important for the university to mainstream sustainability. It is also important for the university to reconceptualise its definition of sustainability within the university’s broader mandate. In addition, Rhodes University should be focusing on research that can benefit the town and institutions alike, for example, developing sustainable systems that suit small- and medium-sized businesses and households.

The immediacy and gravity of these risks has been particularly evident in late 2022 and early 2023, with a further deterioration both in the national energy supply situation, as discussed in Section 4.3.1, and local service delivery. This was highlighted by a student protest, which shut down the university for two days in May 2023. As detailed above, the inadequate supply of water is a significant risk to meeting some of the university’s strategic objectives. In the context of Makhanda, the water crisis has continued to worsen, which has led to protest action by students of the university. In a statement, the Student Representative Council (SRC) organised a ‘shutdown’ and stated that “the deteriorating state of our infrastructure, evident from residential houses, academic facilities, and the campus in its entirety, is the main reason behind this action” (Cat White Media, 2023). In addition to a Memorandum of Demands which was handed over to senior management of the university, the protestors handed a Memorandum of Demands to the municipality. In the same statement the SRC stated that “the march will proceed to the Makana Municipality to hold them accountable for the failure to provide mandated services, by handing over a Memorandum of Demand, to state our dissatisfaction with regards to the state of service delivery” (Cat White Media, 2023).

According to Cat White Media (2023), the ‘shutdown’ called on the university to address pressing maintenance issues on campus and was also aimed at the ‘gripping’ issues in the town, such as a lack of water and electricity. The protest was directed at the university, for its failure to

shield the university against water and electricity instability and to maintain buildings, residences and other infrastructure on campus. Cat White Media (2023) states that although the university continuously argues that infrastructure is “simply old”, students in newly built residences face “horrific living conditions” such as exposure to toxic mould and no water in residences for extended periods of time, often up to two weeks. Cat White Media (2023) states that campus infrastructure is further deteriorating, with multiple reports of leaking roofs, mould, rooms not able to lock, ceilings collapsing, leaking taps and other problems. Students in residences are required to fill green buckets with water “just to be able to flush toilets”; this points to the deterioration of student living on campus. These issues are often reported, but nothing is done to address these issues (Cat White Media, 2023). Many students have missed lectures and other academic obligations as a result of the ongoing water crisis, and many students cannot afford to continuously purchase water (News24, 2023). Services, such as water provision and safe, hygienic living conditions are not privileges and should be provided in a sustained and reliable manner; however, this does not seem to be the case.

Protest action like this point to the pressing concern of the failing municipality, the failure of the university to maintain infrastructure, and the university’s ‘reactive’ approach to the failing municipality. Some of the risks, as outlined in the section above, have been realised, and the quality of student life is under serious threat. The university was once known for its “quality education and campus life, but the university is far from where it once was” (Cat White Media, 2023). Furthermore, protest action like this leads to reputational damage for the university which could see a drop in student enrolment numbers. There is a danger of getting locked into a negative path and path dependence, such as the current case at Rhodes University, where the university continues to rely on the failing municipality. Such a negative path makes it more challenging for the university to embrace change. A lack of planning and a vague ‘generic’ IDP, as discussed in Section 5.4.2, compound the adverse impacts of the current negative path.

5.5 – Solar Farm

There are many potential actions that the university could consider such as solar energy, rainwater harvesting, recycling and waste management. However, in what follows, the focus will be on a solar farm. In the following it will be argued that a solar farm is a good example of a

‘low hanging fruit’, the success of which could contribute not only directly to sustainability, but also indirectly to a shift towards a more proactive mindset. Furthermore, the idea of installing a solar farm has been widely discussed at the university in connection with the University’s goal to ‘reduce’ its ‘carbon footprint’ (Goal 5.8) through ‘investing in physical assets’ (Goal 5.6) as set out in Section 5.4.3.

5.5.1 – Baseline estimate: the Purely Financial Case

On condition of anonymity, a well-placed individual at Rhodes University stated that the current estimated cost for a solar farm would be R200 million. This would include the cost of the solar panels, installation costs and storage costs, such as batteries, and would generate sufficient energy to take the university off the Eskom grid.

Table 1: Cost* of Eskom Electricity for Rhodes University (2022)

January	R2 319 500
February	R2 347 358
March	R2 343 983
April	R2 327 769
May	R2 315 241
June	R2 326 648
July	R1 937 788
August	R4 302 224
September	R4 103 520
October	R4 116 914
**November	R2 989 514
**December	R2 989 514
Total	R34 419 974

Source – Research Participant

Notes:

1. Total Electricity excludes a number of buildings on campus that have prepaid electricity meters.

2. November and December electricity figures are given as the average for those months

As Table 1 shows, the total cost of electricity obtained from Eskom for the 2022 calendar year amounted to **R34 419 974**. The average monthly cost of electricity for 2022 was **R2 868 331**.

This can be compared with the monthly repayments of a R200 million loan to construct a solar farm, based on the current prime lending rate of 11.75% (20 May 2023) and on the assumption that the life expectancy of a solar farm is 25 years. As Table 2 shows, based on these assumptions, there is a clear financial case for constructing a solar farm.

Table 2: Financial Model

Amount	200 000 000
Interest Rate per Month (i)	0,009
Interest Rate (r)	11,75%
Repayment term in Months (n)	300
Years (y)	25
Monthly repayment	R2 069 596.
Monthly Eskom cost	R2 868 331
Monthly savings	R798 735

Source: Own Calculations

Note: The loan repayment (amortizing repayment) formula is calculated as follows: Total

$$\text{Payment} = \text{Loan amount} \times \frac{i \times (1+i)^n}{(1+i)^n - 1} \text{ (Dowling., 1992: 392)}$$

As Table 3 shows, there is a pure financial case for financing a solar farm even in the highly unlikely event that interest rates were to increase to 16%. Table 2 presented the financial case for a solar farm before accounting for diesel expenditures. Table 3 incorporates the costs of diesel to operate back-up power generators which power certain parts of campus during loadshedding. These back-up generators are costly and, on condition of anonymity, the well-positioned individual stated that the cost of diesel to operate these generators amounted to **R316 351** per

month during 2022. The combined monthly costs for electricity and diesel in 2022 amounted to **R3 184 682**.

Table 3: Interest Rate Scenarios

Current cost of electricity			Monthly Loan Repayments for a Solar Farm (based on different interest rates)				
Eskom (E)	Diesel (D)	E+D	r	10%	11,75%	13%	16%
R2 868 331	R316 351	R3 184 682		R1 817 401	R2 069 596	R2 255 671	R2 717 778

Source: Own Calculations

Table 4: Adjusted Financial Model

Amount	200 000 000
Interest Rate per Month (i)	0,009
Interest Rate (r)	11,75%
Repayment term in Months (n)	300
Years (y)	25
Monthly repayment	R2 069 596.
Monthly Eskom cost	R2 868 331
Monthly Diesel cost	R316 351
Monthly savings	R1 115 086

Source: Own Calculations

Using 2022 as the base year, monthly savings would amount to **R1 115 086**, if the university were to finance a R200 million loan for a solar farm.

5.5.2 – Other Benefits and Positive Externalities

There is a pure financial case for switching to renewable energy. Constructing a solar farm would amount to significant savings in the long run, as opposed to continued reliance and path dependence on the failing Eskom. These savings could be redirected towards research, teaching and learning, and students. The financial case supports the ‘overlapping’ nature of the TBL, as discussed in Section 3.5. Considering the financial pressures which higher education institutions face, both globally and in South Africa, utilising the ‘overlapping’ nature of the TBL could greatly benefit struggling institutions. The financial case considers the direct economic benefit of a solar farm. There are numerous indirect benefits such as branding and marketing that would stem from being labelled a ‘green’ institution which could further strengthen the economic case.

By focusing on renewable energy generation, there are environmental benefits, economic benefits and also social benefits that would stem from such a shift. Considering the Rhodes University case and constructing a solar farm, the economic benefits are substantial, as detailed above. The environmental benefits are clear seeing that electricity would be generated using renewable energy. The social benefits that would stem from such a shift are especially relevant to the university context, where a portion of the savings could be used in the community or by increasing the number of bursaries for disadvantaged students. The social benefits could also extend to the research and teaching realm.

The university should further consider the construction of a solar farm in order to shield the university against an unreliable electricity supply and against Eskom price increases. The cost of Eskom electricity does not take into account that the price of Eskom power is likely to increase (Ting and Byrne, 2020: 3). For example, there was a 15% increase in the price of electricity from 2021 – 2022, with an 18.65% increase in the price of electricity from 2022 – 2023 (Eskom, 2023). Thus far, South Africa has had loadshedding every day of 2023. A solar farm would shield the university from the risks associated with loadshedding. The continuous ‘short run’ or ‘crisis’ mindset which is prevalent at numerous institutions including Rhodes University is problematic. The focus should be on the long run and future sustainability. A solar farm would drastically decrease the university’s carbon footprint in addition to realising abundant financial benefits. If there is no clear commitment to sustainability in the long run, the short-term alternatives, such as diesel generators, end up being costly and harmful to the environment. The overlapping nature of the TBL solidifies the case for institutions to have a long-term focus toward sustainability.

5.6 – Conclusion

The local government in Makhanda is facing severe operational constraints and issues, such as corruption and failing infrastructure. Universities play an ever-important role in the just green transition. Rhodes University does prioritise sustainability in its vision, mission and IDP, and there is an awareness of the pressing risk factors associated with inaction and continuing on an unsustainable growth path. There seems to be a gap between the goals of the university’s vision, mission and IDP and actuality, which reinforces the need to have plans that focus on feasible

actions with a theory of change. Even without considering the environmental and social benefits and positive externalities, there does appear to be a pure financial case to justify a switch to green practices, such as a solar farm. Why has the university failed to embrace this sustainable growth path? This is further investigated in Chapter 6.

Chapter 6 – Findings

6.1 – Introduction

This chapter serves to address the main goal of the thesis and explore the contribution that Rhodes University can make to a just green transition. In addition to the potential benefits of such a contribution, this chapter investigates the constraints to unlocking these untapped benefits. Furthermore, relevant to Sub-goal 4, this chapter considers the extent to which sustainability has been integrated into the operations of the university. As discussed in Section 2.2, primary data is collected through semi-structured ‘expert’ interviews. The interview schedule is reproduced in Appendix B. Thematic analysis (Section 2.3) is used to interpret these findings.

In Section 6.2 the relevance of relatively small initiatives that could accelerate the transitioning process is considered. The broader vision of interviewees for Rhodes University and the constraints to realising such a vision are probed in Section 6.3. Building on some of the constraints that were identified in Section 6.3, Section 6.4 details the external constraints, and Section 6.5 details the internal constraints. Finally, in Section 6.6, possible solutions to accelerate the green transition are considered, as suggested by interviewees, as well as other practical solutions as informed by the findings.

6.2 – Small Measures Can Lead to Big Change Especially if Implemented on a Large Scale

6.2.1 – A Vision for Small Initiatives

All the Rhodes University interviewees were asked about their vision for sustainability, if there were no constraints. A clear pattern emerged, and that was the need for, and importance of, *small* initiatives that can be formulated and implemented at Rhodes University. This pattern, as further detailed below, relates to some of the concepts discussed in Chapter 3, such as the Ostrom Theorem and the concept of self-governance and self-sufficiency. It is not optimal to ‘leave’ the just green transition to government, and players such as Rhodes University have a significant

role in the transition. Interviewees have a vision for action at Rhodes University and reiterate the role that the university can play in its own capacity.

The relevance of these *small* initiatives relates to the idea that the transition to a sustainable society and environment should not be seen as one of an overwhelming nature that needs to happen on a large scale. Instead, the transition can commence in a relatively *small* town and *small* institution, through taking *small* steps in the right direction. The following was the response from Interviewee 1 to the question of the interviewee's 'vision for the university' and serves as the basis for many similar responses in the proceeding interviews:

I think a lot more food security, and just general environmental happiness would come from educating people about the fact that gardening is not just for posh people to grow flowers, right? It's actually something that you can do yourself. Those sorts of projects have gigantic multiplier effects, because people are not buying from commercial farms from outside the area. There is research that suggests that having a job also massively increases people's welfare. So that feeling of there's something to do when I get up today, and providing for my family, and looking after myself. I'm doing something. So I think that there's also going to be lots of positive spillover kind of effects from relatively small projects like that.

From the respondent's answer above, it becomes clear that these "small projects" do not only benefit the environment and relate to sustainability; they also have other benefits and "positive spillover effects". From Interviewee 1's response, it is clear that not only the environment will benefit from "small projects" at the local level aimed at sustainability, but there will be other benefits, such as an increase in welfare, as a result of these small projects. These small projects could be an important starting point to reach sustainability goals. A practical measure such as urban gardening was one of many practical examples that emerged. Interviewee 4, along with others, suggested other practical measures that are also of a "small" nature:

Currently we are busy with a project, in the food services area, where we are looking at single use plastics and moving away from things like polystyrene containers, and do something that's a little bit better for the environment.

There should be a rule that once you park your car on campus, you should only be able to drive your car again if your next meeting is [further] than a kilometre of where you are, [otherwise] you should walk across campus. I mean, there's no reason why you shouldn't. It's about mindset change and making people understand that you can start small and it doesn't have to be mind boggling stuff. We have got one of the best chemical departments in the country - let's take the cooking oil that we generate out of the kitchens, and recycle that and use it as fuel for the vehicles.

The interviewee's response relates to small scale initiatives and practical measures that can be implemented at the local level in order to move towards sustainability. As Interviewee 4 mentions, "it doesn't have to be mind boggling stuff" – similar to Interviewee 1's response. It can be small projects that can be implemented at the local level.

As mentioned above, this is a pattern that continuously emerged. In addition to the importance of small-scale initiatives, Interviewee 6 also mentioned another advantage of starting small – the cost advantage:

The university's plan for a water alternative would be to put a large reservoir somewhere in the upper part of campus, rather than to do it on a per building basis. And the problem with that is you got to find all that money at once. But if you do it on a per building basis, you can start small with water tanks and gradually scale it up.

The benefits of small initiatives are not only limited to positive spillovers (Interviewee 1), but there is also a cost advantage to starting small. As noted in Chapter 3, there is abundant evidence from international studies suggesting that there are numerous benefits to a just green transition and that the benefits of a green transition outweigh the costs. Moreover, as detailed in Chapter 5, switching to renewable energy sources has a clear cost advantage for the university. Therefore, it is imperative to make the switch to green systems, not only for environmental reasons but also due to the cost advantage.

However, as mentioned in Chapter 3 and Chapter 5, the transition to green systems, particularly on a large scale, requires significant upfront investment. Interviewee 6 posed a solution to that problem through *small* initiatives. That is to "start small and gradually scale up", which ties to a

‘theory of change’ approach, as discussed in Chapter 3. This will eliminate the upfront costs and allow for a green transition to commence and for certain benefits associated with the ‘overlapping nature’ of the TBL to be reaped. Even if Rhodes University does not embrace ‘big’ projects such as a solar farm, the university could cherry-pick small projects which could set in motion change on a larger scale. Smaller projects and ‘low-hanging fruit’ have a greater chance of being successful and do not require the resources which bigger projects, such as a solar farm, require. Therefore, these projects could be pivotal to constitute a theory of change.

Interviewee 7 suggested further *small* practical measures that could be implemented:

We may not go as big as cutting off from the national electricity grid, but we may implement simple policy directives; for example the university can say we're no longer going to procure water in plastic bottles. It's a simple thing. It's a small thing. Instead provide water dispensers with biodegradable cups. That could be a simple thing in the right direction. The university could also have better policy around recycling.

Building on the small initiative framework, it becomes clear that the green transition does not necessarily have to happen on a large scale, or be a mammoth task. Instead, it could be *small, simple* things which ultimately enhance the transitioning process. Interviewee 7 suggests practical measures that align with that of Interviewee 1, Interviewee 4 and Interviewee 6. These small measures can lead to big change, especially if implemented on a large scale. From the preliminary findings, these small initiatives are proposed by various interviewees and include various simple steps that can be taken at the local level, which will aid in reaching national and global sustainability goals in addition to benefiting local level agents, such as the community and the university. These small initiatives should form part of a theory of change in order to provide a roadmap on how IDP goals will be reached. For example, the university’s IDP goal to ‘reduce carbon footprint’ could be reached through implementing small initiatives, such as the parking of vehicles and walking on campus suggestion of Interviewee 4. Furthermore, the university’s goal to ‘reduce environmental impact’ could be reached through a small initiative such as no longer procuring water in plastic bottles, as suggested by Interviewee 7. However, it is important that these small initiatives are part of a broader plan.

There is a clear vision and need for *small* or *simple* initiatives, which can ultimately go a long way to making the university, and society at large, sustainable. These small-scale initiatives are different examples from different individuals (interviews 1, 4, 6, and 9), but they correlate in that they reiterate the need for *small* initiatives at the local level. These small initiatives, as mentioned in interview 1, have multiplier effects which serve as a further incentive to implement such initiatives.

6.2.2 – Considering the Impediments to Small-scale Initiatives

Throughout this section the factors impeding the implementation of small-scale initiatives are considered. In addition to mentioning *small* initiatives and suggesting practical measures, Interviewee 9 spoke to the lack of implementation of such *small* initiatives. It is crucial to consider this lack of implementation as well as the reasons behind it, because this is ultimately a burden to reaching the full potential of the university, town and society. As Interviewee 9 mentions below, there is a reluctance to implement *small* initiatives.

I was at a faculty board meeting once and I suggested that we encourage the use of bicycles in town. This seems like an obvious solution, especially in a small town, like here. And it's really good for the head, in addition to being good for the environment, and I just got laughed at, there was no commitment. It was like I came from cloud cuckoo land to suggest something as radical and kind of inconceivable as obvious as that.

Interviewee 9's response captures the reality. These small initiatives that were mentioned in all of the interviews above seem so obvious, yet there is significant resistance or a lack of will to adopt or implement these practices. As Interviewee 9 mentions above, the cycling idea that "got laughed at" was proposed at a "faculty board meeting". The question is *why*, if these simple measures are so simple, are they not being implemented?

Interviewee 12, who is an expert in their field, said the following:

Human agency is informed not by what we know, but by our habits. Those habits are there at an unconscious level; for example I smoke my cigarette and still throw the butt and I still drink from a small plastic water bottle and then just discard it somewhere. These are habits and these are things that are at a cultural level. Until it's brought to our attention and we consciously reflect on it, our habits are actually the biggest enemy for a reorientation of culture in society.

Interviewee 12 poses a very interesting case as to why we are stuck in this continuous cycle of unsustainable practices – it is a force of habit. This can be related to path dependence, as discussed in Chapter 3. However, a possible solution to this relates to interview 1, and that is the need to educate people and ultimately change those habits and create a new, sustainable culture. This is where the university can fulfil its role as a higher education institution, and contribute to the cultivation of a sustainable society.

We'll have to find ways of incorporating sustainability into every single degree that people get. Definitely, there should be no student who graduates from Rhodes, without having had their head switched on to sustainability. (Interview 1)

This might seem like a large and complex task; however as Interviewee 12 said, “we’ve got the capacity to figure it out”:

People are just attached to unhealthy practices, and that has become their way of life. For us to cultivate a green economy there needs to be buy-in by everybody in different levels, so that they can play their roles and contribute at different levels to the realisation of a green economy. So you need to insert it at the cultivation point and make sure that there is awareness raised around it in a creative way. So not just in terms of flyers and posters and messages that are sent out, but somehow integrate it into the curriculum. Mainstreaming it through education, or through the curriculum, would then be to incorporate it into every single degree at least and integrating it into learning practices. We've got the capacity to figure that out and seamlessly incorporate it into the learning experience, into the teaching experience into the research experience, into the community engagement experience of students and of staff.

Interviewee 12 sees societal change, and a just green transition, occurring “at the cultivation point” through education – similar to the vision of Interviewee 1. Considering Rhodes University and its significant agency, educating people about sustainability and “incorporating sustainability into every single degree” should not be a difficult task. On the contrary, at a well-established institution like Rhodes University, this would seem like a fairly simple thing to do. This is merely a suggestion that arose in more than one interview and should be regarded as one of many possibilities and viable solutions to societal problems, such as the climate crisis, that can be addressed at Rhodes University.

Interviewee 4 reiterated the need for behavioural and mindset change at the university:

It's about changing the behaviour of students and staff. We need to change the mindset.

Habits are one factor, but not the only factor constraining the potential of these small initiatives and the university. As suggested by interviewees 1 and 12, this constraint can be addressed through education. Given that Rhodes University is a prominent higher education institution, this vision could be realised and is within the university's capabilities.

We must remember that the university's core business, and the budget connected to that, is obviously to provide quality education and to deliver certain outputs when it comes to graduation. So the whole complex system of budgeting is very much centred on that particular outcome. (Interview 5)

Building on this framework that education is the “university's core business” and the role of universities as discussed in Section 5.3, it becomes imperative to consider the suggestions of interviewees 1 and 12. These suggestions could bring about societal and habitual change, which is focused on sustainability, through the mandate of the university. As Interviewee 5 mentions, quality education could be regarded as the main purpose of the university. Through this ‘core’ educational focus of the university, the university does have the ability to make a significant difference, and constitute change.

6.3 – The Broader Vision of Interviewees

6.3.1 – The Just Green Transition: A Vision for Renewable Energy

The above section considered small initiatives to accelerate the transitioning process. However, it is vital to consider these within the broader macro picture. Small initiatives and action at the local level are pivotal, but action at the local level is not limited to small initiatives. In addition to mentioning these small-scale initiatives, interviewees also mentioned initiatives and projects on a large scale that could enhance sustainability and accelerate a just green transition. As mentioned above, these small initiatives should serve as a stepping stone to reach broader sustainability goals, such as Net Zero or goals of the university's IDP.

The ultimate delivery of climate policy occurs at the local layer through place-based initiatives regarding sustainable business opportunities, green technology and investment in local renewable energy projects (Ramsey and Waterhouse-Bradley, 2011: 54). As discussed in Chapter 3, the extraction of energy results in diminishing returns; therefore, the focus needs to shift toward the harvesting of renewable energy sources. Out of the 10 Rhodes University interviewees, 5 suggested a switch to renewable energy sources when asked about their vision for a just green transition, if there were no constraints. These interviewees envisage renewable alternatives, in the form of solar energy, for Rhodes University. The other 5 interviewees had a very similar vision, with regard to renewable energy and a just green transition; however, these interviewees emphasised a much stronger role for government, which will be explored in Section 6.3.2.

When asked about their vision for sustainability, Interviewee 1 spoke to the renewable energy opportunities in South Africa and stated that there is “proof of concept” with the generation of wind energy. Furthermore, Interviewee 1 stated that wind turbines are “extremely productive” in the context of the town and “they work like a charm”. Interviewee 1 further stated that they would like to see more of these projects and investments in renewable energy in order to “shield the town from the madness that is Eskom”:

I would like to see a lot more wind farms. We've had proof of concept, right, they work like a charm. The ones here are extremely productive in terms of how much electricity

they generate because it is a windy area. So let's put up a whole bunch more and find ways of getting that sort of straight into the town grid, which you are now allowed to do. So that's the other thing is that the macro level is changing. So it's a fantastic opportunity to do something like that. But you can only do it if your municipality's got a clean audit and we don't. In my vision for the town, we now have a clean audit and as a town we invest in or we partner with, wind or one of the specialist companies to get a whole lot more of these wind farms going.

Interviewee 4's vision relates to a sustainable future for the university and the consideration of alternative forms of energy at the university:

We should become a totally self-sustaining university and we should harness alternative forms of energy like solar and wind; we should try and see if we can't somehow create and move towards a carbon neutral type of campus. We can do something in terms of energy generation and at least consider some sort of solar supplementation of our grid and maybe even wind.

Interviewee 5 mentioned the need for the university to adopt alternative forms of energy. In addition to this, Interviewee 5 reiterated that Rhodes University is located in an area where there is an “abundant supply” of sunshine, hence motivating the switch to solar energy:

The vision for me would be for the university to move gradually, from the present system of electricity to a more renewable or sustainable form of electricity. These forms are either wind generation or solar. Solar seems to be a good option for the university in that where we are in the Eastern Cape, the climate is such that we have a reasonable amount of sunshine during the course of the year. Sunshine seems to be in abundant supply. From an environmental point of view, such a move would then reduce the university's carbon footprint, which would be beneficial in terms of the overall management.

Interviewee 6 further stated that a green transition does not have to be one on a large-scale; instead, it could be done on a “per building basis”. This could minimise the cost of a green transition, due to the university essentially transitioning in phases:

One thing which could be done at relatively low cost, and it wouldn't be too hard to do fundraising to pay for this, would be to do rainwater harvesting, fairly widely on a per building basis. We would need power backup for a pump, and that would be doable at a reasonable cost. And that power backup could be solar powered with batteries. With a bit of extension of the solar, we could also cover usage of computers and student labs when the power is off, instead of using a generator which doesn't cover everything because it's expensive and the fuel cost is very high. With a combined battery and solar backup, the cost of running it is essentially free.

Interviewee 8 sees the university going “completely green” and envisages a solar farm for the university:

I think we would like to go completely green. Build buildings by making use of recycled bricks and recycled pipes, also to make use of more and more natural cooling and heating. And then a solar farm, and we are looking into that at the moment, for the university, which can then at least during daytime, supply enough energy electricity, to get us off the grid.

In addition to suggesting renewable energy sources as an alternative form of energy generation, Interviewee 1 regards the implementation of these renewable energy sources as a research area for the university:

Rhodes needs to think more holistically, which they are starting to do, about what sustainability and environmental sustainability means for the university. So things like when you build a new residence, include some water tanks, put up some solar panels so that there's emergency lighting if the power goes down. There are things that we can do [as a university] that maybe for-profit businesses can't, in terms of trialling things, because we don't have to be successful immediately, we are kind of bigger than that, we can plan over three years or so, and we can apply for funding from other places. So we can be a really powerful lever and things can be research projects, as opposed to business. Often things are not profitable at very early stages. If we're going to do food gardening, for example, then that could easily have some university buy-in. But I'd like to

see it actually happening on the campus, through the university demonstrating, showing leadership, and also experimenting. Be the demonstrator.

The adoption of renewable energy sources is a form of clean, green energy and green growth. As Interviewee 1 mentions, there is a role for the university to play and to “be the demonstrator” and embrace projects such as solar energy. Similarly to Interviewee 1, Interviewee 7 sees Rhodes University playing a leading role in the transitioning process:

Leadership is critical and good leadership, conscious leadership, environmentally conscious leadership. Leadership in this sense does not only apply to the university. We can take responsibility as leaders within our own environments, be it like in my directorate as a director that consciousness has to be there, in the student space, that consciousness has to be there for every staff member and every student, Rhodes University is where leaders learn. And I believe that we should be leaders in issues of sustainability and a just transition and we should lead in an exemplary way that others could learn from.

As stated by Interviewee 1, the university does have leverage when it comes to large-scale projects such as solar, because the university is not a business and does not have to be concerned about profits in the way that businesses do. The university does have an advantage because it can regard the implementation of green practices and green projects as research projects, as opposed to business that would have a stronger emphasis on the cost element. The question is whether the university is optimising its leverage.

When asked about the role and current stance of the university in the context of the local town and the just green transition, the local business person had the following response:

You can't go fix the town's problems if your own lights are still energy consumption. Charity starts at home. If you want to go out into town, and help everybody else, you've got to help yourself first. (Interviewee 3)

Interviewee 3 is one of the largest local business persons in town and is involved in numerous community projects in Makhanda. Interviewee 3's response further speaks to the need for the

university to do more and for the university to be a pioneer or to show ‘leadership’ and to be the ‘demonstrator’, as was the vision for the university of interviewees 1 and 7. There is a clear role for the university to play when it comes to taking the lead, especially in the context of the town, to embrace a just green transition. As discussed in Chapter 3, a lack of managerial commitment is one of the barriers to the transitioning process. A key consideration is also the fact that other local players with significant agency are questioning the slow transitioning pace of the university, which calls for concern. It is fair to say that the university is not fully optimising its leverage. This is further explored in Section 6.5.

6.3.2 – The Just Green Transition: A Vision for Government

As mentioned above, 5 of the 10 Rhodes University interviewees envisaged renewable energy sources for the university. These interviewees, in Section 6.3.1, emphasised sustainability within the context of the university. The other 5 interviewees also envisaged sustainability and a just green transition. However, these interviewees stressed an important role for government in the ‘just’ green transition.

When asked about their vision, Interviewee 6 spoke to the need for government in the transitioning process, especially for a just transition that is inclusive, fair and accessible to all:

If you look at it in terms of equity and more broadly, societal benefit, then it should be possible to do things that are desirable, in fact things that are rights in a way that is equitable and accessible to all. If I look at things from my personal point of view, I can work around these problems. I can put in a rainwater harvesting system for my home and I have solar and battery based power backup. For a person who lives in an RDP house, it's not quite so easy. So there's a definite issue of equity there. One of the effects of all of this is that any investment the government puts into the local economy does have a Keynesian multiplier effect. So the theory is you put 10 million into the local economy, that creates jobs, people who have jobs, spend more money, retail increases, entertainment increases, services increase and so the 10 million becomes 12 million or 20 million or whatever the multiplier is.

Government would be needed to incentivise the transitioning process, as well as to see to it that poorer households are not left behind. As Baki (2018: 118) states, government can either encourage or discourage a green transition depending on their stance, role and policies. As detailed in Chapter 3, private initiatives, such as the triple bottom line and broader corporate social responsibility amongst firms and institutions, have limitations. There is a role for government to play in addressing these limitations. Apart from the role of government to ensure a just, equitable transition, Interviewee 6 further speaks to the economic benefits of government investing in green practices. Interviewee 6 reiterates that “investments ... do have a Keynesian multiplier effect”, which is synonymous with the “positive spillovers” referred to in interview 1. This reiterates the need for a progressive role from government. Any investment in, or move to, sustainable practices results in a multiplier effect. Whether it be on a *small* scale, with a simple initiative such as gardening that will result in positive spillovers such as an increase in welfare (Interview 1), or whether it be on a large scale where “10 million becomes 12 million”. These responses by interviewees further point to the ‘overlapping nature’ of the economic, environmental and social dimensions, as detailed in Chapter 3.

Building on the role of government, Interviewee 9 regards government as an essential player in the just green transition because the interviewee suggests that government should provide basic services, as opposed to the privatisation of these services:

I'm a little bit hesitant about solar and there I'm ignorant. I don't like the idea, and I'm not convinced about the idea of privatisation of basic services.

When the municipality was asked about their role and priorities during interview 2, the importance of the provision of basic services by government was reiterated:

The priorities of the municipality are the basic needs of communities. People must get water, people must get electricity, people must get proper sanitation and we [municipal government] need to ensure that the waste is collected all the time. So those are the basic things that need to be done and those should be done in a much more sustained way, in the manner in which then they are approved, they are provided.

Interviewee 10 reiterated the need for a just, equitable transition and saw no transition occurring if it was not inclusive:

The issue around a transition to a decarbonized economy is that we could get a decarbonized economy, but we don't address the inequality. If we don't take those people who are still marginalised, then we're not going to get any kind of transition because of the fear of loss of jobs and all of that. I recently came across an article of the World Economic Forum that talked about \$100 trillion that is required for emerging economies to have this just transition. Just for emerging economies we are talking about a massive amount of money. And as they say, if you take emerging economies and simply hike taxes and charge higher interest rates, then the estimation is that on a global scale for emerging economies, there's going to be a loss of wealth of \$2 trillion per annum. So all that is going to happen in this quest for a decarbonised economy, is the gap between the rich and the poor is going to become even wider and that is not a just transition. Whatever the spheres of government, whether we talking at the local, the provincial or the national level the government has to create the enabling environment.

The role of local government is to lead and coordinate climate action and to establish an enabling local environment in order to reduce carbon emissions in both the public and private sector (Amundsel *et al.*, 2018: 62). This extensively relates to what the role of government should be according to Interviewee 10 in that government should “create the enabling environment”. Furthermore Interviewee 10 states that in the “quest for a decarbonised economy” government has to be mindful and wary of their approach because if, during this “quest” for a green economy, government simply hikes taxes to increase revenue, it will further widen the gap between rich and poor and “that is not a just transition”.

There is a definite role for government to play in ensuring that there is a just and inclusive transition and as the municipal official mentioned, that basic services are provided “in a much more sustained way” by government. As Interviewee 6 mentions above, it is not out of reach for richer individuals and households to embrace a green transition, but for poorer households and those that live in RDP houses “it’s not quite so easy”. This signals an important role for government and other institutions with significant agency, such as universities. As Interviewee

10 states, “a just transition requires that everybody goes along with it and that everybody benefits out of it”. In the quest for a sustainable society, it needs to be reached in a sustainable manner.

As discussed in Chapter 3, both the developmentalist and green capitalist approaches inform the research and could offer important insights in the just green transition. From a green capitalist perspective, richer households that embrace a green transition do take pressure off the national grid. From a developmentalist perspective, the importance of effective government intervention is reiterated in order for poorer households to be part of the green transition, therefore ensuring a *just* transition. The green capitalist approach and richer households embracing a green transition could ultimately allow government to put a greater focus on poorer households because they do not have the burden of richer households and do not have to meet their electricity and water demands.

6.4 – Probing the External Constraints

6.4.1 – Governmental Burden

Building on the developmentalist approach discussed in Chapter 3, there is a need for ‘active state involvement’. As part of their broader vision, half of the interviewees reiterated the importance of government in Section 6.3.3. The state should play an active role in the transitioning process and facilitate an equitable, just green transition. The state should not be a burden to a just green transition. Instead, the role of government is to stimulate the transitioning process. Considering the South African case, as explored in Chapter 4, government has been, and continues to be, a burden in the transitioning process. South Africa has numerous governance problems such as corruption and institutional challenges. As detailed in Chapter 4, these challenges are not only limited to national government but are pressing at the local, provincial and municipal level.

When the constraints angle was probed, government was continuously mentioned. Government, especially in the context of the town, was regarded as a burden by all the interviewees, including the municipal official. The municipal official, Interviewee 2, acknowledged that the municipality

is impeding the growth of business and the university, due to wastewater treatment works operating at full capacity:

The main concern [for the municipality] currently is sanitation limitation. The wastewater treatment works are at full capacity, which means that you can't have pick and pay developing because those guys want to develop. You've got Rhodes University who wants to grow further. They can't develop to the requirement they wish. Shoprite wants to develop as well. The municipality wants to build about 1200 houses. We can't do that because what's happening is that we [the municipality] don't have the bulk in terms of waste control and waste management, because they are operating at full capacity, which means if we then build those properties and that investment, then we shall be having sewer that flows without being treated. And that will be unsustainable for both Makana residents, and also for the river up to Port Alfred.

Interviewee 2 further spoke to the flawed financial models of the municipality which constrain the municipality's potential. The financial models of government, both local and national, are based on the premise that revenue is generated through the selling of water and electricity. During interview 2 with the municipal official, they reiterated that the financial models of municipalities are deeply flawed and that former president Thabo Mbeki realised this and spoke out against these flawed financial models:

There's a social media thing, now that's going out from the ex-President Thabo Mbeki, who is saying we made a mistake in local government. Because local government funding, we thought that we have taken the proper decision by saying it will be out of rates and taxes in order to perform the functions of the municipality. And he's coming now and saying that that was a wrong decision.

If the financial models are ineffective, and the former president has realised this and critiqued it, why has more not been done to address this ineffectiveness? These findings correlate with Chapter 4 and confirm that government structures and policy are problematic. If government collects revenue through the selling of water and electricity, there will be very little incentive for government to embrace the just green transition, seeing that such a transition will take from their revenue stream. This further relates to the 'broader problem' of state failure.

When asked about their vision for sustainability, Interviewee 1 spoke to the renewable energy opportunities in South Africa and stated that there is “proof of concept” with the generation of wind energy. Furthermore, Interviewee 1 stated that wind turbines are “extremely productive” in the context of the town and “they work like a charm”. Interviewee 1 further stated that they would like to see more of these projects and investments in renewable energy in order to “shield the town from the madness that is Eskom”; however this is not possible as a result of the failing Makana Municipality and the municipality’s negative audit.

As discussed above in Section 6.3.1, Interviewee 1 states that investments in renewable energy projects, such as windfarms, in the context of the local town can only occur if the municipality has a “clean audit”. Makana Municipality, along with the vast majority of other municipalities in South Africa, as discussed in Chapter 5, does not have a clean audit. The town is constrained by the inefficiencies of the local municipality, and investments in renewable energy projects such as a windfarm are not possible as a result of these inefficiencies and irregularities.

Interviewee 4 further stressed the implications of the failing municipality for Rhodes University. When directly asked whether the municipality is a constraint to the growth of the university, Interviewee 4 said “definitely”. Interviewee 4 mentioned another constraint that continuously emerged that relates to failing government – infrastructure:

The growth of Rhodes University is very dependent on the municipality, in the sense for the provision of services, full stop. If we put another 1000 students in here, would the municipality be able to manage to handle 1000 more bodies nine months of the year? They will not, not with the current infrastructure because it is aged.

When asked if the failing municipality is constraining the university’s potential, Interviewee 5 stated that the failure of government institutions has negative spillovers to other sectors and institutions, such as education and Rhodes University:

I think it is a problem because for us to deliver on the core business of the university such as the output of graduates and quality education and excellence in terms of research. For us to do that, it's critically important to have sufficient access to water and energy. The constraints that we face at the moment, particularly regarding electricity, talking about

loadshedding, for example, we are not getting sufficient electricity, the country as a whole is in that boat. And of course, water is a constraint. Oftentimes the university does not have a sustainable supply of water. That is a constraint on the capacity of the institution to grow in the future.

As mentioned by Interviewee 4, the government constraint hinders the growth and potential of the university. When asked about the slow progress of the green transition, Interviewee 6 attributed this to the failure of government and consequently failing infrastructure:

Part of the problem is failure of government, and if the government is failing in one sphere, they are failing in another. If we look at the way water infrastructure spending has worked. Since 2010, some of us have been trying to round up all the figures on what has been spent on water infrastructure [in Makhanda], and we've got to round about R600 million, with very little to show for it.

Interviewee 8 spoke to aging municipal infrastructure and systems that are constraining growth at the university:

The deterioration of the existing infrastructure in Makhanda, such as water supply, leaking pipes, and the drought are big issues. A big problem from an electrical point of view is that there is no redundancy between, and I don't know if I should say that in public, but our supply from Waainek power station to the campus. There's supposed to be three lines running and then one for redundancy. At this moment we have one left of the municipality lines. Only one. So there's no redundancy at this moment if something happens to that line. So that is one of the biggest risks at this moment for the university is the electrical supply from the municipality to the university.

When further asked about the constraints to potential, Interviewee 8 attributed it to poor municipal management:

Poor management [is constraining the university's potential]. For a long time, there was no technical director at the municipality. I think political interference in these projects is one hell of a problem. It's a serious problem. I think that's why we are where we are. If they leave the officials to do their work, we will see some improvements.

Interviewee 9 attributed the slow transitioning process to the failure of local government:

Well, we need a municipality that can do the basics and that is committed to the well-being of its population, and that is responsible and there's very little evidence that that's happening. That is a very, very powerful constraint.

Interviewee 11 cited political instability as a major constraint because there is no growth if there is no stability:

In the time that I was executive director, I had to deal with 16 municipal managers [at the Makana Municipality] in a 10-year period. That's more than one a year. How can you get stability when you've got a turnover like that? There were six or seven CFOs in that period. No organisation or entity can survive and actually fulfil its vision and mission, or its strategic purpose, when you've got that level of stability within that particular entity or organisation.

In addition to mentioning national government as a constraint, Interviewee 6 mentioned that the local municipality has also been a burden, especially with regard to paying Eskom for electricity:

The reliable supply of electricity is a nationwide issue, which also has a local aspect. The municipality was taken to court a few years ago to enforce a settlement between themselves and Eskom who were threatening to turn off electricity 10 to 14 hours a day to punish the municipality who we're not paying over the money that residents and businesses and so on were paying for the electricity.

The implications of the local municipality failing to pay Eskom could be far-reaching:

If Eskom does carry out that threat, imagine the impact it would have on schools, universities and businesses; already it's very hard to encourage inward investment because of all [the] infrastructure problems. (Interview 6)

Furthermore Interviewee 5 spoke to the failure of government institutions, such as Eskom, and the impact of such failures:

Infrastructure issues are a constraint. Eskom at the moment is not really in a position to supply power to the country and meet their needs, we face loadshedding as we speak. So, the source of energy at the moment, if it's just the way it is, is not even sufficient for the country. So there's a desperate need to upgrade the supply of electricity for the country as a whole.

Interviewee 10 cited the failure of governmental institutions, such as Eskom, as a constraint and stated that they are failing as a result of inadequacies at national government:

I think they [national government] are a constraint. If we take the whole Eskom debacle, part of the challenge from what I understand is that it's all very well to blame the current management of Eskom, but they can't get sufficient water. They're not getting enough water from the Vaal dam in order to cool the towers. That's not Eskom's fault. That's again, a national government problem. There's a lack of systems thinking, when ultimately you've got politicians and people in positions of political authority, who don't fully reflect on the kind of systems thinking that's required.

Interviewee 6 further stated that “we have a very confused government policy on sustainability and there is no consistent regulatory framework”. Interviewee 6 stated that corruption is another governmental constraint hindering potential:

We are supposed to be a developmental state. In practice, we're actually a patronage state. And that's where a lot of the problem comes from. And so a lot of the resources that are meant to go towards equity go into a small number of people's pockets, and nothing is delivered.

Interviewee 9 further spoke to the national and local constraint that is corruption:

A huge constraint is the promise of Eskom. The crisis of Eskom is a function of a bunch of individuals looking after one another and the corruption of those institutions like Eskom and Transnet [is a constraint]. Government generally and municipalities across the country, there's no sense that we're working together for anything, it's just people grabbing. There's just too much of that going on. There's not a culture of solidarity.

Interviewee 11 also addressed the significant constraint of corruption in government:

At the national level, billions is going astray. If that trend were turned around, there would be so much more money available for green investment.

As mentioned above, the governmental constraint is not limited to local government. When Interviewee 3 was asked about the impact of national level problems, such as loadshedding, on their business, they said that it was “massive” and that they suffer an “irrecoverable” loss. Considering the implications of loadshedding, as stated by Interviewee 3 below, it could be regarded as catastrophic:

If you talk about loadshedding and the direct impact on the business it is massive. Now, just going back shortly, when Eskom wanted to switch off Grahamstown because of the municipal debt not being paid, we were one of the companies that responded. And I actually did the calculation. We worked out the impact of loadshedding on our business at that stage, and you must remember that that was a couple of years ago, and fuel must have been about R14/litre. And bear in mind that since then diesel have doubled. The impact was when I did the calculations, we were paying R4.50 a minute for Eskom power and at that stage, we were paying over R30 a minute if we ran on our generator. So we were proving to the court the impact on our business and that it is obviously not sustainable. We would have to cut jobs, cut trading hours, and all that types of nonsense. Bottom line the impact was R4.50 for municipal power and running on a generator was over R30. Now, since then, diesel will have doubled. And if you talk about the impact now that we have stage six or whatever, that's four hours twice a day, you do the calculation now that money is irrecoverable. You can't charge your customer more all of a sudden to make up for it. So it comes straight off the bottom line. And if your business is marginal, it's going to put you out of business.

There are negative spillovers as a result of the failing Eskom. This could be in the form of businesses having to cut jobs and cut trading hours in order to minimise the impact of loadshedding. As Interviewee 3 states, the cost of loadshedding comes out of the bottom line of the business. Institutional failure at the national level has serious consequences at the local level. Interviewee 11 perfectly summarised the reality:

We have to call a spade a spade. Until the ANC sorts it shit out, there will be no progress.

The governmental constraint, both at national and local level, is a binding constraint that is out of Rhodes University's control. Government is constraining business, the university's potential, and ultimately South Africa's growth. This section confirms the findings of Chapters 4 and 5. National, local and municipal government is failing, and government at all layers is on a downward trajectory.

The developmentalist approach regards government as being a facilitator of growth through efficient government intervention and policy. Furthermore, developmentalism stresses the need for government to steer the economy towards an efficient growth path. While this should be the case, the opposite is currently happening in South Africa. Failing infrastructure, confused policy, corruption, mismanagement and the failure of government institutions such as Eskom are a serious burden to sustainable development and green growth. The failure of government at local and municipal level has a significant impact on business, and it is a burden for the university to deliver its core business. There are government policies in place that aim to enable a green growth path, but there is very little evidence suggesting that these policies have led to action. A clear lack of implementation of policies and numerous other obstacles relating to government are constraining South Africa's potential.

6.4.2 – Cost Constraint

As detailed in Chapter 3 and 5, there are numerous economic benefits, in addition to the environmental and social benefits, in switching to green practices. The existing literature points to this 'overlapping nature' of the TBL, as discussed in Chapter 3. The clear financial case of this 'overlapping nature' for sustainable practises, such as the construction of a solar farm at Rhodes University, was illustrated in Chapter 5. Seeing that there is a clear financial case, this section focuses on the most cited 'external' constraint as perceived by interviewees – cost.

Cost was cited as the overarching constraint. As the local business person said, when asked about the adoption and implementation of sustainable practices, "it is not financially viable":

It's not viable, financially viable, unless you're going to do a small little system because of the frustrations of loadshedding. You won't do solar, you will buy a [LED] bulb for 60 bucks and put it in and carry on. But to change the whole product or system to off the grid, just costs too much. Not financially viable. (Interview 3)

Another cost constraint that does not relate to the renewable energy costs but relates to relatively *small* aspects of the transitioning process for business and organisations was the cost of biodegradable products. Interviewee 3 is a prominent business figure in the retail sector and speaks to the cost of biodegradable “green” products:

We looked at the Fruit & Veg who had national best practice and was using no more polystyrene. They're using something like the product where you put eggs in, the biodegradable product, but if you look at trade in the business, the biodegradable product cost us R2 and the polystyrene is 22 cents. So the renewable is actually a lot more expensive – 10 times more, R2 versus 20 cents. How do you justify something like that in an economy in a third world country like South Africa? We can't just ignore that.

As Interviewee 3 mentions, the cost component is “massive” and constraining the just green transition:

You can't be paying 20 cents for a tray to put a product in, and R2 for another tray to put the exact same product in just because it is biodegradable. Costs are a massive issue. When you bring up the word biodegradable, it means a lot more expensive and not everybody can afford that.

Throughout the interview process, the cost dimension, from university, local government and business, was continuously identified as a constraint. During interview 8, the cost dimension was mentioned, and as much as renewable energy generation, and a sustainable university was part of the vision of interviewees, the cost of such a transition is mentioned in the same breath:

There are proposals on the table for a solar farm, but again it's costly, it's about R100 million to supplement daytime usage.

As noted in Chapter 3, the cost implications of a just green transition are significant. However, climate inaction will be vastly more expensive than climate action (Arnell and Parry, 2022: 3; World Economic Forum, 2022). Nevertheless, as gathered from the interviews, the cost implications are significant and pose a threat to the transitioning process. When interviewees were asked about external constraints, those beyond the control of the university, it became evident that it all boils down to cost.

When the external constraints were probed, the cost burden was mentioned by Interviewee 4¹, Interviewee 5², Interviewee 6³, Interviewee 7⁴, Interviewee 8⁵, Interviewee 10⁶, Interviewee 11⁷ and Interviewee 12⁸. The cost implications of a just transition are substantial and should not be dismissed. The question is whether the cost constraint is *binding* for the university.

¹ *Mainly financial constraints*

² *The constraint of course, is that those things [sustainable technologies] are fairly pricey and to put them up costs a lot of money.*

³ *If you look at, for instance, getting rid of fossil fuels, the short-term cost is significant, because you've got a whole lot of infrastructure that's already in place that is churning the stuff out at a relatively low cost per unit.*

⁴ *Another pressure is finance and resource. The university could ideally go for green procurement but we all know that you have to put certain things in place and make funding available to be able to do that.*

⁵ *It's more expensive to build green buildings. All this green stuff is costly and it's costing us money to go green.*

⁶ *I think the big challenge from an external constraint point of view is that the university still continues to be hamstrung by lack of funding. The university has to continuously divert fees and divert its funding to student fees, and one understands that. But then what happens is that some of the just transition, essential expenditures are then pushed to one side.*

⁷ *Green infrastructure is expensive. So if you don't have the money for it, you can't implement it.*

⁸ *The investment that is required, in terms of initiating some of the major milestones towards transitioning is going to require a lot of resources that we don't have. Our budget structure needs to be adapted to accommodate for this. The transition to green will require resources that may not be at the disposal of the university.*

There are funding mechanisms, such as loans or crowdfunding through the alumni network, or other measures, such as a gradual transition, that would address the cost constraint.

When Interviewee 4 was asked about possible ways of realising their vision of solar and wind generation for the university, the possibility of funding mechanisms, such as loans was mentioned:

There are financial models out there that we can use, for example a green bond. The banks will give you a loan. You can effectively get a loan or you can buy a green bond or they would buy a green bond for you, because you're doing the green project.

As an academic institution, the university does have leverage. As Interviewee 1 mentions, the university does not operate in the same way as for-profit organisations. Therefore, funding can be tapped through means of research projects and other instruments at the disposal of the university. As Interviewee 1 states, “research projects as opposed to business can be a very power lever” for Rhodes University.

The cost constraint does not seem to be binding for the university, due to the leverage that it has as an academic institution, as opposed to a for-profit business. Furthermore, there are instruments such as “green bonds” or “loans” available to the university, if the university does a green project. This attracts serious criticism of the lack of action that the university has taken thus far and the reactive nature of the university’s response to the climate crisis and local issues such as electricity and water unavailability. The university has clearly not optimised its leverage, which calls for serious concern. This relates to a lack of vision and a lack of commitment to sustainability at the university, which is ultimately an internal constraint, and will be further discussed in Section 6.5.1 below.

Currently the upfront costs of green systems are characterised as a constraint and could be regarded as a disincentive, especially by business, to adopt sustainable practices. However, this has posed a constraint of its own. Organisations and institutions no longer consider a transition due to this upfront cost, or opt to further postpone green projects due to insufficient funds to cover these upfront costs. This seems to be the case at Rhodes University, where the majority of interviewees cited costs as an external constraint which hinders the transitioning potential of the

university. However, it does not seem that these ‘expert’ interviewees have considered the financing options which are at the disposal of the university. Of the 8 interviewees who mentioned the cost constraint, only Interviewee 1 and Interviewee 4 spoke to the financing options at the university’s disposal. This relates to a lack of vision and a lack of commitment. If there was a clear vision and sufficient commitment to sustainability, then there would be a greater focus on solutions as opposed to obstacles. A gradual transitioning process is a simple solution. As funds become available, institutions could “gradually” transition. Furthermore, funding mechanisms such as loans or funding through research projects are available to institutions like the university.

For businesses that are focused on profits, the substantial upfront costs might be binding, even though the benefits outweigh the costs in the long run. However, for a prominent institution like Rhodes University, which prides itself as being a leader, the cost constraint is not binding. The green transition should be regarded as an interesting opportunity and research area, in addition to being a viable solution to the current problems faced in the town and country, such as watershedding and loadshedding. As discussed in Section 5.5, the financial case is clear with regards to renewable energy generation through the construction of a solar farm. However, it is clear from the interviews that it is seen as a cost, in a similar way that business regards the green transitioning process. This could be regarded as ‘reactive’ thinking and a flawed perception, seeing that the university does not operate the same as business. Academic institutions, such as Rhodes University, should optimise their leverage, and embrace sustainable technologies, as opposed to the current mindset that hampers potential. This ‘reactive’ thinking and lack of vision and commitment to a green transition point to pressing internal constraints, which are further discussed below.

6.5 – Probing the Internal Constraints

In addition to external constraints such as government, there are internal constraints that hinder a just green transition. Some of these internal constraints, such as lack of vision, have been detailed above. In this section, the internal constraints hindering green growth at Rhodes University are considered. The majority of Rhodes University interviewees stated that costs are the biggest constraint; however, as argued above, this is not necessarily the case for the

university. Instead, the response by interviewees that costs are the biggest external constraint points to a significant internal constraint. This relates to the concepts developed in Chapter 3, such as path dependence and a reactive, as opposed to an appropriate proactive, approach. These pressing internal constraints are considered in this section.

6.5.1 – Lack of Vision, Buy-in and Managerial Commitment

When the internal constraints were probed, Interviewee 4 spoke to a lack of awareness and the need to get the required “buy-in”, which is a theme that continuously emerged:

We need to look at things differently. It's about getting the required buy in and mindset change of the Rhodes community. There is a lack of proper strategy. Rhodes does not have a consolidated ESG (environmental, social and governance) strategy.

When further asked *why* the university has not resorted to solutions such as green bonds or loans, the interviewee stated that the university has many other “constraints” which could be why the university has not prioritised sustainability.

There are so many other things that the university has to deal with, you know, in terms of maintenance backlog, and other financial constraints, like fee increase constraints and subsidy cuts and donor funding. (Interview 4)

However, as extensively discussed in Chapter 3 and detailed in Chapter 5, investing in sustainable practices is an investment that could reap significant financial benefits, as opposed to a cost. These investments, as discussed in Section 6.2.1, can be done on a *gradual* basis or through the “financial models” as discussed above. Furthermore, the financial benefits derived from investing in sustainable practices could be used to address some of the other constraints that the university faces. Interviewee 4’s response can be compared to a ‘lack of vision’ since possible avenues, such as investing in sustainable practices, could address these financial constraints; however, these avenues remain unexploited, with the financial crisis and maintenance crisis worsening at the university.

Interviewee 7 mentioned the internal constraint of “buy-in” and that the university has a role to play in better educating and informing individuals:

The lack of buy-in by everyone [is an internal constraint]. There is a school of thought out there that seriously believes that some of the concerns around the environment around sustainability are just a hoax just and that humanity can always adapt. People can come here [to Rhodes University] and have better informed decisions and better informed perspectives around the environment.

The response of Interviewee 9 to the question about the internal constraints at the university strongly related to the lack of awareness and lack of buy-in as mentioned by the previous interviewees:

There's no real commitment. I think imagination is an internal constraint. There's a lack of people prioritising sustainability. They're not thinking minimally and not taking global warming seriously.

Interviewee 9 further mentioned the “lack of prioritising sustainability”. If sustainability is not prioritised, there will be no real commitment to a just green transition and no “buy-in.” In order for a just green transition to commence at the university, there needs to be buy-in and commitment. Interviewee 11 stated that the internal constraints “boil down to managerial commitment”. Interviewee 12’s response related to the lack of awareness around the “urgency” to transition, which is a pressing internal constraint. Interviewee 12’s response further relates to that of Interviewee 11, and ultimately the lack of buy-in, due to an insufficient awareness around the need to transition:

I also think that it might be insufficient understanding or awareness of the urgency of the need to transition. These are issues in relation to attitudes. I do feel that we could have better monitoring and accountability around these issues. At least in terms of monitoring, and control instruments, those are within the university, but I don't think they are sufficiently developed to ensure that we get there.

The lack of “buy-in”, lack of managerial commitment and lack of vision, as detailed throughout this section, ties to the reactive approach and path dependence concept that were developed in Chapter 3. This lack of “buy-in” relates to Rhodes University being resistant to change and resistant to a green transition. These findings correlate with Chapter 5, and it is evident that the

university is stuck in path dependent ways which are unsustainable. There is a pressing unawareness of the benefits of a just green transition, and even at managerial level many of the ‘well-positioned’ interviewees are unaware of the economic case to transition. Sustainability, and a just green transition, is not prioritised at the university, which compounds the pressing situation that the university is currently in, where the university continues to react to crisis. An appropriate proactive response, or what could be referred to as having the necessary “buy-in”, would address many of the concerns that the university currently faces, such as loadshedding and water outages, and would mitigate many of the risks at the university as detailed in Chapter 5.

6.5.2 – Path Dependent Relationship with Government Impeding Growth

The university’s continued reliance on the municipality for resources is an internal constraint. Service delivery issues cannot be regarded as purely ‘external constraints’. The university’s continued reliance on the municipality for potable water and electricity is at least, in part, a choice. Interviewee 6 questioned the university’s continued support of the municipality and paying for services that the municipality no longer provides:

The university is a big consumer of municipal resources. And they've consistently taken the line, that the best way to support the municipality is to be a big consumer of municipal resources and pay for them. Even if it's a resource like water, which is failing, and it would actually be better to consume less.

I don't agree with the university's philosophy that to keep the town sustainable they must help balance its budget because the municipality is perfectly capable of bankrupting themselves. The university believes that it has to keep paying for electricity to keep the municipality afloat. But the electricity cash flow is meant to pay first of all Eskom, which the municipality isn't doing, and secondly, to pay for maintaining the electricity infrastructure. And it's not meant to be used for paying salaries or other running costs that are unrelated to electricity. The notion that the university must keep the municipality viable by buying services the municipality does not supply seems to me bonkers. What the university should be doing is putting pressure on the municipality to get its act together.

Interviewee 6 further stated that the university refused to take part in a court action brought against the municipality when the municipality failed to pay Eskom, which is also a constraint because in the university's capacity, it did not hold the municipality to account:

The university refused to take part [in the court action against the municipality] and the logic we were given was that the university has a partnership agreement with the municipality and you can't take somebody that you're in a partnership agreement with to court which is complete BS.

This response from Interviewee 6 ties in with this statement from Interviewee 10 about the “pot diplomacy” that the university has with regard to the failing municipality:

We continue to have some kind of pot diplomacy with the municipality. People look to Rhodes to exercise some kind of leadership in this town. We have to be more vocal about highlighting what needs to be done and, in fact, holding to a greater sense the municipality to account in relation to the role that it has to play.

Interviewee 10 stated that the Makhanda community looks to “Rhodes to exercise leadership” in the town. However, it is clear that the university has not fulfilled this leadership role when it comes to holding the municipality to account. In Section 6.3.1, interviewees had a vision of Ostrom-like collective action and a ‘leadership’ role for the university, but the university is not holding the municipality to account. Instead, the university continues on a path dependent relationship with the municipality. What the university *should* be doing, as was the vision from interviewees, and what the university *is* doing, are two opposites.

As Interviewee 6 mentioned, there is a lot of complaint about the municipality from the university, yet when it comes to certain actions, such as participating in court action, the university has failed to take part:

I haven't seen evidence they've done anything. If you know of anything, let me know. There's a lot of talk about how terrible and bad the municipality is, and the stuff that needs to be fixed. But I don't see any actual evidence for action. So there's no push from the university.

There seems to be a lack of cooperation and cohesion between the municipality, the university and local business. Interviewee 9 stated that this is not limited to Makhanda but is a broader “constraint” in South Africa:

I don't get much of a sense that we're working together for a common project in South Africa. We need a kind of agreement that we are working together for a common project. I don't get a sense that we're doing that at all. And I think that is a huge constraint.

Interviewee 10 also spoke about this prevalent lack of cohesion that is impeding the just green transition:

We just don't have the cohesion that's required in order to address these things [constraints] together.

Interviewee 11 stated that there is a “partnership agreement” between Rhodes University and the municipality, but due to political constraints, the “stability of the agreement has gone out the window”:

In the VCs office there used to be this lovely parchment, where this collaborative and cooperative agreement has been signed between the two entities [RU and the municipality]. But because of level of political instability, the administrative stability has gone out of the window.

When the municipality (Interviewee 2) was asked about the current state of the relationship between local government, business and Rhodes University, they said that “we can do more”. However, Interviewee 2 spoke to the current relationship and the success that there has been with initiatives, such as the pothole program:

That is a successful example of business and municipality coming together. The pothole program is going quite well. So it's because business initiative, they just said to the municipality, show us how it's done. And the municipality went to the team, and then showed them how it's done, and then they [local business] did it. So it's a good thing. That is a successful example of business and municipality coming together.

However, when local business (Interviewee 3) was asked about the pothole program, they had a much different take on the state of affairs:

We went to the mayor and we did a memorandum of understanding, which then allows us to go and fix the roads. They [the municipality] were saying that's an example of how business and municipality have started working together. Okay. It's not really working together; all they did is give us permission to work. They don't come and help, so I don't know how the togetherness works, but yeah. All they had to do was sign a memorandum of understanding and that was where the togetherness ended.

The current state of the relationship is problematic and this extends to the relationship, or lack thereof, with Rhodes University as well. There is a lack of collective, Ostrom-like, action. When local business (Interviewee 3) was asked about Rhodes University and whether the institution is collaborating with the municipality and local business in order to reach sustainable goals or to address problems in the town such as potholes, they said the following:

They [Rhodes University] actually seem to be very quiet about it. Nobody from Rhodes has come forward.

Considering Goal 7.1 of the university's first IDP, as discussed in Section 5.4.2, which aimed to establish collaboration with the Makana Municipality and with local business to address the town's challenges, it would seem that this goal has not fully been reached, especially from the perspective of local business. This is problematic and a constraint of its own that needs to be addressed. A better working relationship between Rhodes University, local business and the municipality could be of vital importance to address the challenges of the town and also to commit to sustainability. It is important to understand the current state of partnerships in order for these partnerships to improve. In the quest for growth, improvement and the realisation of goals such as those stipulated in the IDP, it is important to consider and be aware of any shortcomings that could be an impediment.

It is of utmost importance to be aware of these external and internal constraints. An awareness of these constraints is important in order to understand the slow transitioning pace and the "reluctance" to transition. Although pressing, the focus needs to shift to addressing these

constraints because as mentioned above, the benefits of a just green transition outweigh the cost. For institutions like Rhodes University and the municipality that face severe financial pressures, the financial benefits should serve as a binding incentive, and the green transition should be pursued. If these constraints can be addressed, progress towards a just green transition could be made, and the benefits associated with the transition could be reaped.

6.6 – Moving Forward: Shifting the Focus to Solutions

6.6.1 – Partnerships

As discussed in Chapter 3, community, partnerships and collaboration could be essential in reaching sustainable goals, such as Net Zero. The interviews point to a clear need for stronger relationships, partnerships and community. This is especially relevant in the context of Grahamstown (Makhanda), where local business has called on the municipality and Rhodes University to work together and have greater involvement in addressing the issues of the town. Furthermore, considering the just green transition, it is not optimal for the university, business or government to embark on the transitioning process without the others. Throughout this section, the need for and importance of community, collaboration and partnerships is reiterated.

Interviewee 5 confirmed the importance and significance of partnerships. When asked to what extent Rhodes University could implement sustainable practices and projects without the help of government and to what extent local government could embrace the transition on their own, Interviewee 5 said,

Government is needed, it's not something that the university can do on their own ... A relationship is totally important because the local government would not be in a position at all to do this on their own, they would be totally dependent on some kind of a partnership.

The need for community and healthy, working partnerships is a theme that continuously emerged. During the interview with the municipality (Interview 2), the question arose as to whether there is a relationship between Rhodes University and the municipality. The conclusion

was that there is a relationship between the municipality and Rhodes University, but there is room for improvement:

For instance, from my office, I've had relationships with Rhodes University. We operate quite well with the communications section, the engineering section, we operate quite well with that section, because what happens is that every time we recruit a person from technical services, we work with Rhodes University, they come in and participate in the activities around that. So they are helping us and there is a relationship, but it can be strengthened more. Particularly with the student capabilities that's there. You've got master's students, you've got doctorate students, that could come in handy. You know, look at our finance department. If you look at the finance department and the staff there, you've got staff at a very low level, but in the middle, where you need accounting and reconciliation, where you need the technical expertise, of applications of the current standards, you don't have that middle management.

If the suggestion above were implemented effectively, it could go a long way in assisting students to gain practical experience, in addition to helping the constrained municipality. The municipality does have skills constraints of their own:

There is that constraint [capabilities and knowledge at the municipality] but that is where Rhodes students can come in and say, "How can we help you?" Master's and doctorate students have got all the time for such work and so on. Understanding exactly what's happening, the application of the theory that you've learned in terms of the practical space so you could actually help students and it could help the municipality and it could come in handy. (Interview 2)

These partnerships and relationships can have extensive benefits for all the parties involved. The above suggestion by the municipality does not directly relate to a just green transition. However, as discussed in the previous section, constraints need to be addressed in order for the transition to commence. Rhodes University students from different departments, such as accounting and economics, can partner with the municipality and provide skills that are lacking at the municipality. This could provide crucial support to the constrained municipality, who might benefit from the expertise and skills of post-graduate accounting and economics students. Such a

partnership could also pave the way to address the problems of the town and could eventually be extended to other departments, such as environmental science, to incorporate a more sustainable focus. In addition to the benefits that would come from such a partnership for the municipality, students would benefit through networking and practical experience. The need for community and improved partnerships is a theme that continuously emerged. As Interviewee 8 stated,

I think partnerships is very important, if not the most important thing, because we are part of the community of Makhanda.

When asked about the possibility of Rhodes University embracing a just green transition by itself and moving off the municipal electricity grid by building a solar farm, and the impact thereof, the municipality (Interviewee 2) said the following:

It will be a big loss. A massive loss if we [Makana municipality] lose Rhodes University. It's called a university town. Without Rhodes University, there's no municipality, Rhodes University is almost everything.

Interviewee 2's response can be regarded as illogical. The municipality is unable to provide basic services; therefore, the municipality should incentivise private institutions such as the university, to embrace the green transition. This could alleviate the substantial pressures which the municipality faces, as well as take pressure off the national grid seeing that there is a huge energy shortage. However, as discussed in Section 6.4.1, the financial models of municipalities are flawed, and municipalities are reliant on the revenue stream from the selling of water and electricity.

The municipality reiterated the importance of community and relationships when venturing into green development and a just green transition, and signified the importance of partnerships and embracing a just green transition together:

When we venture into the green space, particularly on energy, let's go in together. Because what is happening is that if Rhodes gets in there, or business gets in there by themselves, the continued challenge would be that if then it fails, the municipality supposedly didn't provide. But if there is a relationship, we then look at the risk space, and say, what are the risks of us venturing into this particular space? And what would be

the role of the business? What would be the role of the municipality in terms of making sure that there's sustainability in the provision of that? Because green energy has got its own challenges. If we can have a relationship and collaborate such as private public partnerships, stuff like that, it would be beneficial.

Interviewee 11 spoke of the importance of a partnership between the university and the municipality, and stated that the town would fail if the municipality lost its revenue stream from Rhodes University:

For example, the university, I believe, might be looking at going or taking itself off the grid in terms of water and electricity. So if the university opts for a solar farm, what's going to happen then? An integral money, or stream of revenue for municipalities is the ongoing sale of electricity. Right? Take that away from them, then that's a significant hole in their budget. And the same with water. Take those streams of revenue away from the municipality, then Rhodes will be functioning, but what's going to happen to the rest of the town? So that's why we need each other as the university and the municipality.

Interviewee 11's response further points to the illogical financial models of municipalities, which is indirectly solidifying path dependence. The university might be in a position where the institution can go off the grid, for example through the construction of a solar farm, but where such a move could adversely impact service delivery in the town due to the revenue loss for the municipality.

When asked about the importance of community, Interviewee 9⁹ reiterated that community is pivotal. Interviewee 10¹⁰ stressed the need for partnerships and further stated that the government cannot drive a just green transition on its own:

⁹ *I think a sense of community is imperative. I don't think that [community] is very strong in South Africa. I think we should be relating to one another in bonds of solidarity.*

¹⁰ *Ultimately, the only way we can do this [embrace a just green transition] is through ensuring that we have a partnership between the University, the schools, the businesses, and civil society.*

At the end of the day, a just transition cannot be driven by government alone. But whatever the series of govern of government or whether we talking at the local, the provincial or the national level. The government has to create the enabling environment. And then the university could also play its role in relation to that.

Interviewee 11 stated that there is no way for the university to embrace a just green transition by itself:

The university couldn't even dream of doing it on its own. The university simply doesn't have the resources to be able to do that on its own.

Interviewee 11 further spoke of the interdependent relationship between the university and the municipality, where they need each other:

The university is critical for the town. It's the biggest employer in the town. It also provides 66% of the GDP of the town. So Rhodes University is critical. Therefore, the municipality should be providing everything that Rhodes University needs in order to grow, expand and thrive. But by the same token, Rhodes can't do it on its own. It has to rely on the municipality for the provision of services to keep campus going. Rhodes recognised that the relationship is very much an interdependent relationship. And so it entered into a partnership agreement.

Interviewee 12 reiterated the importance of collaboration between different stakeholders:

Collaboration is indispensable. And in fact, without multi sectoral and multi level collaboration, there is no hope for us transitioning as quickly as we could, and as effectively as we can into the green economy. All those stakeholders must have common appreciation of the value. All those stakeholders must have a common commitment to the steps that need to be undertaken. And all those stakeholders must monitor and be accountable to the principles that underpin the whole agenda of entrenching and advancing green economic principles. So that's why I say that collaboration is indispensable.

6.6.2 – Institutional Development Plan – “Never Waste a Good Crisis”

The final question that interviewees were asked is whether sustainability is sufficiently mainstreamed in the new Institutional Development Plan (IDP) of Rhodes University. The responses were positive, and numerous reasons for the shift in mentality to sustainability practices were mentioned. The most prominent of these was the persisting energy and water crisis that has led Rhodes University to consider sustainable measures as a means to continue its operations. This approach could be classified as a reactive approach to current circumstances, but whether the university’s approach is classified as proactive or reactive, all that is important is to embrace sustainability. As Interviewee 1 stated, “*Never waste a good crisis.*” From the interviews, and both the previous and current IDP of the university, it seems that the university does aim to change or refocus the institutional setup to one which is more sustainable. There are signs of wanting to progress and accelerate a just green transition.

From the discussions, it [sustainability] was brought up in every single working group. So whether you're talking about research, teaching and learning, infrastructure, student experience, whatever it was, right, there was at least one person there saying, “What about environmental sustainability?”

It is positive and reassuring to know that there are at least discussions around sustainability at the university and that it does form part of the IDP goals. This statement from Interviewee 5 signals that there are discussions around sustainable green projects and this is a move in the right direction:

They [sustainable projects] are certainly being spoken about and they are certainly being investigated.

Interviewee 12 was “very optimistic” about progressing towards a just green transition with the university’s new IDP. Interviewee 12 saw a positive attitude from university management which would be pivotal going forward:

There's useful appreciation [for a just green transition] from an investment point of view. I'm very, very optimistic. Because I do think that there is the right voice at the top and that there is the right attitude at the top.

Interviewee 4 further reiterated that sustainability is mainstreamed in the new IDP but again stated that it is small steps that are being considered, which ties to the vision of a gradual transition:

I think what we've tried to do is to ensure that sustainability comes to the IDP financially and environmentally. It's not going to be massive things its small things we want to do, but I think those incremental changes will move us in the right direction. And the small things start adding up.

Interviewee 8 spoke of the reactiveness of the university and stated that in the past investing in sustainable practices was regarded as a “cost”. However, Interviewee 8 stated that the focus should be on the direction that the university is currently moving towards, and that is in the direction of greater sustainability:

I think in the past, sustainability was seen as a cost. But I can see a change in the last two years. There was a change in the view, especially with loadshedding and stuff. There was definitely a move to a more sustainable view in the university. There were always people from day one that were for sustainability, but I don't think it was ever taken up seriously. So the last two, three years I can see a change in that attitude and we are moving and investing in more and more sustainable programs.

Interviewee 10 stated that there is a greater focus on sustainability *now*. Sustainability is becoming part of reporting standards in the “movement towards global sustainability”. In response to whether sustainability is sufficiently mainstreamed as an investment mentality with regards to the new IDP, Interviewee 10 said:

Not as much as it should be. But it's happening now and increasingly so. Through the whole movement towards a global sustainability standard and sustainability standards reporting, which is coming under the International Financial Reporting Standards effort, just like financial statements, we have to follow it for sustainability standards. What we're going to see now is that organisations are going to have to report on this. It's not that you have to find sustainability; sustainability is going to find you.

I do take the point that definitely, it is becoming more and more front of mind, certainly in relation to the requirements to report on these things. Some companies and organisations are going to be pulled kicking and screaming into it. Others are embracing it; they see the value of it. And I hope that that our university will embrace it and see the value of what it brings.

6.7 – Discussion and Conclusion

When possible solutions to some of the constraints that the university faces were probed, Interviewee 11 said the following:

We can always do more. Rhodes University is doing as much as is possible, in terms of establishing partnerships with Makana and provincial and national government to try to get those fundamentals in place. But those fundamentals are delivered through government and government comes with political activity. So in order to get administrative and operational stability, you have to ensure that there is political stability.

An important thing to note from Interviewee 11's response is that the university can only do as much as a university can do. There are limitations to the university's abilities. This is not to say that it is an excuse for the slow transitioning pace that we currently have at the university, but it is important to consider. This relates to the section above where the role of collective action, community and partnerships was discussed. Ultimately, different players that all have significant agency, such as government, universities and business, need to collaborate and work towards the same goals of sustainability, within their individual capacities. That might be easier said than done, considering the state of local, provincial and national government, as well as all the constraints that non-governmental players, such as Rhodes University, face.

Stronger relationships and working partnerships, as discussed in Section 6.5.1, between agents with significant agency, such as the university, local government and business can go a long way in realising sustainability goals. However, there needs to be an appreciation of the harsh reality. Local government is failing. National government is a burden to green growth. As discussed in Chapter 3, there are limits to what businesses and for-profit organisations can do in order to

implement sustainable practices. Numerous academics, students and staff from the university have offered to assist the municipality in its operations, ranging from water experts offering to volunteer and assist with the water crisis to accountants volunteering to assist the financial division of the municipality. These offers from individuals of the university have not been accepted by the municipality; instead, the municipality is continuing on a downward trajectory, despite stating that they would embrace such offers during the interview process. After the interview was concluded with the municipality, post-graduate students from the economics department reached out and offered to assist the municipality in any regard. The municipality never responded to any students who volunteered to help.

Rhodes University has a pivotal and somewhat challenging role to play in reaching sustainable goals within its capacity as an academic institution. Thus far the university has not embraced the just green transition, as is evident from the primary findings. The path dependent relationship between the university and the municipality is further constraining the university's potential. The university does have a continued belief in, or "reliance" on, the capabilities of the municipality to provide basic services, such as electricity and water, to the university, which the municipality is no longer able to provide. This is partly due to national government failures, such as Eskom and the ever-persistent threat of loadshedding. However, this is also as a result of the failing municipality that is no longer able to provide the most basic services, such as water.

Electricity and water are basic services which are no longer sufficiently provided to the university. However, the time has come to accept that we all have great responsibility with regard to a just green transition and taking individual action. There is a role for individuals, households, government, business, civil society, and the university to play. The university needs to consider what it can do by itself, without the help of government, in order to transition, because ultimately, the state is failing. Furthermore, it is important for the university to shield itself from the 'symptoms' of this failing state.

The failure of government is a pressing concern, but not a pressing reason for the university not to embrace a just green transition. The failure of government to provide basic services should further incentivise the university to embrace a just green transition, and provide basic services

such as water and electricity, in its individual capacity. Rhodes University is a prominent institution and does have significant agency. It is positive to note that sustainability is a focus in the new IDP, and that there are increasing talks to go green, but there is a serious need for *action*. Currently the university is not taking the necessary action and steps in order to ensure a move to sustainable practices. There is talk of a solar farm being considered as a result of the ongoing energy crisis, and continuous loadshedding in South Africa. This would be a great move in the right direction and would signal progress towards sustainable practices. Furthermore, as detailed in Section 5.5, there is a strong financial case in favour of a solar farm as opposed to continued reliance on Eskom. This is before considering the ‘overlapping nature’ between economic, social and environmental dimensions. A switch to sustainable practices, such as the construction of a solar farm, would further shield the university against the ‘symptoms’ of a failed state and could aid in easing the pressing fiscal crises that higher education institutions such as Rhodes University face.

The reality is that the necessary frameworks and structures, such as an enabling government and progressive government policy, are absent. For the most part, Rhodes University would have to embrace the transitioning process by itself, but the university does have significant agency and does have the ability to do this. There are also numerous funding mechanisms or measures, such as a gradual transition, that the university could adopt in its efforts to become sustainable. The university’s focus needs to shift to formulating a plan and most importantly implementing the plan and taking action. The university needs to better optimise its leverage as an academic institution, through research projects and research funding, but also in the way that it operates as a not-for-profit institution. The university does not have to see returns in the same way that businesses have to. The university does have leverage, and there is significant room for improvement.

Summing up, this chapter has presented evidence from the primary research instrument. The interviewees were well-placed, and a point of saturation was reached where further interviews were not yielding further insights. Furthermore, the findings broadly support those of the other chapters. Therefore there is a measure of confidence that the views of the interviewees have

been fairly reflected, and also that this does represent what important stakeholders more generally at Rhodes University are thinking.

There does seem to be a broad and increasing awareness at the most general level of the importance of sustainability for the university, however, there is less clarity and agreement about the details. There is a gap between broad goals and a feasible plan with a theory of change. There is a significant tendency to see sustainable practices as a 'cost' rather than an investment. Furthermore there is a tendency to see barriers, such as costs and baseload issues, as prohibitive, and there is a lack of thinking about solutions. There is a lack of clarity about how to go forward, particularly, regarding partnerships with the municipality. On a positive note there does seem to be an increasing awareness albeit this has not crossed over into 'proactive' and 'mainstreaming'. In terms of a 'theory of change' the 'small measures can lead to big changes' and 'asset based' approach appear to be very promising options. As discussed in Section 5.4.2, the university has successfully adopted an 'asset based' approach with the 9/10th program. A similar 'asset based' approach could be adopted with regards to mainstreaming sustainable practices *if* such an approach is linked to a broader theory of change.

Chapter 7 – Conclusion

This thesis has explored the question of sustainability and a just green transition using the method of a richly contextualised case study of Rhodes University. This concluding chapter firstly reviews the main argument the thesis has made. It then considers policy implications. Finally, it reflects on the methodology and scope of the thesis and outlines the limitations of the study and scope for further research.

Considering the broader literature review and the Rhodes University case study, there is a critical need to shift towards sustainability as an overall way of thinking and in overall practice. The severity of the climate crisis and the increasing risk of not addressing the crisis have signalled the importance of a sustainable growth path. A major part of this sustainable growth path will be determined by decisions about infrastructure, notably water and power, but also other aspects such as transportation. For a country like South Africa, it is becoming increasingly clear that sustainability goes beyond ‘ecological sustainability’ and must include sustainable growth that is also ‘just’. This sustainable growth paradigm needs to be inclusive and fair.

Growth that is decoupled from resource use (degrowth), or emphasising ‘ecological’ issues, such as the climate crisis and global warming, at the expense of GDP growth, does seem to be a political non-starter, particularly in developing countries like South Africa where economic development is imperative and has historically been closely linked to resource use. There is resistance to a green growth path and the prioritisation of sustainability due to the perception that this different growth path could result in decreased growth. The literature suggests that this perception is flawed. There is further resistance due to the inaccurate perception that a just green transition is a cost, as opposed to a growth opportunity. The literature suggests that, although there are significant upfront costs to switch to a sustainable growth path, there are numerous benefits at the macro and micro level, encouraging a switch. At the macro level these benefits relate to increased economic growth, employment opportunities, and clean and reliable energy supply. At the micro level these benefits include marketing benefits, increased profits, and significant savings which signal a pure financial case to embrace a just green transition. This pure financial case, at the macro and micro level, abolishes green growth pessimism and

scepticism and should incentivise the switch to a green growth path. The extensive environmental and social benefits should not be disregarded, however, as a result of the flawed perception that a just green transition is a cost; the thesis emphasised the financial case.

The thesis has argued that there is an increasing overlap between the criteria of ‘just’, ‘green’ and ‘growth’ (TBL) at the macro level. This argument is located in ‘theory’, emphasising increasing returns, path dependency, negative externalities, and because of the increasing overlap, positive externalities from actions that are primarily aimed at the ‘economics’. Due to the increasing overlap between the three criteria of ‘just’, ‘green’ and ‘growth’, starting from any one of these three dimensions will have positive spillovers to the other dimensions. As Mathews and Reinert (2019: 13) argue, “renewables may be viewed as a developmental strategic choice – and the effects on climate change mitigation, energy security and environmental cleanliness are useful and desirable adjuncts”. The interconnected relationship between the three criteria motivates the switch to a just growth paradigm, whereby focusing on one of the criteria will positively affect the others.

The thesis further argued that there are three broad layers to the just green transition: the global, national and local layer. There has been a global mindset shift towards sustainability and the importance of a just green transition due to the pressing climate crisis. When considering multilateral treaties such as UN Net Zero and Sustainable Development Goals, it is clear that the current global tendency is one largely aimed at sustainable development. These global treaties have limitations relating to enforceability and the ability to hold nations accountable to reach these global goals. Reaching these global goals requires cooperation and alignment between the three layers.

At the national level, the South African government has numerous policies committing it to sustainable, green growth. The government has an extensive regulatory framework aimed at sustainable development. These policies and frameworks are overshadowed by a complete counterproductive reality, whereby little to no progress has been made towards sustainable development, as is evident from the ongoing 15-year energy crisis which has incrementally worsened. The South African government has made no real commitment to sustainability and a

just green transition, even when the literature suggests that a just green transition could prove pivotal in addressing the socio-economic crisis in the country, characterised by dismal economic growth, energy insecurity, unemployment and high rates of poverty. The South African government has been a burden in the transitioning process.

In the Makana region, as with the majority of municipalities and local government structures in South Africa, the local municipal government is not shielded from the counterproductive national reality. The Makana Municipality does not have a clean audit, as is the case with the majority of municipalities in South Africa. The municipality is overshadowed by irregular expenditures, poor service delivery, corruption and maladministration, which has accelerated the demise of the local town. The failure of the local municipality adversely impacts Rhodes University and the university's ability to fulfil its obligations.

These large gaps at the multilateral, national and local government layers accentuate the importance of individual action at the local layer. There is a significant role for local level or bottom-up agency. Even in an ideal policy world where government and multilateral efforts are well designed and implemented, there would still be a large role for local level agency, where there is an increasing overlap between the three criteria of 'just', 'green' and 'growth'. Even if the macro layer is uncondusive, there is significant scope for bottom-up solutions where sufficient value can be captured to make switching to sustainable practices worthwhile. This again sharpens the need to think about positive externalities and the overlap region, and overlapping nature, of the TBL.

At the micro level, there is wide variability in bottom-up action, which ranges from proactive to passive to resistance. The evidence suggests that Rhodes University and many businesses at the micro level fit in the spectrum of passive to resistance. The question is therefore why Rhodes University, like universities in general in South Africa and business, has not shifted to a proactive embrace of sustainability which has been shown to be profitable. This shifts the focus to distinguishing the real and binding and perceived constraints, such as technological, financial, managerial, and legislative. There is some evidence that what are perceived as binding technological and financial constraints are not always binding. For smaller firms and households,

overcoming financial constraints depends on changes in the financial system. However, for firms and institutions with more agency, such as Rhodes University, it does seem that there should be opportunities for innovative and creative financing where the ‘economic’ case is otherwise clear. Therefore, the binding constraint often is organisational and managerial commitment. Specifically in the Rhodes University case, there is a ‘purely economic case’ for investing in sustainable practices, such as a solar farm. This is before taking into account likely price increases in Eskom electricity and the unreliability of the electricity supply. This is also before considering the special role that the university has – which is its ability to directly link ‘just’ and ‘green’ through its broad mandate which encompasses research, teaching, and community engagement. This is also before taking into account that there are opportunities at entities like universities, where identity and direction are significantly important, offered by rebranding and refocusing the university around the notion of sustainability.

For Rhodes University, the interviews and review of the grey literature reveal that on the one hand there is appreciation by some interviewees of the principles of a just green transition. This includes the potential of the new technologies and an awareness of the extent of the risk of not embracing sustainability and a just green transition. This appreciation further extends to the importance of avoiding path dependent sub-optimal practices, such as the relationship with the local Makana Municipality and relying on diesel generators during loadshedding. Furthermore, interviewees acknowledged that it is possible to start with small ‘low hanging fruit’ and still to have a ‘big vision’. Interviewees suggested small-scale initiatives, which can be realised at very low cost, in an attempt to embrace a just green transition. It is very clear that the university could use its own resources, particularly the intellectual resources of its academic staff, to proactively embrace a just green transition. Furthermore, the university could use its leverage as a higher education institution that is not concerned with profits in the same way as for-profit businesses to embrace the just green transition.

On the other hand, there are two factors of concern. Firstly, the institutional structure is conducive to ‘drift’ and path dependence is poised to continue. Secondly, there is a very imperfect realisation of the vision among interviewees, particularly those in key positions. This imperfect realisation relates to flawed perceptions, such as that affordability is an issue, that

technically a just green transition is impossible, and that a sustainable transition would be an ‘elite only’ project that would end up hurting the poor. This lack of awareness relates to the binding constraint of organisational and managerial commitment. The review of the IDP that happened in 2022 is a good illustration for all of these issues. The goals of the IDP seem to be very broad, and it seems that the university is ‘box-ticking’ instead of focusing on the issues directly relating to the university.

The research does have potential limitations. In the literature review, there are certain unresolved debates, for example whether it is technically feasible to fully replace hydrocarbons and the issue of political will and resistance from interest groups. However, these questions do not undermine the credibility of the case study and the main conclusion reached. Rather, as noted above, failures at other levels sharpen the need to maximise ‘bottom-up’ solutions and to refocus organisational culture and the importance of clear long-term planning built around ‘theory of change’. As noted, the case for local water and energy solutions seems particularly strong in South Africa given the failings of provisioning through the ‘traditional’ system, such as the failings of national government and municipalities, and the possibilities of emergent technologies.

With regard to the case study, there are obvious limits to generalisability of results drawn from Rhodes University and Makhanda (Grahamstown). The limit to generalisation is that it is a case study of one university. However, the case would resonate with other educational institutions, because the structures are the same and the problems might therefore be similar. The case study could further extend to other institutions or organisations with significant agency. On the other hand, the case itself is important for two reasons. Firstly, Rhodes University is a major player in the context of the local town and has significant agency. Secondly, it seems very likely that the context and organisational issues highlighted in the findings would resonate, particularly for other educational institutions in South Africa and other countries, as well as business, firms and institutions. There are similarities in the institutional set-up of organisations, firms and educational institutions, which signals a degree of generalisability. Nevertheless, this remains conjectural and there is scope for further in-depth study.

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Appendices

Appendix A: Participant Informed Consent Declaration



RHODES UNIVERSITY
Where leaders learn

PARTICIPANT INFORMED CONSENT DECLARATION **(To be signed by research participant/s)**

Project Title: The Role of local level agency in a just green transition: the case of Rhodes University

Vanray Nel from the Department of *Economics*, Rhodes University has requested my permission to participate in the above-mentioned research project.

The nature and the purpose of the research project and of this informed consent declaration have been explained to me in a language that I understand.

I am aware that:

1. The purpose of the research project, as stated in the interview schedule, is to emphasize and explore the potential of sustainability and a just green transition and to understand the deeper reasons as to why there is a gap between this potential and practice. We explore pro-activity as well as internal and external constraints.
2. Rhodes University has given ethical clearance to this research project (2022-5745-7020) and I have seen/may request to see the clearance certificate by contacting the Ethics Coordinator (ethics-committee@ru.ac.za)
3. By participating in this research project I will be contributing to knowledge into the potential benefits, and constraints to, the adoption of sustainable practices at the local level.
4. I will participate in the project by means of a semi-structured interview with the researcher, covering the themes outlined in the Interview Schedule. The interview will last for a maximum of 1 hour.

5. My participation is entirely voluntary and should I at any stage wish to withdraw from participating further, I may do so without any negative consequences.
6. I will not be compensated for participating in the research, but my out-of-pocket expenses will be reimbursed.
7. The following risks are associated with my participation:

Although the research will not disclose information about interviewees, there is a chance that the identity of an interviewee might become apparent, given the small size of the university, and there may be a perception that information is damaging the reputation of the university. The risk will be low for two reasons. Firstly, we do follow an appreciative enquiry approach, as can be seen from the interview questions, whereby our emphasis is on building on the positive features of the organisation as a foundation for future action. Secondly, Rhodes University is an academic institution, which values opinions, openness and knowledge creation, including constructive criticism.

8. The Researcher intends to publish the research results in the form of a Master's dissertation and possibly a journal article.
However, confidentiality and anonymity of records will be maintained and my name and identity will not be revealed to anyone who has not been involved in the conducting of the research, ***unless I indicate to the contrary/recognize that as a public figure my identity will inevitably be/become known, in which case I agree to accept the loss of anonymity.***
9. In terms of the Protection of Personal Information Act (No. 4 of 2013) it remains my right to request the Researcher to provide me with a detailed explanation of exactly how confidentiality and anonymity of the data I provide will be achieved. I may also request to know exactly how my personal information will be stored securely, for how long it will be stored.
10. If any data collected from me for this research project is to be used by the Researcher for any further study, I am to be informed in writing and my written consent requested again. I need not give consent for the new research if it is incompatible with the initial purpose of the present study (POPIA, s15(3)). Equally, I can simply reject the request. In such cases, a formal request needs to be made to me by the researcher via the Ethics Coordinator (ethics-committee@ru.ac.za).
11. In terms of the POPI Act, I possess the right to receive feedback about this research. This will take the form of an email, text or telephonically. A copy of the Master's thesis, and any further publications thereafter, will be sent via email to participants who request such feedback unless ***I elect not to receive this feedback.***

12. Any further questions that I might have regarding the nature of the research and/or my participation in it will be answered by Vanray Nel (g18n2370@campus.ru.ac.za)
13. By signing this informed consent declaration, I am not waiving any legal claims, rights, or remedies. A copy of this informed consent declaration will be given to me, and the original will be kept on record by the Researcher.
14. I **agree/disagree** (delete inapplicable) to the Researcher's request to take photographs, or videoing me as part of this research project, recognizing that agreement here is likely to raise the risk of compromising my anonymity and that steps will be taken to ensure this will not happen if my consent is given.
15. I **agree/disagree** (delete inapplicable) to the Researcher's use of voice recording of my comments and opinions during interviews, the purpose of which is to ensure the accurate recording of my views/responses. Furthermore, I have the right to request a copy of the interview transcriptions to confirm that my opinions are accurately recorded

I,, have read the above information / confirm that the above information has been explained to me in a language that I understand and I am aware of this document's contents. I have asked all questions that I wished to ask, and these have been answered to my satisfaction. I fully understand what is expected of me during the research.

I have not been pressurised in any way and I voluntarily agree to participate in the above-mentioned project.

.....
Participant's signature

.....
Witness

.....
Date

Appendix B: Interview Schedule



Department of Economics and Economic History; Phone -46-603 8301; Email D.Fryer@ru.ac.za

Interview Schedule: The Role of Local Level Agency in a Just Green Transition – the Case of Rhodes University

My supervisor, David Fryer, and I would firstly like to thank you for granting us an interview – it is immensely appreciated! My research is focused on sustainability and the economics of sustainability, which has always been a passion of mine and also serves as the inspiration for my Master’s dissertation.

Green issues and a focus on sustainability cannot be regarded as “nice to have”. Especially in the context of Makhanda, where great risks persist for any households, businesses and institutions who continue to rely on the local municipality for essential services such as water and energy provision. Furthermore, for Rhodes University it is not just an issue of mitigating these ever-persisting risks, but it is also of vital importance for the university to adopt sustainable technologies and embrace a just green transition in order to solidify the university’s brand in a highly competitive higher education world.

Similarly, it is important for local business and other players in the town to embrace a just green transition, not just to mitigate the risks of water and energy unavailability, but to consider this transition as a major growth area.

Rhodes University is an important actor in both the world of academia, as well as in the context of the local town, therefore the university is positioned to spearhead initiatives for collective action involving other local players. However, there is an apparent gap with regards to collective action and a just green transition. It is of utmost importance to note that there is no intention to cast the university in a negative light. On the contrary, Rhodes University has been at the

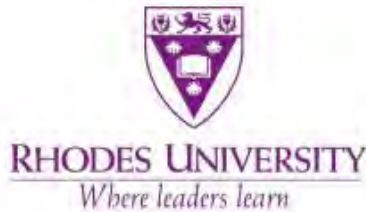
forefront in terms of attempting to mainstream transformation (e.g. with its Community Engagement initiatives) and is currently striving to optimise its institutional plan.

Through this research we intend to explore the potential of sustainability and a just green transition and we aim to understand the deeper reasons as to why there is a gap between this potential and practice. We want to focus on pro-activity and internal and external constraints.

Questionnaire:

1. What is your vision for sustainability and a just green transition, if there were no constraints, in the context of the town, Rhodes University, and your area of specialisation (e.g. finance, institutional planning, community engagement, research, teaching etc)?
2. What are the external constraints (i.e. those beyond the control of the university)?
3. What are the internal constraints?
4. What are the possibilities given these external constraints? What could be done, given these constraints, in the context of the town, Rhodes University, and your area of specialization?
5. Going forward (for example, with the current rethink of the institutional plan): Is sustainability as an investment mentality sufficiently mainstreamed? If not, what are the key internal and external impediments?
6. Is a good, strong relationship between the university, local business, local government and/or national government needed or necessary, in order to reach sustainability goals (such as UN Net Zero, but also at a local level)?

Appendix C: Ethical Approval (2022-5745-7932)



Rhodes University Human Research Ethics Committee

PO Box 94, Makhanda, 6140, South Africa

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NHREC Registration number: RC-241114-045

<https://www.ru.ac.za/researchgateway/ethics/>

31 August 2022

vanny nel

Email: g18n2370@campus.ru.ac.za vannynel88@gmail.com

Review Reference: 2022-5745-7032

Dear vanny nel

Title: The role of local level agency in a just green transition: the case of Rhodes University

Researcher: vanny nel

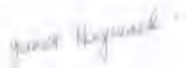
Supervisor(s): Mr Vanny Nel,

This letter confirms that the above research proposal has been reviewed and **APPROVED** by the Rhodes University Human Research Ethics Committee (RU-HREC). Your Approval number is: 2022-5745-7032

Approval has been granted for 1 year. An annual progress report will be required in order to renew approval for an additional period. You will receive an email notifying you when the annual report is due.

Please ensure that the ethical standards committee is notified should any substantive change(s) be made, for whatever reason, during the research process. This includes changes in investigators. Please also ensure that a brief report is submitted to the ethics committee on the completion of the research. The purpose of this report is to indicate whether the research was conducted successfully, if any aspects could not be completed, or if any problems arose that the ethical standards committee should be aware of. If a thesis or dissertation arising from this research is submitted to the library's electronic theses and dissertations (ETD) repository, please notify the committee of the date of submission and/or any reference or cataloguing number allocated.

Sincerely,




Dr Janet Hayward

Chair: Rhodes University Human Research Ethics Committee, RU-HREC

cc: Ethics Coordinator

Appendix D: Final Research Proposal

Research Project Proposal

Name of Student: Nel V
Student Number: G18N2370
Degree: Master of Commerce
Department: Economics
Provisional Title of Thesis: The Role of Local Level Agency in a Just Green Transition: The Case of Rhodes University.
Type of Thesis: Full Thesis
Name of Supervisor: Mr. David Fryer 
Estimated Date of Submission: November 2023

RECOMMENDED FOR APPROVAL BY HEAD OF DEPARTMENT

Recommended / Not Recommended

Signed: Your_HOD's_Signature

Date: Date_on_which_Signed

1. Field of Research

Micro Economics, Development Economics, Sustainable Economics, Environmental Economics.

2. Provisional Title

The Role of Local Level Agency in a Just Green Transition: The Case of Rhodes University

3. Research context:

According to Ramakrishna and Jose (2022: 65), the catastrophe that is climate change poses a great threat to sustainability. Climate change and the consequences thereof, are already evident in South Africa. In a report by Carbon Brief (2018), South Africa is the 14th largest emitter of greenhouse gases in the world. Erasmus *et al* (2018: 2) argues that climate change has severely impacted the air, food security and weather patterns in SA. Erasmus *et al* (2018: 2) argues that 4% of deaths recorded in SA in 2015 were linked to air pollution. Climate change is a pressing, global problem that affects local communities. Similarly, local activities have a wider impact, including at the global level. For example, cities have a considerable footprint as consumers of energy and potable water, and through their generation of greenhouse emissions and waste that impact freshwater systems and the ocean.

The issues of unsustainability and potential solutions have been framed in economic theory as follows. The core issue is externalities. According to Moselle (2010: 74), externalities are the costs (negative) or benefits (positive) that are imposed on a third party by another. Theoretically there are two broad approaches to solving externalities, namely, top-down and bottom-up. Pigou (1920: 163) argues that the state has the ability to control externalities through implementing incentives or restraints, such as taxes. This essentially draws on a top-down approach. Current policies and commitments at the global and national levels aimed at climate action, such as The Paris Agreement and Nationally Determined Contributions under the UN's framework, draws on this top-down approach. According to Bregman (2020: 65), governments are deemed necessary to regulate markets and control externalities.

However, the top-down approach, especially in the South African context, has been criticised. The WWF (2018: 7), has dubbed the South African government's efforts to steer the economy into a direction of green growth as a "public-relations exercise" and stated that the government has "failed to grasp the opportunities" that are associated with green growth. Furthermore the WWF (2018: 8) found that poor leadership, poor planning and poor implementation capacity are obstacles to a just green transition in SA. Death (2012: 12), argues that the biggest barrier to a just green transition is the institutional arrangements in SA. Chhatre and Agrawal (2009: 243) found "community management", essentially a bottom-up approach, to be more progressive. According to Leichenko (2011: 165), the focus of cities, and communities at large, needs to shift towards sustainable development and sustainable practices. There has been a global tendency towards top-down approaches; however, considering the South African case, it seems that government has been an obstacle rather than a facilitator of a just green transition. Therefore, it is imperative to consider bottom-up solutions.

Coase (1974: 363) states that government intervention is not necessary to resolve externalities and market economies are capable of reaching Pareto-efficient outcomes, if left alone. According to Ostrom (1997: 37), neither the state nor the market has been uniformly successful in resolving externalities or attaining long-term sustainability. Coase and Ostrom essentially draw on the bottom-up approach. Negative externalities are untapped opportunities (Moselle, 2010: 7). The Coase and Ostrom logic draw on trade and collective action, respectively, to resolve externalities. However there is another bottom-up solution at the micro level, which is essentially centred on the role of firms, institutions and/or organisations – the triple bottom line (TBL). The ultimate focus of this research will be the importance of a bottom-up approach and local, decentralized solutions. In theory, there is scope for different stakeholders to align and work together to resolve the problem in a way that benefits all.

There are three interconnected dimensions to sustainable development namely economic, environmental and social, which is the triple bottom line (TBL) (Wong., 2017: 375). Sustainability has been framed in various ways with the United Nations (2022), defining sustainability as "meeting the needs of the present, without compromising the ability of future generations to meet their own needs". The most relevant definition to this research however, is that "sustainable development is economic development that does not deplete or damage natural

resources” (Wong., 2017: 375). Sustainability ultimately encompasses the three dimensions that are economic, environmental and social. The TBL is an organisation’s attempt at meeting corporate social responsibility objectives that are “economically justifiable”, while also meeting environmental and societal expectations (Zak., 2015: 251). The bottom line, or core aspect, of the TBL is profits (Zak., 2015: 251). A just green transition refers to greening economic, institutional or organisational practices in a manner that is inclusive, fair and sustainable (Inderst *et al.*, 2012: 10). Sustainable development and the TBL are ultimately fundamentals of a just green transition. Rhodes University is a non-profit organisation therefore profits might not be regarded as essential. However the bottom line does extend to non-profits seeing that non-profits are concerned with costs and revenues. Revenue stream is of utmost importance in order for the institution to invest in infrastructure, increase funding for research, offer more scholarships, employ more academics etc. When further considering the micro-level, Wong (2017: 376), argues that by improving environmental performance, firms can improve financial performance through cost saving and positive market responses, such as improved brand image.

Despite a “myriad of benefits” that are associated with organisations adopting green practices, implementing these green practices in the organisations’ operations present numerous obstacles (Baki., 2018: 117). Potrich *et al* (2019: 273) found that firms that adopted a proactive approach to sustainable development and environmental awareness, gained considerable competitive advantage. Furthermore Potrich *et al* (2019: 274), argues that a reactive approach is inefficient and costly, whereas an appropriate proactive approach to environmental issues could result in cost-reduction and an increase in operational efficiency. Given the evidence that a proactive approach is beneficial, *why* are there firms that have not adopted this approach?

According to Govindan *et al* (2014: 558), the main obstacle for organisations to switch to sustainable practices is finance. Other obstacles include the costliness of green systems, lack of knowledge on the benefits of sustainable practices, lack of expertise with regards to the implementation and adoption of sustainable technologies, and lack of top management commitment to sustainability (Baki., 2018: 119).

Bottom-up approaches and action at the local level by entities with significant agency, such as Rhodes University could prove pivotal. The Rhodes University Annual Report (2020: 16) claims that the university is by far the largest employer in the Makana region, and contributes between 60% and 65% of GDP in this region. According to Rhodes University (2020), one of its missions

is to pursue “a policy of environmental best-practice”. Rhodes University has significant agency and has policies or goals in place to be more sustainable. Due to this agency, it is imperative to investigate the university’s *potential* with regards to sustainability. Is Rhodes University optimising its triple bottom line? And if not, what are the *constraints*?

Sibindi (2021: 57) argues that tertiary education institutions have "lagged behind" in implementing renewable energy policies. While there have been other studies on the role of local agency in South Africa (van Wyk., 2018: 31; Morombo., 2016: 146) and internationally (Stoknes and Rockstrom., 2018: 42; World Economic Forum, 2021), an intensive study of the case of Makhanda and Rhodes University is of great interest for two reasons. Firstly, while the findings may not be directly generalisable to different contexts, the study may yield insights and hypotheses that may be valuable to different contexts where the same basic problem of slow implementation of green policies by entities with apparent agency, applies. Secondly, even to the extent that the results are not generalisable, Makhanda is a significant town, and Rhodes University is an important potential change agent, both locally and because of its wider teaching, community engagement, and research mandates.

4. Goals of the Research

The main objective of this thesis is to explore the potential contribution of local level agency to a just green transition in South Africa, and the constraints to achieving this potential, using the case of Rhodes University.

Some sub-goals this research serves to address are:

6. To determine how sustainability is conceptualised at the multilateral, global and local levels, with a particular focus on the role of local agency, and how this connects with concepts such as triple bottom line and just green transition.
7. To contextualise Rhodes University, in its roles as both an important player in the local economy (Makhanda) and as part of South Africa’s higher education system.
8. To explore the extent to which sustainability is proactively integrated into the university’s planning, and the potential drivers and constraints to such integration.
9. To explore the generalisability of results drawn from the Rhodes University case and to outline insights for broader question of sustainability.

5. Methods, Procedures, Techniques and Ethical consideration

This study is located in a post-positivist paradigm and will make use of a qualitative research approach, based on primary and secondary research. Qualitative research consists of methods that are sound, well-grounded and that provide rich descriptions of processes in identifiable local contexts (Castleberry and Nolan., 2018: 5). Furthermore, Castleberry and Nolan (2018: 7), argue that qualitative research approaches have become increasingly popular because they provide insight into data that goes far beyond numbers.

According to (Denzin and Lincoln., 2008: 19) qualitative research is a bricolage consisting of numerous interconnected methods that aim to capture the essence of a phenomenon. The qualitative approach suits this research area, as it focuses on the local context. The qualitative, post-positivist approach, aims to produce an in-depth picture that values the individual responses of participants and especially appropriate when the questions that are asked by the researcher do not have one precise answer, and are challenging to answer (Ryan., 2006: 10). Post-positivism emphasises the need for new meaning, ideas and knowledge (Ryan., 2006: 10).

The research method consists of a broad literature review, a detailed analysis of existing publications and grey literature, and in-depth interviews with well-positioned individuals.

Qualitative research often consists of thematic analysis that aims to identify, analyse and report patterns or themes within data (Braun and Clarke., 2006: 87). Furthermore Braun and Clarke (2006: 89) argue that thematic analysis provides an interpretation of surveys and interviews that are transparent and provides a level of depth that quantitative analysis lacks. This research study aims to conduct a thematic analysis of primary data collected using in-depth interviews with key informants. The primary research will be based on findings from semi-structured and open-ended interviews with key informants and will probe themes highlighted in the literature. The questions will be structured in a manner that will give insight into specific themes such as financing, institutions relationship with the government, costliness of adopting green systems/practices, commitment of top management to sustainability, and awareness of the benefits and costs of sustainability.

The interviews make use of purposive sampling. The purposive sampling method pertaining to our field of research is *Expert Sampling*. As stated in the name, expert sampling aims to gain insight and information from individuals who are well-informed in their fields (Etikan *et al.*, 2005: 3). The sample will consist of individuals who are well-positioned at Rhodes University, with a lesser focus on the municipality, as well as a local supermarket. Galetta (2013: 34), states that interviews should be concluded once the interview data from participants no longer generate new thematic patterns. The aim is to interview at least two people with expert knowledge pertaining to each theme, and aim to conclude the interview process if, or once, this point of saturation is reached.

OPTIONS	SELECTION
<p>An ethics application form for HUMAN SUBJECTS will be submitted using the Ethical Review Application System (ERAS) to RUEESC via the Departmental/Business School Ethics Representative.</p>	<p>Please indicate risk level</p> <p><input checked="" type="checkbox"/> Low</p> <p><input type="checkbox"/> Medium</p> <p><input type="checkbox"/> High</p>

